

BEYOND “OVER-THE-TOP” TELEVISION: CIRCUITS OF MEDIA DISTRIBUTION  
SINCE THE INTERNET

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A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Communication.

Chapel Hill  
2018

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## ABSTRACT

Ian Murphy: Beyond “Over-the-Top” Television: Circuits of Media  
Distribution Since the Internet  
(Under the direction of Richard Cante and Michael Palm)

My dissertation analyzes the evolution of contemporary, cross-platform and international circuits of media distribution. A circuit of media distribution refers to both the circulation of media content as well as the underlying ecosystem that facilitates that circulation. In particular, I focus on the development of services for streaming television over the internet. I examine the circulation paths that either opened up or were foreclosed by companies that have been pivotal in shaping streaming economies: Aereo, Netflix, Twitter, Google, and Amazon. I identify the power brokers of contemporary media distribution, ranging from sectors of legacy television—for instance, broadcast networks, cable companies, and production studios—to a variety of new media and technology industries, including social media, e-commerce, internet search, and artificial intelligence. In addition, I analyze the ways in which these power brokers are reconfiguring content access. I highlight a series of technological, financial, geographic, and regulatory factors that authorize or facilitate access, in order to better understand how contemporary circuits of media distribution are constituted. I consider access as a regulatory issue, a foundation of business models, a design concern, and as a function of interoperability that facilitates communication amongst platforms, devices, and other systems of networked technologies.

## ACKNOWLEDGEMENTS

First and foremost, I would like to thank my incredible advisors, Richard Cante and Michael Palm, who were with me from the very beginning of my time as a graduate student. I am lost without your tireless efforts, encouragement, advice, critiques, and friendship, and I am exceedingly proud to have had the opportunity to work with each of you.

I would also like to thank my committee members, Victoria Ekstrand, Jennifer Holt, Daniel Kreiss, Alice Marwick, and Neal Thomas. Your feedback has been invaluable to me, and you have all been so generous with your time. I left my defense feeling so grateful to have had such an intellectually inspiring group of people evaluate my work.

To my partner, my wife Jessica Adams: thank you for keeping me afloat throughout this process. We have eclipsed so many life milestones together. Here's to one more, and to many future milestones to come.

To my dog, the noble Niblet, who lay beside me as I typed each and every page, and who was always willing to stroll around the neighborhood when I needed to clear my head. Rock on, my furry little friend.

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## *Introduction*

### **Overview: Distribution from Broadcast to Broadband**

My dissertation analyzes the evolution of contemporary, cross-platform and international circuits of media distribution since the internet. A *circuit of media distribution* refers to both the circulation of media content as well as the underlying ecosystem that facilitates that circulation. In particular, I focus on the development of services for streaming television over the internet. I examine the circulation paths that either opened up or were foreclosed by companies that have been pivotal in shaping streaming economies: Aereo, Netflix, Twitter, Google, and Amazon.<sup>1</sup> Television—and in particular streaming television over the internet—serves as a useful point of entry for cataloguing and analyzing the levels of upheaval in post-internet circuits of distribution for popular entertainment. Television is situated between the power structures of Hollywood and Silicon Valley, and the changes inherent to internet television therefore become a testament to the level of influence that each sector has over the other.

In addition, I describe and analyze the maturation of the underlying contemporary ecosystem for media distribution. Within this system, particular circuits of distribution are characterized by a convergence of legacy media sectors—in particular those involving television—with a multitude of developing formations of networked technologies. These convergences encompass everything from social media platforms to automated advertising systems, from personalization and curation algorithms to geolocation tracking software, from

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<sup>1</sup> Aereo is now defunct and did not directly wield power or influence that comes close to Netflix, Twitter, Amazon, or Google. Nevertheless, the Supreme Court decision in which Aereo was involved was a pivotal moment in the development of streaming television over the internet.



live local broadcast feeds to global streaming initiatives, from major corporate entertainment regimes to informal networks of content access, and from artificial intelligence to the so-called Internet of Things. This dissertation is broken into a series of four case studies, one per chapter, to document and analyze the technological, economic, sociocultural, and regulatory stakes of contemporary content distribution.

The first chapter focuses on *ABC v. Aereo*—a 2014 U.S. Supreme Court case about unauthorized retransmission of local broadcast signals over the internet by Aereo, a streaming service startup—in order to establish how federal regulatory policies for legacy media like broadcast television continue to shape the conditions for contemporary media distribution. In the second chapter, I analyze Netflix’s international expansion of its streaming service and highlight another pivotal issue for online distribution: geoblocking, or the regional fragmentation of content access throughout the world. The third chapter examines Twitter’s foray into livestreaming, in order to document how social media companies are experimenting with integrating broadcast programming into preexisting platforms and services that distribute more than just television. The final chapter presents a case study about a dispute between Amazon and Google over the compatibility of cross-platform streaming media in the “smart home.” These two corporations are each building all-purpose distribution ecosystems, of which their streaming media platforms and devices are only a small part. This dissertation thus builds a distribution circuit that begins from an older media formation—over-the-air broadcasting—and culminates in an analysis of how the circulation of television fits into a much larger distribution ecosystem that extends far beyond traditional media industries.

There are two core components that together inform my conception of post-internet distribution circuits. First, I identify the *power brokers* of contemporary media distribution. They

range from sectors of legacy television—for instance, broadcast networks, cable companies, and production studios—to a variety of new media and technology industries, including social media, e-commerce, internet search, and artificial intelligence. Second, I identify the ways in which these power brokers are reconfiguring *content access*. I highlight a series of technological, financial, geographic, and regulatory factors that authorize or facilitate access, in order to better understand how contemporary circuits of media distribution are constituted. Moreover, my analysis details how distribution circuitry comes to be increasingly interconnected. I consider access as a regulatory issue, a foundation of business models, a design concern, and as a function of interoperability that facilitates communication amongst platforms, devices, and other systems of networked technologies. In the next two sections, I expand on distribution power brokers and then content access, situate them within existing debates about media distribution, and explain my own intervention into these debates.

### **Online Streaming and New Power Brokers of Media**

The second decade of the twenty-first century has seen an acute increase in commercial online video streaming services. Broadcast and cable networks certainly have helped influence the shape of these services. So too have the various multichannel video programming distributors (MVPDs), the umbrella term given to cable, satellite, and telecom companies that provide televisual content to consumers. At the same time, a set of new stakeholders have emerged from social media, e-commerce retailing, search, cloud computing, and video gaming, among other tech-based industrial sectors. Each of these sectors contain some important connections to television. Social media companies like Twitter thrive by aggregating their platform traffic into “audiences,” offering gateways for content providers and advertisers. E-commerce retailers like Amazon—and in its first iteration as an online disc rental service, Netflix—established inventory

for selling and renting physical media forms like DVDs, as well as a working interface and infrastructures for data collection and storage. Google parlayed its dominance in search to provide, alongside data analytics firms and other facilities that manage internet traffic, crucial backbones for the distribution of data rich media, like video. Internet-enabled video gaming consoles offered set-top boxes that provided some of the initial alternatives for porting content to the television set beyond those means dictated by cable companies. In addition, video games and social media offer important gateways to a younger generation of television fans, the so-called cord cutters and cord-nevers.

I focus on identifying the key actors for media distribution circuits and situating them within the broader distribution ecosystem. One upshot of this focus is that it renders distribution visible. Distribution has been largely understudied relative to consumption and production. This dissertation thus joins in existing academic debates that argue for the importance of continuing to foreground distribution in studies of media and popular culture. For instance, Josh Braun (2015) notes that people have little sense of the path that media takes in getting to us when we access content through mobile devices or our televisions: the nature of the delivery path, what types of businesses and entities are involved in the transmission, what sorts of algorithms are recommending content to us and why, what data is being generated in the act of distribution (the search for content, the transmission of content, and so on), and what is being done with that data. This dissertation, then, is in part an act of discovery and description, of uncovering these “invisible” linkages that remain concealed through some combination of complicated technical pathways; interface design; marketing and other business strategies; and legal policies.

This dissertation extends Braun’s approach by moving beyond his focus on news media. This dissertation focuses on a wide range of companies and distribution paradigms to capture the

interconnectedness—and the complexity—of contemporary distribution. The cases center on different kinds of companies: a now defunct technology startup, Aereo; an international entertainment corporation, Netflix; a social media platform, Twitter; and two multinational tech conglomerates, Amazon and Google. Individually, each case study spotlights how specific content producers, distributors, regulatory bodies, technologies, material infrastructures, and consumer-users are arranged in circuits of distribution. Collectively, the case studies illuminate how circuits of media distribution are increasingly embedded within emerging systems of networked technologies. Each case study isolates distinct portions of contemporary circuits of distribution to analyze some of the unique ways that individual companies—namely Aereo, Netflix, Twitter, Amazon and Google—have influenced the development of content circulation.

Moreover, identifying the sectors and entities paramount to contemporary distribution reveals the still relevant influence of mass media sectors. The distribution circuits analyzed in this dissertation are all hybrids of both older, mass media formations and emergent broadband models. This focus on hybridity extends calls from Andrew Chadwick (2017) for media research to account for how “older” and “newer” media practices intersect, where such distinctions matter, and where they no longer matter. Chadwick uses hybridity to explain the media’s role in political life and political communication. My dissertation takes steps in extending these contexts. For instance, I focus on how hybridity complicates the legal interpretation and economic exploitation of media policy. In addition, each of the companies in my case studies facilitate modes of circulation that are both authorized and unauthorized—as well as formal and informal—to one degree or another in ways that are explored further in the chapters. Thus, my dissertation conceives of distribution circuits as hybrids while also moving beyond broadcast (“older media”) and broadband (“newer media”).

Identifying the actors and entities who facilitate circulation—the corporate circuitry—also entails classifying them in some way. It is important to recognize not only who the critical players in contemporary distribution are, but also what they do. How these companies operate—and what kind of companies they are—can have profound economic and regulatory implications. Debates over classification typically fall into binaries. Businesses are framed as either platforms or publishers (Gillespie 2010), technology companies or media companies (Napoli 2016), conduits or distributors (Kimball 2015). Recent debates about net neutrality center in large part around distinctions between Title I telecommunications services and Title II information services. Traditionally in the United States, the former categories—platform, tech company, conduit, telecom service—bear much lighter regulatory burdens than the latter categories. Such categories thus become attractive to Silicon Valley companies who claim they are in the business of facilitation, or who serve “merely” as intermediaries, even as they move more aggressively into commissioning, licensing, or producing programming and other forms of content. This dissertation moves these debates forward by illustrating the extent to which such binary categorizations are misleading, as the companies in this dissertation perform a number of roles—indeed, a “hybrid” of roles—across multiple contexts in contemporary distribution circuits.

### **Reconfiguring Content Access**

Identifying and analyzing the power brokers addresses who or what controls distribution. I use this section to define how I deploy the term distribution in the first place. In this dissertation, distribution encompasses the processes of commercialized digital content circulation, as well as the underlying technical, regulatory, and commercial infrastructures that facilitate and otherwise structure that circulation. Within this extremely broad rubric, I focus in particular on how Aereo, Netflix, Twitter, Amazon, and Google strategize about content access.

Specifically, I concentrate on how these companies gain access to content themselves, how they build their streaming services for access by consumer-users, and which sectors of the distribution circuit they target and operate in (for instance, platforms, consumer electronic devices, software applications, content ownership, and geographic markets).

Distribution, as Curtin et al (2014) note, has served as the cornerstone of financial success for content industries like Hollywood. This success is built on business models that stagger access to content, so that content is only available in certain places at certain times for a certain predefined duration. The proliferation of delivery platforms, screens, and streaming services complicates how media and tech companies conceive of access. For each of the companies in this dissertation, access itself becomes the fulcrum point around which such companies operate. They built streaming services (Aereo and Netflix), open social media platforms (Twitter), and entire distribution ecosystems (Amazon and Google) with distinct strategies for convincing people to use or join, keeping people inside, encouraging people to use in certain ways, and preventing people from entering or using in other ways. Access thus becomes a useful point of analysis for understanding how post-internet distribution circuits are constructed and operate.

I analyze access in four ways. First, access is a regulatory issue, both in terms of legal statutes and licensing agreements between content rights holders, distributors, and consumers. Second, managing access is a fundamental principle for the business models of these companies. Third, access is a matter of design, whether through content curation, recommendation algorithms, how consumers control or otherwise interact with content, or mechanisms of monitoring and policing content flows (or “content moderation”). Finally, access is a question of interoperability across platforms, devices, and other systems of networked technologies.

Together, these four conceptions of access help to explain how businesses deploy technologies to control the conditions under which distribution takes place. Below I briefly elaborate on how I foreground each conception in a single chapter; however, all four are present across all chapters.

Considering access in terms of regulation directly relates to the task of classifying distribution actors. For one, the capacity to reconfigure access is inextricably tied to the roles that the corporate circuitry play as, for instance, intermediaries of circulation or as active producers or publishers. This relationship between access and the role of distribution channels looms large in discussions over the regulation of media that are germane to this dissertation, including Jennifer Holt (2016) on cloud policy, Danny Kimball (2015) on net neutrality, and Philip Napoli (2017) on the policy distinctions between media companies, social media platforms, and online content aggregators. This dissertation adds to the study of regulation by foregrounding a largely ignored policy, retransmission consent, in the first chapter. Aereo attempted to argue in court that it was merely facilitating the retransmission of broadcasts by its users, rather than actively circulating the feeds, to defend itself against the charge that it did not obtain consent from broadcasters to do so. Requiring such permission by leveraging the retransmission consent policy has become an incredibly lucrative revenue source for broadcast networks. However, making money from retransmission consent represents a failure of regulatory oversight, as broadcast networks have coopted power over content access by overriding the protections that such policies were meant to implement. While I foreground this particular policy in the first chapter, the general concern over regulatory failure and its relationship to the circulation of television programming (and other digital content) permeates all of the case studies to some degree.

Regulatory concerns over access are intertwined with the business models that streaming services employ. By and large, these revenue models govern access to content both between

businesses (through the terms of licensing agreements) and between businesses and consumers (through paid subscriptions, for instance). Attention in academic research to business models of contemporary distribution tend to either note how media companies are experimenting with new revenue models (see Curtin et al 2014) or become entrenched in old ones (see Mann et al 2014). In this dissertation, I focus on how issues of access can create simultaneously conflicting financial incentives. For instance, online streaming services face complicated questions about how differential access to content relates to revenue. In the Netflix case, geoblocking erects digital fences around the company's content libraries across the world, based on the terms dictated by the licensing agreements. Regional windows allow content rights holders to generate revenue from a variety of geographic markets. Netflix is asked to police these borders, as consumers actively evade them to gain unauthorized access to shows and films not available in their area. At the same time, Netflix stands to profit from this circumvention, because those people who successfully circumvent the geoblock end up paying for the service. This analysis connects corporate strategies of content circulation to video streaming infrastructures, and unequal content access. However, there are similar stories across the four case studies, where elements of a streaming service upend distribution conventions, which can lead to costly conflicts, while also offering opportunities for generating revenue.

Design strategies are also built into conceptions of access in this dissertation, in particular as they relate to encouraging certain activities or modes of use while foreclosing others. But design strategies can be intentional as well as reactive, and design often emerges by accident as much as it is purposely planned. Twitter has become infamous for its laissez faire attitude and management over access to its site, including identity verification and policing trolls. With its deal to livestream NFL games, Twitter incorporated live video from a broadcast network into an



open-access platform running on user-generated content. Twitter then became an insular ecosystem for television programming, where users could watch, comment on, and follow journalistic coverage of live sports in “real time.” This arrangement created design complications for syncing up the flow of the game with the tweeted commentary on the game. Moreover, the authorized broadcast would now intermingle with unauthorized, user-generated retransmissions that also existed on Twitter and Twitter-owned Periscope. The integration of these components creates a hybrid distribution circuit, mixing the formal with the informal, as well as the approved and unapproved. The other case studies also consider the design of a hybrid distribution circuit: Aereo built its service by attempting to retransmit programming without permission; Netflix subscribers circumvent geofences; Amazon and Google deploy technical workarounds for unblocking the interconnection between streaming platforms like YouTube and smart speaker devices like the Amazon Echo Show.

This last example leads into concerns over interoperability, the final conception of access that this dissertation analyzes. By interoperability, I mean the connective tissue that enables communication amongst the software applications, consumer and infrastructural hardware, content delivery networks, and data storage platforms that together facilitate content circulation. The interconnection—and the fragmentation—of distribution circuits depends on contractual agreements amongst commercial (and some non-commercial) actors, especially among companies that are otherwise competitors. However, this conception of access highlights how malleable, flexible, and adaptable post-internet distribution circuits can be, especially when the circulation of conventional media forms (like television programming) becomes subsumed by broader systems of networked technologies like the Internet of Things. The conflict between Amazon and Google that serves as a catalyst for the final chapter underscores this point. On the

surface, their dispute is about Google removing YouTube from Amazon’s Echo Show smart speaker. But for both Google and Amazon, streaming video is only one part of a conglomerated, diversified set of business interests centered on technologies of the home. The conflict over YouTube thus becomes part of a much larger power struggle between two tech giants who are both working to build entire an entire ecosystem of interoperable technologies in the home, all funneled through a central device like the smart speaker.

Conceiving of access in terms of interoperability broadens the scope of this dissertation project beyond conventional media industries. Existing work on media distribution tends to keep its analysis within the discrete parameters of such industries and media forms, including music, movies, television, video games, news and journalism, and so forth. For the most part, this dissertation also remains within the bounds of such conventions, by focusing so much on internet television. However, I lay the groundwork within these four case studies for expanding beyond such constraints, while also never losing sight of them.

### **Dissertation Structure: Case Studies and Sources**

I use “circuit of distribution” to examine the issues in this dissertation. I draw the “circuit” from previous work in media and cultural studies, which has been used as a tactic of visualizing *what* is being studied, while also pointing to the *way* it is studied.<sup>2</sup> My interest here is in the processes of distribution, how such processes operate, who or what kinds of institutions, companies, and regulatory bodies are instrumental to such operations, and the strategies at play in implementing such processes. The circuit becomes a useful heuristic for visualizing processes

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<sup>2</sup> Richard Johnson’s (1986) circuit model illustrated how the circulation of cultural products also simultaneously involves the circulation of subjective forms, which for him served as the ultimate object—or domain—of analysis. Hall et al (1997) modify this model with their circuit of culture approach, which examines the linkages amongst five “cultural processes” in production, consumption, identity, representation, and regulation. Julie D’Acci (2004) further refines the approach with a “circuit of media study” model that lays out the interplay among cultural artifacts, production, reception, and socio-historical context.

of distribution, as well as a grounding framework of analysis for understanding these processes in relation to each other. Its flexibility allows me to capture the complexity of contemporary distribution while also attending in part to some of the historical antecedents at play in the case studies—like broadcasting and cable regulations for Aereo; traditions of content licensing practices and copyright policies for Netflix; evolving stances on informal distribution technologies from protective media organizations like the NFL and broadcast networks for Twitter; and the role that circulating conventional media programming plays within much larger distribution ecosystems for Google and Amazon.

I extend the concept of the circuit to focus more explicitly on distribution. In doing so, I amend previous conceptions of the circuit, which tend to be largely circular. My own circuit would be illustrated more as a Venn diagram than as a circle, by exploding the more conventional “sites” in previous circuit models—like production or cultural artifacts—to see how the sites on the circuit come to be constituted through processes of distribution. In this dissertation, I use circuits of distribution to explore the expansive, fragmented, movement of media across platforms, technical formats, and geopolitical borders. I take the circuit to account in the broadest way possible the series of components that constitute the circulation of media—and in each of the cases in this dissertation, of television programming—over the internet. These components include the paradigms of content circulation, including older legacy models like broadcast, cable, and satellite, alongside the more emergent paradigms like broadband, social media, software applications, and interconnected networks of devices like the Internet of Things. These paradigms are akin to logics of media (van Djick and Poell 2013). Media logics, broadly speaking, are defined as “the set of principles or common-sense rationality cultivated in and by

media institutions that penetrates every public domain and dominates its organizing structures” (3).

I examine here some of the principles that govern the management of resources in economic terms, for example by analyzing how each company in the four case studies works to enact boundaries of artificial scarcity to exercise more control over the circulation of content, in the face of (and sometimes using) technologies of distribution that are built to cultivate abundance. At the same time, I analyze media logics that manifest in terms of organizational hierarchies and power structures, as with the notions of centralized versus decentralized mechanisms of control. My research details the establishment, maintenance, and evolution of contemporary content delivery circuits, which are comprised of a complicated network of telecommunications infrastructures that interact with social media and streaming platforms. This dissertation emphasizes that these circuits are entry points to underlying processes of digital distribution, whereby legacy mass media logics become intertwined with newer logics of social media and internet-based technologies. For instance, the centralized control over content circulation that characterized traditional mass media confronts the programmability of web-based applications, where consumer-user interactions on such platforms can reroute content in ways as significant as the decisions of producers, and that are anticipated by producers in advance. These paradigms consist of a host of infrastructures, technologies and processes of distribution. In addition, I focus on a series of companies and industries that regulate the circulation of media content.

The way that I deploy the term “media” here, in terms of internet distribution, is largely rooted in older work on media convergence, which was a function of fetishizing digital media, whereby discrete media forms—music, news, film, television, books, and so forth—could be

reduced to their binary code in digital form, and then how multiple end points of distribution came together into a single consumer electronic device or a single medium. Alongside this older thinking about convergence by media theorists stood those attending to the rash of mergers between legacy media paradigms and telecommunications or internet technology companies. These mergers illustrated a concentration of ownership over different kinds of media content, as well as over different forms of media distribution. This form of thinking about convergence seemed to shift during the early 2000s, and especially with Henry Jenkins' work on convergence culture from 2006. New media was no longer thought to subsume or displace older or legacy forms. Instead, for Jenkins convergence referred to "the flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behavior of media audiences who will go almost anywhere in search of the kinds of entertainment experiences they want" (2006, 2). For Jenkins, convergence allowed for more grassroots and participatory forms of media to emerge, alongside and within networks of consumer empowerment. One of the main factors that distinguishes this dissertation from Jenkins's model is that I am more interested in the systems of distribution beyond consumer empowerment.

What I am doing here is a more descriptive project of a few specific processes of distribution, as instantiated through corporate entities. I am confining the scope of my conception of media—or more abstractly, of that which is distributed—largely to television programming over the internet. Doing so lays down a solid foundation from which to build off in future projects, by incorporating for instance different conceptions of the distributed like "information" or "data." It does so through an acknowledgement that, for instance, the major cable and telecommunications companies that supply consumers with access to the internet in the first place—the bottlenecked "last mile" from which conventional media forms as well as more

abstract products like information and data flow—are in many ways the focal points of the distribution circuit. As such, grounding the analysis within the confines of conventional media is an essential first step to understanding the constitution and operations of such distribution circuit to begin with.

This dissertation is exactly the inverse of Amanda Lotz's (2017) recent book *Portals: A Treatise on Internet-Distributed Television*. Whereas Lotz focuses more explicitly on how internet distribution changes the kinds of television that is made, and how such programming is organized for consumption, this dissertation uses internet television to ground case studies in the constitution and operation of media distribution circuits. I work across the spaces between that older model of media convergence—grounded in cable, “interactive television,” and discrete moving-image texts—and the more emergent model based in multiple devices (rather than the singled medium), mobile and social media, targeted and distributed media, data and metadata analytics, new ideas about and problems of “interoperability,” and logics of information. The general trajectory of each chapter traces and explores the spaces between these models in distinct ways. In addition, the overall arc of the dissertation moves across these interstices, culminating in the final chapter on new configurations between industries and industrial functions. Unlike Lotz's emphasis on how the internet changes television as a cultural form, the focus of this dissertation necessitates a hybrid model and set of approaches that works between and amongst traditions connected to business case studies, legal studies, film studies, television studies, communication studies, developing interest areas of journalism, economics and public policy, cultural studies, internet studies, science and technology studies, and media studies. The circuits of distribution that this project takes as its objects hold together the nodes of distribution, the

means of distribution, and the media programming (that which is distributed) as these developments since over-the-top television continue to take shape.

I draw from a wide range of secondary documents, including news stories, company blog posts, court cases, academic and popular press books, trade journals, and other sources that articulate some of the issues of cross-platform and international distribution that I raise here. I worked to identify patterns, themes, and connections across this array of disparate sources, and used these findings to identify and analyze assumptions, trends, and stakes that underlie the entrance of new geographic or technological markets by technology startups, entertainment streaming companies, social media companies, and multinational tech conglomerates. I ground this dissertation in critical media industries studies, and in particular the goals of the Connected Viewing initiative, a research collaboration started at the University of California, Santa Barbara between academic researchers and media industry practitioners. In particular, my research builds upon recent work that has shifted focus toward distribution, relative to media studies' more common focus on production and consumption. Following from these efforts, I document and critically analyze the "broader ecosystem in which digital distribution is rendered possible" (Holt and Sanson 2014). I draw from work that focuses on the industrial background through which the control of circulation and access of media content occurs. I chose television as the primary mode for understanding all of these changes, in the first place, because it serves as such an important bridge between older but still present twentieth-century technological formations and more emergent formations from the twenty-first century. The point was not to make this dissertation about television on the internet, but rather to use the circulation of television over the internet to identify how contemporary, post-internet circuits of media distribution develop and intermingle.

In the first chapter, I use the Supreme Court case *ABC v Aereo* to trace the rise of retransmission fees within the context of the emergence of broadband distribution and internet-based television. Aereo was a technology startup that captured broadcast television signals and retransmitted them over the internet. They charged users a subscription fee, but did not ask for permission from, or offer payment to, the broadcast networks. The networks then sued Aereo, and the case went all the way to the Supreme Court before Aereo was forced to shut down. In this chapter, distribution becomes a matter of threading discrete but overlapping technical infrastructures—broadcast, cable television, and broadband internet—through a web of business-to-business financial contracts. These contracts are dictated by retransmission consent, a provision of the 1992 Cable Act that dictates rules about content circulation between networks and distributors. Retransmission consent is at the heart of the first chapter’s case study, the Supreme Court case *ABC v. Aereo*. Using retransmission consent as an analytical focus underscores the issue of *carriage*, which indicates which parties are responsible for carrying a televisual signal, what imperatives drive those responsibilities, and what kinds of contractual agreements stitch them together.

Policymakers implemented retransmission consent in 1992 in large part to safeguard local broadcast stations against perceived competition from larger cable operators. The major broadcast networks have weaponized retransmission consent in the internet era to generate money through retransmission fees. These fees ballooned from \$28 million in 2005 to \$7.7 billion at the end of 2016. Broadcast networks continue to exploit retransmission consent largely because federal policies do not account adequately for the proliferation of broadband-era means of distribution. By leveraging retransmission consent in a way that is at odds with the original mandate, broadcast networks have come to exert a great deal of power over the industry



standards that dictate rules about how television programming can circulate over the internet. *ABC v. Aereo* serves as a landmark moment in the history of internet-based streaming media, when internet television graduated from being a threat to legacy media companies to a mode of circulation that is officially sanctioned by broadcasters and cable networks.

To support this claim, I first document Aereo's company history and the underlying technological makeup of its streaming service, which demonstrates the connections between legacy media like broadcast television and Silicon Valley both in the makeup of Aereo's executive board and its technical infrastructure. I then offer a history of the retransmission consent policy and the rise of retransmission fees, which I cobbled together from academic histories of cable, broadcasting, and media policy; news stories about programming blackouts from the past decade; and reports from congressional and regulatory bodies on media policy. This history allows me to illuminate the importance of broadcast-era regulatory policies for contemporary broadband distribution, and account for how broadcast networks have coopted federal regulations for financial gain. I then analyze the rulings of the lower Circuit Court as well as the Supreme Court by reading the arguments made by both the broadcast networks (the plaintiffs) and Aereo (the defendant), the written decisions from the Circuit Court judge and the Supreme Court justices, and news stories written about the case. By doing so, I show how legal decisions—and popular discourse around legal decisions—come to influence the structure of distribution circuits.

My second chapter analyzes Netflix's international expansion. This case study offers insight into how consumer viewing habits, technologies of information infrastructures, and content licensing practices intersect to shape the international circulation of media and structure access to it. I focus my analysis on geoblocking, a technology of access control that uses internet

protocol address databases to determine a user's physical location via internet-connected devices. For people who stream media, geoblocking manifests itself most explicitly when access to certain content is blocked, and viewers are instead met with a message on their screen that says "this video is not available in your location." It is common practice for a streaming service like Netflix to offer dissimilar content libraries in different countries and regions. Such an arrangement requires international distributors to negotiate for multiple content licenses of the same show, while also offering opportunities for service customization based on language or territory. On the other hand, Netflix users often circumvent geographic restrictions to gain access to content unavailable in their area. Content rights holders pressure Netflix to regulate such circumvention efforts, which they characterize as a form of piracy. However, these "pirates" are in fact paying Netflix subscribers, creating a dilemma that partly incentivizes Netflix to ignore its policing responsibilities. These new policies and practices are restructuring the international circulation of television programming.

I analyze how Netflix operates internationally and how its actions reflect a strategy of global expansion, within the context of geographic market segmentation that geoblocking represents. To do this, I focus on three core areas of Netflix's business: content, subscribers, and infrastructural technologies. First, the international distribution of streaming digital media brings with it a series of challenges for how Netflix deals with *content* both in terms of licensing third-party television and films and for branding its Netflix Originals. Second, international streaming in fragmented markets reconfigures how Netflix conceives of its *subscribers* in terms of the recommendation system and viewership data, in ways that upset more traditional metrics of viewership "success." Third, Netflix's rapid and aggressive moves abroad has meant adjusting how it manages the various infrastructural technologies that serve as the backbone for the

streaming service. Netflix works to effectively manage both the massive flow of data traffic that its service generates and the circumvention of filtering technologies that map geographic borders onto digital spaces.

To build this analysis, I organize a collection of disparate sources, including Netflix's financial reports and regulatory filings, their public correspondence and recordings, their marketing materials, news reports about them, and popular and academic business histories of the company. By reading these sources together, I analyze how Netflix has operated in light of the many complications involved in running an internationally expanding video streaming service. I contextualize these analytical insights by drawing from academic work on differential content access across geopolitical regions, international regulatory regimes, and the evolving business of licensing, production, and distribution of television programming.

While geopolitical borders continue to complicate the distribution of television programming, live television represents a lucrative frontier for social media platforms the world over. The third chapter investigates the evolving relationship between conventional television and social media through an analysis of Twitter's foray into livestreaming broadcast feeds. In particular, this chapter examines Twitter's deal with the NFL to stream select regular season games through its platform during the 2016 season. The economics of live television continue to be driven by metrics that measure audience size, which helps determine advertising revenue. This incentive structure has led to experimental alliances between content owners and social media companies whose users represent massive potential audiences. In these partnerships, social media is evolving into a primary screen, where users can watch live "television" on the social media platform itself. This chapter offers insights into how Twitter attempts to reinvent itself as a hybrid video content gateway through which users can access live television. Part of

this transformation means bringing together a popular medium for user-generated content, where the barrier to entry for new users is so low that people do not even have to sign up for an account to use the service, with broadcast television, an industry that is notoriously consolidated and operates on a model that bottlenecks the flow of information down to a few select “voices.”

The Twitter case highlights the evolution of the distribution circuit to include social media platforms. Initially useful for television distribution as a second screen—a place for content owners to publish supplemental content and for fans to interact with the show and with each other—Twitter morphed into its own version of a television screen for live content on an international scale. The Twitter case study expands the distribution circuitry to include platforms that initially operated adjacent to or wholly apart from conventional television, but which have come to experiment with its delivery over the internet. By integrating its livestreaming initiative into its platform for user-generated content, Twitter created an entire ecosystem of the television experience by facilitating the ability to watch, react to, and follow journalistic coverage of programming—and even generate unauthorized retransmissions—all in the same place.

In this chapter, my primary sources are news articles about Twitter’s experiments with livestreaming. In particular, I focus on stories about Twitter’s acquisitions of, and partnerships with, technology startups in video streaming, artificial intelligence, and user-generated broadcasting, as well as major tech and media companies. By stitching these stories together, I can identify Twitter’s broader strategic aims in assembling a livestreaming infrastructure. I also draw from articles about Twitter’s executive board and department heads, which offer insight into the corporate crises and challenges that arose in recent years over Twitter’s role as a social media company, and the strategic responses that the company took that led to pursuing an active role in livestreaming television in the first place. These sources are further contextualized

through academic work that documents: broad paradigms of media and tech sectors like broadcasting, broadband, and social media; the development and deployment of second screen technologies by tech and legacy media companies; and characteristics of formal and informal screen distribution. By reading news articles in light of these academic sources, I am able to further narrate the overall arc of the dissertation by analyzing in this chapter Twitter's shift from the second screen to a full ecosystem for television programming.

The final chapter expands this circuitry even further, as I progress from a television ecosystem (in the case of Twitter) to investigate how streaming TV programming fits into a much larger distribution ecosystem that extends far beyond traditional media industries. I use as a case study a conflict between Google and Amazon over the compatibility of cross-platform streaming media, in order to analyze the emergence of smart home devices—especially smart speakers like the Amazon Echo and the Google Home—as vehicles for media distribution. This chapter focuses on consumer electronic devices and the systems of networked technologies that undergird their increased interconnection in the still-nascent “smart home.” I analyze how Google and Amazon are attempting to turn the smart speaker into the main hub of this interconnection. Not only does the smart speaker serve as a control center for the circulation of media, it also represents a gateway to other smart home devices that might monitor and regulate the other household appliances, not to mention heating and lighting. As with the other chapters, here I draw largely from news reports and company blogs and websites that document the conflict between Google and Amazon, as well as the growth and development of their smart speakers. I read these sources in order to analyze the strategic moves taken by Google and Amazon as they enter a wide range of tech sectors, including voice-operated artificial intelligence software and smart speaker hardware, and position themselves as centers of power

working to become all-purpose distribution ecosystems. I end the dissertation with a brief afterword that zooms out from media industries, thus expanding the scope and the stakes of media distribution.

*Internet Television Distribution and the Law: The Case of ABC v. Aereo*

**Broadcast vs. Broadband**

On June 25, 2014, the Supreme Court ruled in *ABC v. Aereo* that the television streaming service Aereo had violated copyright laws by retransmitting broadcast signals without authorization from or payment to content owners (Liptak and Steel 2014). This case was a pivotal moment for the internet-based distribution of live, linear television programming. Aereo represented a threat to retransmission fees, a revenue stream that for the past ten years has become increasingly important for broadcasters. By deciding against Aereo, the court enhanced broadcaster power to regulate the conditions under which live television can circulate via the internet. Live programming, and sports in particular, had become the most important advantage that broadcasters held over online streaming services in the battle for viewers. In addition, this decision entrenched linear television—setting a pre-determined programming schedule—as an industry standard for internet distribution controlled by broadcast and cable networks. In the wake of this important legal case, networks are now empowered to tether content to conduit, which constrains the possibilities for the development of internet television. The effects of such control can be seen in the slew of television streaming services that have emerged in the years since the court decision, including Playstation Vue, DirecTV’s Sling TV, YouTube TV, the network-owned Hulu with Live TV, and even recent experiments with live programming from social media companies like Facebook and Twitter. These services are largely replicating the

programming norms of traditional television by signing deals to stream pre-existing live network feeds.

This chapter uses the Aereo case to analyze how broadcast networks leveraged existing copyright and telecommunications policies that dictate rules about the circulation of live, linear television programming, in order to enhance their power over internet distribution, at a time when that power was thought to be waning. *ABC v. Aereo* establishes a central tension for contemporary media distribution between broadcast-era policy and business models based on principles of scarcity, and broadband-era logics grounded in abundance. In particular, I focus on how broadcasters turned the issue of retransmission consent to their advantage. Retransmission consent is a clause of the 1992 Cable Act that set terms about the conditions under which cable providers can distribute broadcast network signals. As the Aereo case and its aftermath demonstrate, when broadcast signals are transmitted via broadband internet, their legal status and proprietary standing continue to be called into question by distributors, content rights owners, and regulatory bodies.

Amidst debates about the responsibilities that companies who run internet-based platforms have (and should have) to people who use them, it is useful to highlight Aereo's fundamental case, where the first key mode of twenty first century media distribution—broadband—battered up against those of the twentieth century. Broadcast television has for decades served a role as a “public trustee” (at least, such a designation has served as a useful rhetorical device for media policy makers, journalists who cover the media, and for broadcasters themselves). In the Aereo case, which pitted broadcasters against an upstart internet company, the discursive position of the broadcaster's traditional role as public trustee of the airwaves



becomes overshadowed by a different role: that of a guardian of financially lucrative, privately owned intellectual property.

Several important factors play a role in this shift. First, several decades of deregulatory policies and a general political and cultural shift towards privatization—and away from public service liberalism—helped to engender the conditions for this shift. Another related factor is the continued convergence of broadband, broadcast, cable (and satellite), and mobile technologies. A third development is the ongoing digitization of content, which allows for increased “networkability” and compression (easy and efficient distribution through a network), density (how much information can be stored), and manipulability (the flexibility to shift content to multiple formats and platforms) (Burroughs 2015, Flew 2002). A fourth component involves the calculated cultivation, via internet streaming, of specific viewer behaviors and expectations for accessing, watching, interacting with, and paying for content, both from consumers (the “demand side”) and through media industry practices (the “supply side”). Finally, broadcasters can successfully exploit regulatory policy, effectively weaponizing certain aspects of the law for monetary gain. These factors came to a head in the *Aereo* case, forming a context in which streaming video helps to expose some of the gaps in the policy foundations of legacy media formations like broadcast and cable, in particular as those foundations are built into regulation on emerging distribution schematics.

Retransmission consent represents a policy exemplar in this regard. Retransmission consent fees result from the retransmission consent clause of the 1992 Cable Act. For the past decade or so, broadcast television content has become an increasingly significant source of revenue for broadcasters via the collection of these fees, which cable and satellite distributors pay to broadcasters in exchange for the right to circulate broadcast channels to consumers

through cable and satellite packages. In 2005, cable and satellite distributors paid \$28 million in retransmission consent fees to local stations. In June 2016, media research firm SNL Kagan expected retransmission fees to reach \$7.7 billion by the end of the year, and projected \$11.6 billion would be collected by 2022 (Twomey 2016). These fees were in the foreground of the *Aereo* case, as the broadcasters fought to ensure they were paid, *Aereo* worked to keep from paying them, and the courts mused about what such fees signify in the context of technological change. Dozens of amicus briefs were filed on behalf of both sides by trade associations, major league sports, law associations, major media companies, national and international federations for copyright reform, and digital advocacy groups. In the meantime, outside the courtroom policymakers debated the merits and necessity of such legal provisions in the first place.

Retransmission consent fees have been consistently overlooked within media studies, even media policy studies, and media journalism. When it is mentioned in the press, it is typically in the context of public blackouts of popular programming, stemming from disputes between a distributor and a network. Similarly, media scholarship tends to consider retransmission consent in terms of the various, and very public, television blackouts that result from disputes between networks like CBS and multichannel video programming distributors (MVPDs), a legal definition of television distributors that serves as an umbrella term for cable, satellite, telecom, and so forth. In this context, as Jennifer Holt, et al (2012) have described, the focus tends to be on the loss of access to favorite programming. Susan Crawford (2013) expands the scope of analysis somewhat by considering retransmission consent in terms of broader consumer rights. Amanda Lotz (2014) shifts the focus on retransmission consent from consumers to producers, to explain how networks attempt to generate new sources of revenue in light of new distribution technologies. Alexander Russo (2011) provides some welcome historical

context, by drawing parallels between television networks and affiliates with early relationships between radio networks and affiliates. Rob Frieden (2015) addresses retransmission as a regulatory matter, by discussing the extent to which the FCC can and should exercise its authority. Phillip Napoli (2011) also tackles retransmission as a matter of public policy, by dissecting whether or not it lives up to its original mandate: to protect the principle of localism. Here, I build off these varied and important approaches to retransmission consent, in order to examine how preexisting regulatory policies for “old media” like broadcasting are brought to bear on post-internet circuits of distribution.

The rise in retransmission fees suggests a push by major content owners to co-opt, graft onto, and normalize a legacy business model for broadband television distribution in the face of what these companies see as profound change. The irony is that the policy tool that they are using to extract that preservation, retransmission consent, was meant to do quite the opposite: to preserve the local voices in the face of consolidated control over the major conduits for television. In addition, the ability to retransmit existing signals is precisely how cable television itself came to be in the first place. It is from that relatively straightforward action, of plugging into an existing distribution infrastructure, that cable distribution grew into its own dominant paradigm.

This chapter argues that the evolution of live internet television is as much the result of broadcasters using broadcast-era federal policies like retransmission consent to their advantage as it is the product of new technologies, “disruptive” internet streaming companies, or evolving consumer demands. To do this, I discuss Aereo’s history and analyze the company’s attempts to unmoor the tightly controlled broadcast and cable television ecosystem in light of the rise of streaming services. Next, I turn to the *ABC v. Aereo* case, and use it to explore how broadcasters

have come to shift their traditional revenue models by leveraging both the retransmission consent clause of the 1992 Cable Act and existing copyright law. Finally, I conclude by speculating about how the implications of the Aereo decision will continue to shape broader trends in broadband distribution.

### **Aereo's History**

Chaitanya “Chet” Kanojia launched a company called Bamboom in 2011. Within a year, Bamboom had financial backing from a major media mogul, and its name changed to Aereo. Kanojia was a former chief executive of Navic Networks, which delivered interactive advertisements across cable networks via technology that was embedded in set-top cable boxes (Healey 2011). This technology enabled cable and broadcast networks to measure audience demographics in “real time,” and then provided the capacity for those networks to deliver demographic-targeted ads to match those measurements. His time at Navic Networks taught Kanojia that around half of pay-TV viewers were actually watching local broadcast channels at any given point in time. These channels could otherwise be watched for free—or at least without a monthly cable subscription—with a digital antenna.

The idea behind Bamboom/Aereo came from what Kanojia saw as several important conditions about television, the internet, and media culture more generally. Cable companies had shown that people were interested in paying for television, even if in aggregate they largely watched channels they could otherwise get for free. Moreover, people prefer the flexibility of being able to watch when they want. In addition, for many people the television set was no longer the primary device through which they wanted to watch broadcast and cable programming. Also, the programmability of the internet offers the opportunity to translate the broadcast feeds into delivery formats that fit a given device. Finally, broadcast feeds travel over

the public airwaves, and can be accessed for free via any digital antenna. Kanojia reasoned that his company could harness the public airwaves to become a middleman between viewers and network feeds. Doing so would solve the problem of paying for content to distribute, which for distributors is an exorbitant cost. Rather than become an internet-based cable company, Aereo could get into the antenna rental business. This distinction, Kanojia thought, would allow the company to bypass the restrictions of the Transmit Clause of the Copyright Act, which gave networks and other content owners the exclusive right to publicly distribute their content.

Media mogul Barry Diller bought into this business plan as well, and agreed to finance Aereo. On Valentine's Day 2012, Diller introduced Aereo at a press conference in the Manhattan headquarters of IAC/InterActiveCorp, Diller's media and internet company. For \$12 a month (this would later drop to \$8 during the lawsuits), subscribers received access to broadcast television streams through the internet that they could watch through multiple devices. In addition, Aereo offered a cloud-based DVR system so that subscribers could record shows they did not want to watch when they aired. At the time of its launch, Aereo positioned itself in a few unique ways. For the consumer, Aereo represented an alternative to expensive cable subscriptions and offered the flexibility to watch live television across multiple screens. For the traditional television networks and distributors, Aereo was the latest attempt to "disrupt" and "innovate" what Diller called the "closed cable-broadcast-satellite circle" (Stelter 2012). Finally, Aereo distinguished itself from other internet-based video streaming services by attempting to corner the market on circulating live, linear broadcast television over the internet. As points of contrast, YouTube grew largely through an integration of user-generated and network-owned content, and Netflix offers on-demand access to a library of films and television, thereby ignoring the model of linear programming distribution.

Diller is no stranger to legacy media in the United States, having worked in film and television for over 50 years. He has served as the Vice President of Development for ABC and launched what was seen as a new form of programming in “The Movie of the Week.” Later, he became Chairman and CEO of Paramount Pictures from 1974 to 1984, at a time when the company was one of the first and most successful at branching out into the emerging markets of video cassette sales and rentals (Salmans 1983). He then moved to the same position at Fox, Inc, where he helped build Fox into what was essentially the fourth major broadcast network alongside CBS, ABC, and NBC and spearheaded the push to make that network more “youth-oriented” with programming like *The Simpsons* and *Married, with Children*. In the mid-1990s, Diller took over control of USA Network, Inc. from Seagram, a company owned by the Bronfman family, which made much of its wealth selling booze during Prohibition. In short, Diller is well-versed in acting as a kind of “pioneer,” in particular with respect to his own media image. The internet is riddled with archives of news articles going back to the 1970s about Diller’s business savvy, ruthlessness (or hardheadedness), and his various cutting-edge deals.

Aereo’s service was cobbled together as an amalgam of broadcast and broadband-era technologies. Aereo operated using dime-sized antennas to pick up the broadcast signals from nearby stations and transmit them to its users. Each antenna was assigned to an individual user at the moment that user started to use the service. When they stopped watching, the antenna went back into circulation, and could be assigned to any other user. These signals were then transcoded from over-the-air television signals into a delivery format that various internet-connected devices could turn into video streams. Aereo’s antennas were “narrowcast” rather than “broadcast” antennas, in that they only registered six megahertz spectrum blocks. Instead, they could be switched on and off by their users. Aereo users only activated their assigned antennas,

and thus the antennas only began to pick up the spectrum, once the users decided to watch something on the service (Roberts 2012). Aereo could afford to house a large amount of these antennas in a single place in each of the cities where the service operated. To store the antennas in New York City, its first launch site, Aereo rented the top floor of a government building on Vanderbilt Avenue in Brooklyn. The site was chosen because it had a direct and unencumbered line of sight to the Empire State Building, the city's largest transmission tower. Aereo's small antennas would each pick up the broadcast from the Empire State Building, and then transmit those signals to user devices throughout the five boroughs.

Legal factors also played a role in the decision to use these micro antennas. Other companies had tried unsuccessfully to sustain businesses using similar models, including iCraveTV and ivi. These attempts were struck down in court for failing to comply with a part of the Copyright law that prohibited unauthorized "public performances" of television broadcasts. Both iCraveTV and ivi used a single large antenna to capture and transmit the telecasts. Like Aereo, they lacked the proper authorization (in the form of a compulsory license) and did not pay the content owners for the permission to transmit that content. The "performances" of these retransmitted telecasts by iCraveTV and ivi were considered public by the court because they used the single antenna to broadcast to their users. In other words, the legal distinction between what is public and private hinged on an adherence to a long-held logic of mass media that assumes centralized control over what people watch and when. The courts reasoned that the broadcasts of both iCraveTV and ivi were a classic "one-to-many" mode of communication (or, "performance"). Such broadcasts were considered public performances because there "many" viewers were watching the same thing at the same time, and because the broadcast feed they were watching comes from the same source: the single antenna. By contrast, Aereo devised a

system to decentralize that control, whereby a single antenna was assigned to a single user. In this way, Aereo reasoned, any use of its service was strictly a *private* rather than a *public* performance. Setting aside the legal distinctions between private and public performances, the larger point here is Aereo's clear deference to broadcast-era policies about how television content is allowed to circulate, even as they sought ways to circumvent those policies in their attempt to successfully crack the code of live, linear television online.

The major broadcast networks disagreed with Aereo's logic, and on March 1, 2012 they filed a lawsuit against Aereo for copyright infringement. *ABC v. Aereo* was legally predicated on an accusation of copyright law infractions. However, broadcasters fought to protect the possible loss of retransmission fees. Distributors pay these fees to broadcasters in exchange for the right to circulate broadcast channels to consumers through cable, satellite, and now broadband streaming services. Before proceeding with an analysis of Aereo's case progression from the lower courts to the Supreme Court, and a discussion of its implications for these subsequent developments in retransmission fees, it is necessary to explain the emergence of the fees themselves. The next section offers a primer on what these fees are, why they are rising, and how they relate to the stakes of the Aereo case.

### **Retransmission Consent Fees: From 1992 Cable Act to the Present**

Section six of the 1992 Cable Act instituted retransmission consent, which offered broadcasters the option to negotiate monetary compensation—in the form of retransmission fees—for letting cable distributors transmit broadcaster signals. Since at least the late 1950s, when cable companies began to pick up local broadcast signals and transmit them to areas of the country that could otherwise not receive them, the legal status of both over-the-air broadcast signals and the programming on those signals has been in conflict. For some years, cable



operators were not obliged to compensate for the right to retransmit these signals. As a regulatory matter, this is because cable was viewed by policymakers in the 1940s and 1950s as a useful extension of broadcasting, rather than a threat that might undercut its existing revenue streams. Cable extended the reach of both the programming and the advertising of broadcasts. As a result, the FCC understood cable to be a “functional technology” that spread broadcast signals, rather than a new medium for regulation, which would have qualified it for status as either a common carrier or as a broadcaster in its own right (Lubinskey 1996).

It was not until 1965 that the FCC determined that all forms of CATV (cable antenna television) could be regulated. In 1968 this decision was upheld by the Supreme Court in *United States v. Southwestern Cable Co.*, in which the court determined that the FCC’s had the authority to regulate cable under the Communications Act. The court restrained this authority “to that reasonably ancillary to the effective performance of its responsibilities of television broadcasting” (Southwestern). Among such ancillary powers was the ability of the FCC to require cable systems to retransmit local broadcast signals. In a ruling that would become quite prescient (and somewhat ironic) for the Aereo case, the court dismissed the argument by cable companies that they were merely a receptive mode of distribution. To the contrary, the court recognized that cable played an active role in the reconstitution of television as a network of technologies (linked between the cable wires and the broadcast towers and airwaves) and as a cultural form, as cable companies had begun to attempt to originate their own content. A footnote in the court’s written decision made their thoughts plain: “It is clear that a CATV system is more than a passive recipient of television signals, indistinguishable from a rooftop antenna; CATV systems engage in commercial retransmission of the signals they receive” (Parsons 2008, pp. 220). Such sentiments are common in the history of U.S. media policy, where

regulators express unease about the consequences of vertically integrated corporations distributing their own content.

During the 1960s and 1970s, however, much of that regulation emerged not from federal but from county and municipal authorities that granted (often exclusive) local cable franchises and enforced the cable rate rules, which were implemented because cable was thought to be a natural monopoly. The first major national cable television policy by the federal government came about in 1984 with the enactment of the Cable Communications Policy Act. This Act deregulated cable rates in areas with “effective competition,” a rather vague term that was defined as “any franchise area where three or more unduplicated broadcasting signals were available within a cable operator’s service area” (Parsons 2008). Nearly all cable systems qualified under this definition for rate deregulation. Cable prices subsequently rose throughout the rest of the decade, until Congress responded with the 1992 Cable Act.

In the early 1990s, the Senate Committee on Commerce, Science, and Transportation wrote a report on the state of the broadcasting system, detailing their reason for establishing the retransmission provisions: they intended to “establish a marketplace for the disposition of the rights to retransmit broadcast signals,” but did not intend “to dictate the outcome of the ensuing marketplace negotiations” (Parsons 2008). Many of the provisions in the 1992 Cable Act—including retransmission consent—were born out of this report. Cable companies had begun to generate a lot of revenue, in part by carrying broadcast signals alongside content from cable networks. They were becoming the primary providers of television service in many local markets and were competing with local free broadcast services for advertising dollars. In addition, cable companies operated through subscription services, as opposed to the model of free over-the-air broadcasting. The point of the retransmission consent clause was to ensure “that our system of

free broadcasting remains vibrant, and not be replaced by a system which requires consumers to pay for television service” (Vogt 2013). To compensate for a perceived power imbalance that seemed to favor large-scale nationalized programming over local broadcast programming, Congress imposed “must-carry” provisions in the 1992 Cable Act. These provisions took one of two forms. Either cable companies were required to carry all local broadcast stations within a given market without payment, or a broadcast station could waive that right and negotiate compensation from cable systems. For several years after the implementation of retransmission consent, most broadcasters either opted for must-carry or negotiated with the cable company for some form of non-monetary compensation: advertising time, cross-promotions, and carriage of affiliated channels. A 2005 FCC-commissioned report to Congress argued that “cash still has not emerged as a principal form of consideration for retransmission consent. Today, virtually all retransmission consent agreements involve a cable operator providing in-kind consideration to the broadcaster” (FCC Retransmission Consent 7).

Since 2005, broadcasters have become much more aggressive in incorporating retransmission consent fees into their revenue stream. They did so in response to what they saw as threats posed by internet distribution. The growth and maturity of internet distribution was supposed to spell the “death of TV.” A proliferation of competitive models for television distribution emerged to supposedly upend the stranglehold that the networks held over how television programming could be packaged, sold, and consumed. In addition, advertising dollars were increasingly spent on the internet, where advertisers could theoretically target and track consumers more efficiently and effectively. The era of broadcasting and mass media appeared to be at an end; we had supposedly entered a new age of decentralized and democratized control over access to the media. Instead, the networks found an alternative and incredibly lucrative

revenue source to not only keep them afloat, but to strengthen their position. More importantly, networks found in retransmission consent (and in retransmission fees) an effective policy vehicle for normalizing more traditional distribution practices onto broadband-era television distribution.

Broadcasters have exercised their considerable authority to take control over the publicly-owned airwaves. In particular, they have leveraged their power of the airwaves to enhance their ability to dictate terms over the rules about how broadcast content—and broadcaster feeds—can circulate on the internet. This has happened in large part through their manipulation of the retransmission consent clause of the Cable Act to generate the massive increases in retransmission fees. To reiterate, these fees totaled \$28 million in 2005, but by the end of 2016, broadcasters had raised \$7.7 billion. In the network era, relationships among stakeholders in television distribution were relatively straightforward because of the limited supply of channels and the restrictions in linear programming and scheduling. The proliferation of content distribution outlets on the Internet reduces the scarcity that cable companies leveraged against broadcasters. As such, the rise of retransmission fees is partly the result of a reversal of power relations between broadcast networks and distributors (Multichannel Video Programming Distributors, or MVPDs, to use the legal term). Cable networks are currently paid by distributors for their content, and broadcast networks have for the past decade fought to establish a similar relationship with distributors. Their networks, broadcasters (correctly) argue, have larger audiences than any of the cable networks. If an MVPD decides to balk on the fees that networks charge, they risk a channel blackout and angry customers, who in most markets have the option to switch to a different form of distribution (or cut the cord altogether). Therefore, broadcast networks have begun to leverage a considerable amount of influence over the rights to circulate their content over the internet.

## Temporary Broadband Victories: Aereo in the Lower Courts

Filed on March 1, 2012, *ABC v. Aereo* alleged that Aereo's service infringed the broadcasters' copyrights through unauthorized public performances. On July 11, 2012, Second Circuit Court Judge Alison Nathan denied the broadcasters' request for a preliminary injunction, which would have blocked Aereo from allowing subscribers to use its service. It was a temporary victory for Aereo. In her ruling, Judge Nathan used the 2008 decision in *Cartoon Network v. CSC Holdings*, known as the Cablevision case, as an important precedent. This case hinged on Cablevision replacing physical DVRs—the set-top boxes that Cablevision subscribers kept in their homes—with virtual DVRs housed on the company's servers. Using a remote DVR shifts the location of recordings from a set-top box in their living room of each subscriber's home to “the cloud.” For broadcasters, the figure of the cloud seemed threatening because Cablevision was consolidating subscriber recordings in what appeared to be a centralized repository. From this central repository, broadcasters argued, Cablevision would control the conditions under which broadcaster content was retransmitted to consumers. This control would violate the broadcasters' rights of public performance. Nathan argued that in the matter of Aereo, the Second Circuit was beholden to the reasoning laid out in the Cablevision case: “Because each RS-DVR [remote storage-DVR] playback transmission is made to a single subscriber using a single unique copy produced by that subscriber, we conclude that such transmissions are not performances ‘to the public,’ and therefore do not infringe any exclusive right of public performance” (pp. 43). According to Judge Nathan's reading of the Cablevision case, Aereo's service was analogous to the RS-DVR. Aereo's subscribers were each assigned an individual antenna that produced a “single unique copy” of a transmission, so the resulting service was not seen as infringing on the right of public performance despite the fact that the transmissions were

stored in the cloud. The legal question here centered around whether Aereo itself actively (or directly) infringed the copyright when its subscriber hits “record” on its service, or whether the individual consumer was personally responsible for calling forth those recordings.

Judge Nathan’s reasoning here is instructive for understanding how decisions about the legality of media distribution are made. The principles at stake in the rules of content circulation come from a desire on the part of the broadcasters to commodify the means of transmission by controlling the circulation of the broadcast feed and the nature of the storage of that feed’s content. Even as Aereo emerged from the Second Circuit victorious, the terms of the debate were couched in language that privileged the rights of major content owners to control distribution over the rights of upstart companies looking to transform and innovate broadcast television. Broadcast television has for decades served a role as a “public trustee,” or at least such a designation has served as a useful rhetorical device for media policy makers, journalists who cover the media, and for broadcasters themselves. In the Aereo case, the discursive position of the broadcaster’s traditional role as public trustee of the airwaves becomes overshadowed by a different role: that of a guardian of financially lucrative, privately owned intellectual property.

The figure of the cloud in the Aereo case, as in the Cablevision decision, plays an important role that helps to unpack one of the most important stakes here: the commodification of the means of transmission itself. Traditional industry knowledge holds that media are typically defined as “dual-product” markets: the audience market and the content market. This is an oversimplified characterization, one that ignores the value of distribution itself. Instead media markets should be thought of as tri-product markets: audiences, content, and modes of transmission. The retransmission consent provisions acknowledge the value of the broadcast signal, as distinct from the value of the content on that signal. The commodification of the means

of transmission does not simply mean the signal. Included here also are the modes of data storage (for Aereo, the cloud-based DVR service) as well as the nature of the nodes in the transmission chain. In a *Forbes* column written during the window of the first round of the Aereo case, Professor Peter Decherney (2014) argues that one of the major implications of the Cablevision case is that the cloud would be included in the legal definition of the home, ostensibly for the first time. This is because the court ruled that content stored via the cloud by a DVR service was part of a private rather than a public performance.

While this may be true, the consumer-viewer continues to shift in interesting ways as pure broadcast and cable services give way to hybridized broadband-based services. It used to be that the consumer node was “the home.” This node was geographically static. Signals were beamed to a home antenna or satellite dish, or the home was wired with cables. Aereo and other broadband-based services opened up the node to a more “mobile” target: from the home to the subscriber. Although geographic restrictions for service access still very much apply, the way those restrictions are managed through the law and by the corporate entities who offer such access is in conflict, as both the law and the companies reconcile a desire to sometimes apportion scarcity and other times manage abundance. Part of how this happens is through arguments over the tools of transmission.

This ruling also offers insight into how the courts consider differences in distribution technologies when multiple means of accessing the same content exist. The broadcast feeds that Aereo distributed were already available for free to anyone with access to an antenna. Aereo’s legal argument hinged on its assertion that it is an equipment rental company: that the monthly fees paid by its subscribers are not paying for the *content*, but rather for the antenna used to access that content (as well as the use of the web-based interface and the cloud-based DVR

service). Barry Diller used Radio Shack as an analogy for Aereo's service, arguing that by the broadcasters' logic, any company that sold antennas should have to pay retransmission consent fees because the antennas facilitate the distribution of the broadcast feeds to viewers. Rather than selling antennas, Aereo was selling an antenna rental service, and was as such acting as an intermediary exempt from copyright infringement liability. This raises the issue of the gatekeeper role for distributors. Under the court's ruling that the recording is private, it is in fact the consumer who would seem to become the gatekeeper to content access, in the sense that the consumer makes the decision about when access is granted. Moreover, Aereo (and Cablevision before it) would be considered a neutral conduit. Such logic detaches distribution technologies from the contents they carry. This defense has been a common refrain in debates about the circulation of content over the internet, including debates on net neutrality and with the recent controversies over "fake news" and social media. It isolates the technical problems over the control of the flow of information on the internet from the social or cultural problems. For the people who work on these platforms to begin to make editorial decisions about the *kind* of content therein would be to assume an uncomfortable level of "bias." Philip Napoli and Robyn Caplan (2016) call this phenomenon the technocratization of communications policy discourse. In the Aereo case, this discourse framing becomes even more complicated because the first key mode of twenty first century media distribution—broadband—buts up against what is perhaps the preeminent mode of twentieth-century distribution in broadcast.

One of the major articulations that kept arising in the Aereo case is that between the private-public debate, the individual consumer-viewer-subscriber, and the various distribution technologies at play. For Aereo, providing a rental service whereby each subscriber was assigned her own antenna meant facilitating a private performance, which would preclude them from



copyright restrictions. There is an irony in this argument and in its inverse (which the broadcasters represent). In the Aereo case, shifting from a broadcast-based distribution model to an internet-based model of distribution means shifting from television as a publicly-owned infrastructure to a privately-owned infrastructure. Retransmission consent is one policy whose original mandate—to preserve and ensure that the broadcasters who have been entrusted with the use of public airwaves—has essentially been inverted. So Aereo is using a public good argument to justify their privatization of television: it is simply facilitating access to what are free (and public) broadcasts. On the other hand, the broadcasters themselves argued to preserve their right to control the public performances of their privately owned intellectual property even as they built their businesses on the back of a public distribution system in the airwaves.

There is also a clear upsetting here in the precise meaning of the term “private” as broadband and broadcast paradigms intersect. At stake for instance in the designation of a cloud-based DVR service as a privately protected action are a couple of issues. Because the court relies upon precedence to rationalize its rulings, it often analogizes different generations of what seem to be similar technologies without fully taking stock of some important ways in which they are different. For instance, cloud-based DVR service are compared to set-top box-based DVR services, as well as earlier forms of recording technologies like the VCR. The point of comparison here is in the primary function of the technology: the ability to time shift and to make a copy of a piece of content for private consumption. One of the key components of a broadband-based logic of distribution is an “always on” or “always connected” component. With the cloud-based DVR, then, there is an extra level of monitoring since consumer-viewer activities—or impressions—can be more granularly catalogued and indexed. In addition, because this activity is stored in the cloud, it essentially extends private activities into a gray area, where

the protections of privacy have been subsumed by the contractual terms of service that subscribers agreed to in signing up to use Aereo (or something similar).

There is also a sense in which this always on characteristic becomes implicitly articulated to the notion of “public” in public performance, in particular as the broadcasters are leveraging it to defend against unauthorized retransmission of their copyrighted work. The threat here is larger than Aereo, but rather comes from the ease with which such retransmission can occur through the various forms of broadband-internet distribution. Any number of Aereo-like startups have attempted to pick up broadcasts and distribute them over the internet. Some of them try to grow into legitimate businesses, while others operate through smaller peer-to-peer networks, but are typically quite easily accessible with a simple Google search: “Watch such-and-such online.” More recently, social media services have begun to offer broadcast capabilities to individual users with the introduction of applications like the Twitter-owned Periscope and Facebook Live. And while these mostly supersede the Aereo case, they are precisely the kind of threat that broadcasters fought against: the normalization of private broadcasts being transmitted into a realm deemed public on the way to private consumption. In other words, not only were the broadcasters fighting to defend their right to control the “performances” of their work to a public audience, they were also attempting to prevent such technologies from being able to operate in public, hidden in plain sight.

### **Aereo and the Supreme Court**

By the time Aereo emerged, the broadcasters had for a few years been aggressively targeting retransmission fees as a source of revenue. Judge Nathan’s ruling in favor of Aereo in the Circuit Court signified a potential threat to that revenue because legalizing Aereo would open opportunities for distribution services to develop through business models built on retransmitting

over-the-air broadcast feeds without paying to do so. Perhaps more importantly, the ruling represented a hazard to broadcaster desire to dictate terms about the future of television distribution on the internet, by dislodging a major part of their ability to control how their content circulates. Seeking an appeal, broadcasters escalated the case to the Supreme Court. On October 11, 2013, council for the broadcasters filed a petition for a writ of certiorari, in which it asked the Supreme Court to rule on “whether a company ‘publicly performs’ a copyrighted television program when it retransmits a broadcast of that program to thousands of paid subscribers over the Internet” (*ABC v. Aereo* p. 3). In a six to three decision delivered on June 25, 2014, the Supreme Court ruled in favor of the broadcasters, thereby reversing the lower court ruling and rendering *Aereo* guilty of violating the Transmit Clause of the Copyright Act.

As in the lower courts, the Supreme Court ruling hinged in large part on an analysis of the relationship between the content and the conduit. The conduits in this case are the various forms of material infrastructures that make up the distinct-but-interrelated distribution paradigms: the airwaves of broadcast, the cables and satellites, and broadband’s “pipes” and cloud data storage centers. Federal policy has often operated on an assumption that these conduits have some effect on the content that runs through them. Sometimes, this concern manifests in policies that regulate “horizontal” ownership structures, as in instances that restrict the number of media outlets—television stations, newspapers, radio stations—that a single media company can own and operate in a given market. Other times, these policies can regulate vertical integration, where telecommunications companies that largely control distribution (the conduits) merge with content companies, in an effort to achieve some level of “synergy” and exert control over specific media markets.

The potency of the retransmission consent clause—the ability to extract a large amount of revenue through by exploiting retransmission consent—is predicated on the persistence of the relationship between the “content” and the “conduit.” The rights to the content are controlled under the compulsory licenses as dictated in section 111 of the Copyright Law. On any given television signal one finds multiple shows, the copyright to each of which could is most likely owned by multiple parties (although it is worth noting that in 2013 nine companies owned 90 percent of professionally produced video content in the United States (Lotz 2014). Instead of having to negotiate with each copyright owner on a given stream, distributors (cable and satellite companies) can simply file for a compulsory license and pay a standard fee for the right to transmit the content on that signal. Those compulsory license fees are then distributed to the various associated parties to the copyright.

The broadcasters played into this assumption, arguing that the mode of transmission is part and parcel of the content. People do not simply turn on any old channel; they turn on specific channels with specific programs. In its petition to the Supreme Court, for instance, the broadcasters tried to paint a picture of the lunacy of the Circuit Court’s ruling in favor of Aereo: “When tens of thousands of Aereo subscribers all simultaneously watch the same broadcast of the Super Bowl using Aereo, Aereo is not publicly performing the Super Bowl. It is merely making tens of thousands of simultaneous ‘private’ performances to its subscribers” (Liptak and Carter 2014). The content is everything, but the underlying assumption here is that the content matters in the context of its distribution. The Super Bowl example is of course used as an extreme case, but one in which the connection between content and conduit is articulated through the collectivity of the event as consistently the show people (Americans) most watch “together.”

In the Supreme Court ruling, the connection between the content and conduit manifested in the difference between the majority opinion, written by Justice Breyer, and the dissent opinion written by Justice Scalia. In its write-up of the case, the Harvard Law Review described this difference as a debate between “formalism” and “functionalism.” Justice Breyer, the functionalist, based his decision on an analysis of what Aereo’s service actually does, rather than how it works. He emphasized Aereo’s commercial effects, the user’s experience of the service, and whether or not broadcasters considered Aereo to be somehow fundamentally distinct from a cable provider. By contrast, Justice Scalia paid more attention to the technical aspects of Aereo’s system (Harvard Law Review 371). Whereas Breyer and the majority of the court’s justices embraced the analogy of Aereo as an internet-based cable company, given Aereo’s subscription-based business model, Justice Scalia focused more on the differences between how a cable company worked and how an internet-based antenna rental service with a cloud-based digital video recorder worked. The majority decided this way despite the fact that cable television and broadcast television are themselves considered to be distinct kinds of entities under the law. Such distinctions matter because they shape the policy grounds under which media infrastructures are regulated. By siding with the broadcasters, the Supreme Court took a major step in foreclosing certain possibilities for the development of internet television distribution at a time when that development was quickly evolving.

Another related example stems from the retransmission consent clause. In large part, instituting the retransmission consent policy was motivated by a core principle for communications policy in the United States: localism. The FCC looked to preserve the ability of local communities to access “the news and information that addressed their specific needs, interests, and concerns in the face of technological and competitive changes in the television

marketplace (Napoli 2011). Retransmission consent is a policy that was born out of concerns over the overlapping power of two distinct distribution paradigms in cable and broadcast. In other words, how to keep “broadcast” while at the same time making room for cable. The fear—however unfounded that it may have been—was that cable would usurp broadcast, and the losers would be those local affiliates, the local voices. The conduit becomes an expression of market power, bringing with it the “voices” of the national networks to overshadow those of the “community.”

But what does a localism principle look like with the emergence of internet-based television distribution? In the shift from a broadcast model to a broadband video streaming model, one way of understanding this is to look at how space is configured. In many of the early conflicts that arose between cable operators and broadcasters, these conflicts would arise as broadcasters would try to restrict cable operators from transmitting “distant signals,” which are signals that are otherwise unavailable through over-the-air broadcasts in a given area. The problem with distant signals, from the point of view of broadcasters, is that they were adding value to cable services by providing more programming in addition to the over-the-air signals that the cable services were able to retransmit. A consumer could conceivably choose between a free over-the-air service that only offers a few channels and a paid service that offers those channels plus other “distant signals”; the fear for broadcasters is that more people would choose cable.

By contrast, many emerging internet-based television services have completely elided local programming and live broadcast feeds, unless viewers live in one of the largest cities in the country (Lotz 2016). We can see this conflict play out during the numerous (and growing) retransmission negotiations that often end up in a blackout. In 2010, for example, Time Warner

was in a prolonged and ugly negotiation with Sinclair Broadcast Group, which owned affiliate stations for ABC, Fox, and CBS. There were threats to consumers that Time Warner would have to blackout those stations because it refused to pay the retransmission fees that Sinclair demanded. Turns out that Fox had negotiated a separate deal with Time Warner in the midst of the Sinclair negotiations, which would allow Time Warner to purchase Fox's national network programming in the event that it lost access to the station feeds. What this essentially means is that the nationally televised shows would remain on the air for people in those "problem areas," but the locally-produced or licensed programming—like the local news—would be inaccessible. Such an agreement also severely diminishes the negotiating power for the stations (and the broadcast group), while also creating a scenario where there is a two-front war: the fight over the mode of transmission (the feed) and the fight over access to the programming itself, which in the separate negotiation for Fox's national content essentially unbundled the shows from the broadcast. As in the example of the public performance right, the content blackouts also work to maintain the necessity of the content-conduit articulation.

The rise of these fees, therefore, coincides directly with "always on" connectivity and industry initiatives like TV Everywhere, where theoretically one can watch what one wants, when one wants, and on whatever devices one wants. As such, retransmission fees are an effect of the expansion of networking, which Victoria Johnson describes as a "framework for the reorganization of space and time *from* the region and local expression to seemingly 'placeless,' modern, national modes of production and consumption" (Johnson 2009, pp. 34). Retransmission fees, therefore, are an important driver of changing distribution models, by being integrated into a networking logic that defies the original mandate. Such policies represent a legacy of a media culture that protects the "origins" of distribution: the "primary transmission" in the Aereo case,

for instance, is considered the most valued and most strongly protected by the broadcasters. As such, the greatest distributive leverage comes from the origination point, rather than from, for instance, the destination (or indeed from anywhere else along the transmission path).

Origination conceived in this way is a function of a centralized media system, a “mass” media that transmits from one (or, from few) central location outwards to many destination points. The Aereo Supreme Court decision highlights the continued power of legacy broadcast entities. Broadcast networks fueled and capitalized on overwrought rhetoric about the “death of traditional television.” The irony is that the policy tool that they are using to extract that preservation, retransmission consent, was meant to do quite the opposite: to preserve the local voices in the face of consolidated control over the major conduits for television.

### **From Aereo to YouTube TV: The “Broadcastification” of Internet Television**

The Aereo case has implications that go beyond specific statutes in either the Copyright Act or the Cable Act. *ABC v. Aereo* speaks to the contradictions in play between existing broadcast-era economic and policy logics and those of broadband internet. Just look for instance, at one part of Netflix’s “long-term view,” which serves as the overall company vision that it gives to its investors:

Sometimes, large ISPs want to use their market power to extract interconnect fees from us and others. We fight for free interconnection, where neither side charges the other, as we think Netflix and consumers are best served by strong network neutrality. We have made good progress in these battles, and they are usually country and ISP specific. We don't intend to try to collect a percentage of broadband revenue from ISPs, despite the facts that we are a substantial portion of what consumers do with their Internet connection, and that this payment would parallel the payments to basic cable networks. Strong net neutrality, where payments are neutral between ISPs and content providers, is better for supporting amazing innovation for consumer benefit.

In some very important ways, the fundamental ideas behind net neutrality are very much related to the policy and policy goals of retransmission consent. Both function by constructing



certain assumptions about their media infrastructures: namely, that the infrastructure in place that allows content to circulate is itself a market that is governed largely through legal contracts amongst companies that control that circulation. Moreover, these contracts involve financial transactions that are meant to shoulder the burden of both content production and infrastructure maintenance: the interconnection fee or the retransmission consent fee. In addition, both operate under the assumption that the transaction revolves around a discrete commodity form: for net neutrality this is the data traffic, whereas for retransmission consent it is the transmission itself. With their retransmission fees, the broadcasters and cable companies are buying and selling the right to use the channels that facilitate circulation: in terms of broadcasting, these are the signals, whereas for television on the Internet, these are the “streams.” Net neutrality policy has laid some important groundwork for the emergence of these network-, satellite-, and cable-sanctioned streaming services to emerge, because it appeared to require that all internet service providers treat content the same, and that they would not favor their own content or services over others.

Where they diverge speaks to the underlying assumptions that each policy represents. Retransmission consent assumes a scarce infrastructure, whereas net neutrality assumes an infrastructure of abundance. In its contemporary context, the retransmission of traditional television positions a scarce infrastructure—broadcasting spectrum—being infiltrated by an infrastructure of abundance in cable. This is complicated further when it comes to net neutrality, which is really a set of principles that work to manage abundance itself. Aereo’s loss meant it had to shut down its service. It is now relegated to the scrap heap of history, one in a long line of “disruptive” upstart technologically-driven companies unable to break into the relatively closed off ecosystem of what in theory is—or, what advocates argue should be—a fairly democratic medium. So, why does it matter? For one thing, it marks a signpost in the evolution of media

distribution, which brings together legacy power structures and technological infrastructures and more emergent ones. During the long legal process, and as Aereo kept winning battles in the lower courts, it became a symbol of the ways in which so-called “legacy” media forms and systems change and hybridize. Many battles around this case were fought within the media, which drew lines in the sand between content and distribution, Silicon Valley and Hollywood, “old media” and “new media,” and so forth. It points to the many and various tensions at play in the continued interconnection of distinct modes of distribution. For instance, on October 28, 2014—just four months after the Supreme Court delivered its decision in the Aereo case—FCC Chairman Tom Wheeler published a blogpost on the Commission’s website, announcing “the first step to open access to cable programs as well as local television” to internet video services (Wheeler 2014). For Wheeler, that first step meant to start a rulemaking proceeding that reopened the term MVPD to interpretation, and in particular to ensure that a new definition is “technology-neutral.” Passing such a ruling would mean that video distribution services would have equal opportunity for access to programming owned by both cable and broadcast operators. It is a testament to how slowly federal regulation works that this ruling has still not been decided upon.

As the Aereo case made clear, there are also new stakeholders that have emerged, in addition to the reshuffling of traditional stakeholder priorities. A focus on retransmission consent and the Aereo case offers a way to consider how those new technologies become intertwined with existing media paradigms. Aereo claimed to represent “a logical development at the intersection of three legal technologies: DVRs, cloud computing, and TV antennas” (Handel 2014). Broadband and legacy television enjoyed a mutually beneficial relationship since around 2010, when streaming television started to become normalized, because the licensing fees that

broadband distributors would pay to broadcasters for their content represented a new form of revenue for traditional networks. These fees paid for secondary windows that for networks supplemented their original broadcasts and worked to ensure a longer shelf life for that content. For their part, these new services—like Netflix, Hulu, and so forth—worked to acclimate viewers to new ways of accessing and watching television, as well as the linearity of traditional television.

Aereo was a precursor for how over-the-top distribution, or broadband distribution, would come to first be fought by—and then accepted by—legacy networks. It was the moment between the time that the networks accepted broadband distribution as an external relationship, rather than a component internal to—and indeed, central to—their own business models. In other words, it marks the turning point for networks between licensing content to other broadband distributors and creating their own broadband distribution services. According to Amanda Lotz (2015), the biggest thing to happen in 2015 is that legacy media networks (like HBO, CBS, and so forth) started launching their own broadband-distributed services. Doing so marks a shift in priorities for networks, as they move from generating revenue primarily through a business-to-business model—in which they transact with advertisers or with distributors—to one in which they start to more directly transact with consumers.

Companies continue to experiment with different forms of unbundling content, either through offering stand-alone streaming services for single channels like HBO Now and CBS All Access, or migrating content away from traditional television distributors to companies like Amazon. Since the court decision, several kinds of Virtual MVPDs have emerged, including digital pay-TV services like DirecTV Now and Sling TV. Although there is some variation in how they are defined, a Virtual Multichannel Video Programming Distributor offers access to

both the library-based streaming service (Netflix) and internet-based “live” linear programming, but does not own any of the network infrastructure behind the service. These are just the latest iteration of services that are looking to unify all manner of content access that until now has been kept in distinct “classes,” not only legally but also as they are experienced by viewers. In February 2015, TiVo won an auction for many of Aereo’s assets, including its trademark and customer lists.

Aereo tried to do an end-run around the established access points for linear television, and when that failed they regrouped and pleaded for online linear television distribution to be regulated as a multichannel video programming distributor (MVPD). If it could not beat the cable companies, Aereo would try to become one, at least in terms of copyright law. One major shift in the rise of internet-based streaming services is the increase in the subscription model as a means of access. Building up a paywall is an attempt to shift the nature of the commodity form, from purchasing discrete shows on physical formats like DVDs to purchasing access to a library. Moreover, whereas the DVD purchase is a one-off, the subscription is built to continue in perpetuity.

Another reason that this case matters is that it disrupts a trend in much scholarship on television—and media more broadly—that assumes a linear teleology in the medium’s development as a cultural form, set of industrial practices, and group of technologies. From a “macro-level” perspective, then, we understand television as broadly moving from broadcast to cable and satellite, and now to broadband internet. When I say “broadcast” or “cable,” I mean not only the mode of distribution but also the industrial formations and business models, as well as the type of content produced and the “ways of seeing” that content (Spigel 2004). What Aereo shows is a rather stark example of the ways in which these distinct paradigms of

television—broadcast, cable, broadband—come into contact and conflict with one another. An analysis of Aereo and the rise of retransmission fees offers a clear opportunity for dissecting the “multiplicity of norms [that] coexist” and give form to what we understand to be television, as Amanda Lotz (2016) has argued. It is important to note how these norms come into conflict with the emergent logics of broadband. This means considering economic logics, like transitioning to a point where content distribution is overtaken by the trade of data (across international markets). It also means attending to the underlying power dynamics of legacy entities, who remain very much in control despite their perceived unmooring.

For traditional broadcasters, broadband distribution has come to serve a number of distinct roles. Streaming services like Netflix initially became acceptable secondary markets for broadcast content, offering a welcome supplemental revenue stream for networks. In addition, many networks used the internet to distribute complementary content as a way to maintain their presence beyond the show’s initial telecast. For years, networks have cultivated a robust social media presence related to specific shows, and operate official YouTube pages and Facebook, Twitter, Snapchat, and Instagram accounts (among others).

Of course, for networks broadband distribution can be as much a threat as a useful tool. YouTube in particular became a bastion for pirated content. When Hulu launched in 2008 as a joint venture between Fox and NBC Universal (Disney’s ABC would join the following year), it was pitched as the networks’ answer to unauthorized broadband distribution: a streaming service that offered full seasons of network programming, for free. The launch of HBO Go and ESPN’s WatchESPN mobile app in 2010 served as test cases for cable networks to circulate content on their own platforms. Networks largely held such services behind cable paywalls, in an effort to ensure that internet television was beholden to more traditional power dynamics. In 2015, an

influx of over-the-top, direct-to-consumer network streaming services entered the market, like HBO Now, Disney Life, and CBS All Access. These subscription services offered people access to network content without the need for a cable subscription, although people did of course need access to the internet.

The proliferation of distribution technologies, including broadband internet distribution, has not only affected the sources of revenue but also changed the conventions of television distribution itself in interesting and complex ways. Various kinds of nonlinear television services have emerged in the past few years to create a hybridized television ecosystem. Nonlinear television is a function in large part of the affordances of internet-based television distribution. Such formations create distinct relationships amongst the companies involved in the circulation of content in ways that are sometimes analogous to, but often diverge from, the more traditional broadcast and cable relationships. When it comes to streaming conventional television over the Internet, so-called content owners are moving from being strictly wholesalers who make deals with distributors (cable companies and so forth) to more direct-to-consumer sales. This gives the illusion of disintermediation, which is exemplified in such popular industry parlance as “over-the-top” (OTT) services, like HBO Now and CBS All Access.

For Elihu Katz (2003), disintermediation is a concept whereby “communicators are continually trying to reach over the heads of intermediaries in order to establish direct relations with some target audience” (pp. 53). It is often used in the context of the internet, to illustrate the consequences of aggregation services like Google for traditional forms of content organization. In this sense, it is similar to the ideas of unbundling cable channel packages, in the context of television. As internet-based streaming services continue to emerge, disintermediation is a useful rhetorical device that leverages viewer expectations and desires about media access and bakes

them into a marketing slogan, offering people “what they want, when they want it, on whatever device they choose.”

This discourse of the sovereign consumer assumes a specific kind of marketplace, in which distinct paradigms of distribution (broadcast, cable, broadband internet, mobile) are pitted against each other such that one paradigm liberates consumers from another, even as the interdependencies of such paradigms are implicitly foregrounded. This liberty supposedly arrives in the form of a lack of various kinds of intermediary interference in the consumer experience. An overview of the distinct ways in which cable has been historically constructed, particularly in policy discourse, is instructive here. In the 1960s, cable television became a stand-in for the seemingly limitless potential of technology to effect social change, as a crucial “communications utility, spanning the country and providing news, specialized entertainment, electronic banking, electronic mail, health care services, outlets for community expression, and a local and national forum for political debate” (Parsons 2008, pp. 7). The 1971 Sloan Commission declared that the cable paradigm would create a “television of abundance,” to contrast with—and indeed bypass—the bottlenecked oligopoly of broadcast television, which operated within the rationale of scarcity because the broadcast spectrum was constructed as a finite resource. Moreover, federal regulatory bodies took steps to provide an environment that would cultivate cable’s growth in the face of resistance from legacy broadcasters, mostly through deregulation. By the time the 1992 Cable Act was passed, however, the “Blue Skies” rhetoric that trumpeted cable’s promise had shifted; the retransmission consent clause served to protect broadcast television from cable, rather than the other way around. If in the 1960s and 1970s cable had been constructed to offer more opportunities for “direct” (disintermediated) communication that bypassed broadcast’s stranglehold over the airwaves, then the retransmission consent clause rearticulated broadcast

itself as a more direct means of communication by emphasizing the importance of protecting the local voices of a given “community” (or of a given market). In the logics of both broadcast and cable, these forms of disintermediation assume a level of centralized control over the communications infrastructures, because within these distribution paradigms the flow of content runs mostly one way: toward the consumer-viewer.

### **Conclusion**

And so, Aereo was forced to shut down. The company ended up operating for just over two years, and for almost the entirety of its run Aereo was dealing with the lawsuit. Aereo’s service concluded with a relatively small number of subscribers: just over 108,000 total subscribers in 14 American cities. Amidst debates about the responsibilities that companies who run internet-based platforms have (and should have) to those who use them, it is useful to take note of Aereo’s case. Broadcasters, the “public trustees” of the airwaves, leveraged existing federal policies that regulate the media to more effectively control how television is allowed to circulate over the internet. Of course, the Supreme Court is an interpretive body that insists on contextualizing its rulings by emphasizing Congress’s important role in altering existing policy, if necessary. Such changes may or may not be forthcoming, although in the three years since the Supreme Court’s ruling there has been little fundamental change to federal regulations about the distribution of television over the internet. Instead, it appears that broadcaster power has only become even more entrenched, when it seemed as though broadcaster power was a distant twentieth-century memory. Retransmission fees have only gone up in the three years since this ruling. Retransmission consent is one policy whose original mandate—to preserve and ensure that the broadcasters who have been entrusted with the use of public airwaves—has essentially been inverted. In the context of the internet, the rise in retransmission fees suggests a push by



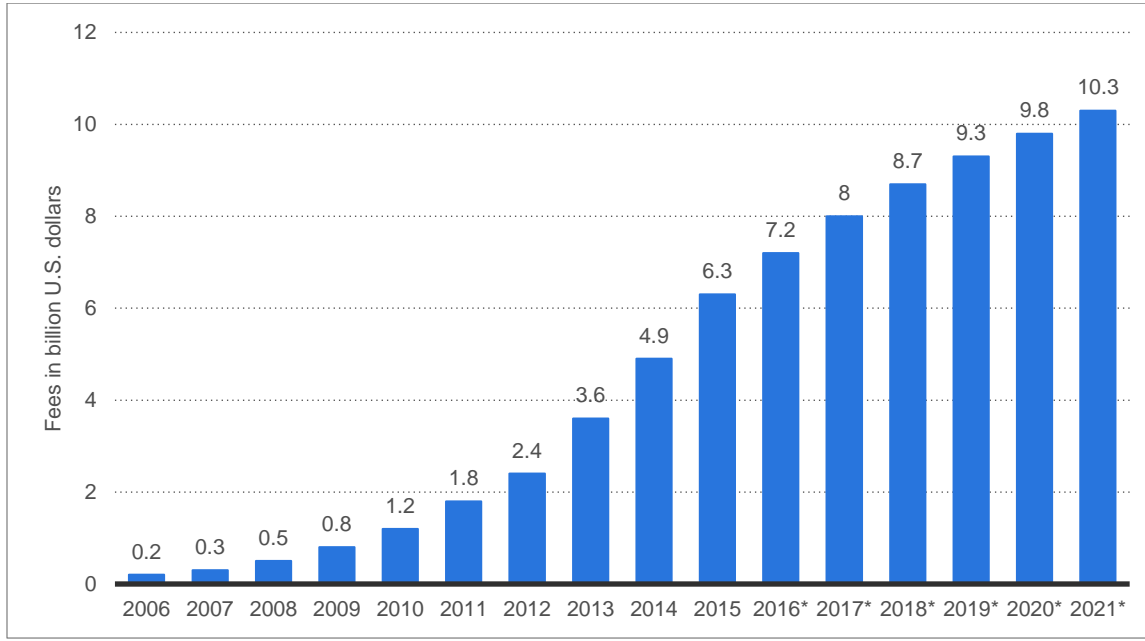
major content owners to normalize a legacy business model for broadband television distribution. The irony is that the policy tool that they are using to extract that preservation, retransmission consent, was meant to do quite the opposite: to preserve the local voices in the face of consolidated control over the major conduits for television. It is no accident that the growth and maturation of streaming video coincides with massive increases in retransmission fees. These fees represent a repurposing of federal media policy by major television networks (and “content” networks more broadly) to control not only what programming is authorized to stream over the internet, but also to preserve the preexisting scheduling norms of linear programming, even as broadband distribution becomes a more fundamental and popular means of accessing and circulating content. As such, the content-conduit connection persists as an historical construction perpetrated by a consortium of related, often conflicting interests involving digital media and technology industries, regulatory agencies, and citizen-consumers.

The implications of the Aereo decision are most evident in, for instance, the rollout of YouTube TV, YouTube’s streaming service where subscribers pay a monthly fee to watch live television of the local broadcast stations of ABC, NBC, and FOX alongside an expanding array of cable channels, including ESPN, FX, USA, and Bravo. YouTube’s parent company Alphabet, Inc. continues to sign content licensing deals with rights holders like Disney in order to expand its channel offerings. Despite the vast, global user base of YouTube, YouTube TV is only available within the United States, and even then only in certain local markets (Pino 2017). In addition, the capacities of YouTube’s broadband distribution have also been “broadcastified,” as YouTube is forced to play by the local, regional, and national geographic restrictions imposed on more traditional television providers. Moreover, YouTube TV viewers are watching the same live programming schedules that cable subscribers watch. YouTube does not yet have any power

to dictate what content it actually distributes. This is not to suggest that broadcasters have complete control over the state of live linear programming. YouTube has a separate service built into its core site for non-network live programming. However, the demarcations between more traditional television on the internet and the more web-native live programming remain stark. The Aereo case contextualizes the development of streaming video distribution by exposing some of the gaps in the policy foundations of legacy media formations like broadcast and cable, in particular as those foundations are built into regulation on emerging distribution schematics.

**Figure 1-1**

**Broadcast retransmission fees in the United States from 2006 to 2021 (in billion U.S. dollars)**



**Note: United States; 2006 to 2015**

**Source: SNL Kagan; [ID 256358](#)**

**Source and methodology information**

<b><u>Source</u></b>	<b><u>SNL Kagan</u></b>
<b><u>Conducted by</u></b>	<b><u>SNL Kagan</u></b>
<b><u>Survey period</u></b>	<b><u>2006 to 2015</u></b>
<b><u>Region</u></b>	<b><u>United States</u></b>
<b><u>Number of respondents</u></b>	<b><u>n.a.</u></b>
<b><u>Age group</u></b>	<b><u>n.a.</u></b>
<b><u>Special characteristics</u></b>	<b><u>n.a.</u></b>
<b><u>Published by</u></b>	<b><u>Pew Research Center</u></b>
<b><u>Publication date</u></b>	<b><u>June 2016</u></b>
<b><u>Original source</u></b>	<b><u><a href="#">journalism.org</a></u></b>
<b><u>Website URL</u></b>	<b><u><a href="http://www.statista.com/statistics/256358/broadcast-retransmission-fees-in-the-us/">http://www.statista.com/statistics/256358/broadcast-retransmission-fees-in-the-us/</a></u></b>

*Global Internet Television Distribution: Geoblocking and the International Expansion  
of Netflix, 2010-2016*

**A Global Network in a Fragmented World: How Netflix Navigates Differential Access to  
Content**

In January 2016 at the Consumer Electronics Show in Las Vegas, Netflix announced a near-simultaneous rollout of their streaming service in over 130 countries. The announcement meant Netflix would be available almost everywhere in the world, except for China, North Korea, Syria, or Crimea. At the same time, the availability of content on Netflix in any given area in the world varied widely, and continues to do so. As part of his announcement at CES, Netflix CEO Reed Hastings claimed that the company was working to unify content availability around the world by changing licensing practices so that they no longer are so exclusive to regions. The ultimate goal for Netflix is to offer its service everywhere on Earth, and to equalize content access. Yet the loftiness of this goal should not overshadow the reality of Netflix's current configuration: Netflix is not a singular entity but rather a series of disparate versions of streaming services and content libraries, connected by a complex and multifaceted constellation of infrastructures. Since launching its streaming service in 2007 in the United States, Netflix has faced the complexities of providing (and policing) on-demand access to a content library while also navigating the mandates of content rights holders. These complexities became exacerbated in 2010 when Netflix launched in Canada, thus beginning its aggressive international expansion that culminated in the 2016 CES announcement.

This chapter investigates Netflix as a key player in shaping the global circulation of internet television. My analysis uses geoblocking as a starting point to examine how Netflix has navigated the complexities of differential access to content as it expands internationally. I explain how Netflix approached the challenges for expanding its international subscription streaming service in light of differential access to content. To do so, I focus on Netflix's strategies for managing the coevolution of consumer viewing habits, technologies of information infrastructures, and content licensing practices. It is worth tracing and analyzing the many paths that Netflix has taken since launching its domestic streaming service to expand abroad, in order to understand how media companies establish and maintain control over access to digital products and content like television programming. Ultimately, my analysis of Netflix's international expansion helps to build a picture of the broader context within which media distribution operates, by connecting corporate strategies of content circulation to the affordances of video streaming infrastructures, to practices of curation and artificial intelligence, and to the issue of unequal access.

Building and operating a subscription-based video streaming service at an international scale, as opposed to a service confined within a single country, presented a unique set of challenges. For one, Netflix confronted some fundamental assumptions about international geographies of digital video cultures. It has been forced to enact and police boundaries, keeping some people out while also attempting to make sure that those who are allowed in—their subscribers—do not leave. At the same time, the company has claimed to work to flatten those boundaries by equalizing content access, such that all versions of the service are more or less equal. Netflix exercises a singular influence over the digital distribution of internet television programming through the deceptively straightforward practices of geoblocking, a technology of

access control that uses internet protocol address databases to determine a user's physical location via internet-connected devices. On the one hand, Netflix uses geoblocking to lock content into distinct geographic markets, thereby enforcing the licensing terms of availability set forth by content rights holders. While it takes these responsibilities seriously, Netflix also is in the process of fighting for global content licenses. Thus, as it has grown internationally Netflix has had to adhere to the practices of regional content licensing that a reliance on third party content requires. In this sense, geoblocking acts as a burden to Netflix. At the same time, the fragmented conditions that geoblocking engenders is helpful for Netflix to customize its service for international users based on language, territory, or other markers of market segmentation. In that regard, geoblocking serves as a useful tool for Netflix to optimize its personalization and curation practices, which are part of the bedrock of its streaming service strategy.

Critical attention to geoblocking is relatively limited, despite the central role it plays in constructing the cultural geography of internet-based media streaming. Existing work on geoblocking tends to focus on the practices of circumvention, detailing how and why people cross geoblocked boundaries in an effort to reframe industry-driven narratives about circumvention as a form of piracy (e.g. Lobato and Meese 2016, Elkins 2015, Wagman and Urquhart 2014, Deibert et al. 2010, Roberts et al. 2010, Christophers 2009, Goldsmith and Wu 2006). The subjects of this work tend to be individual consumers, positioned against monolithic entities like Hollywood, which try to propagate differential media markets in the name of profit, or governments that target circumvention and its tools. In many parts of the world the circumvention of geoblocking technologies has become not merely an activity of privileged, tech-savvy elites, but has gone mainstream. Such studies usefully elucidate how preexisting power structures inform the political economy of geoblocking. In this chapter, I expand on this

work by turning attention to the construction of Netflix's international streaming service since 2010 and analyzing how geoblocking is at once a hindrance and an asset for Netflix's international expansion. I describe how geoblocking frames Netflix's approach to three core aspects of its international business: *content*, *subscribers*, and *infrastructural technologies*. This approach highlights how differential access to content, and its particular instantiation in geoblocking, simultaneously serve distinct and seemingly contradictory strategic purposes, as a phenomenon external to and endemic to streaming services that operate internationally. Geoblocking becomes externalized as an obstacle to be overcome, representing older formations of media industries that seem stuck in an era predating the ubiquity of networked technologies.

The international distribution of streaming digital media brings with it a series of challenges for how Netflix deals with *content* both in terms of licensing third-party television and films and for branding its Netflix Originals. For the most part, digital content rights for video are still regional. A show or film is not universally available on Netflix; rather, the rights to include it in Netflix's library are largely negotiated country by country. Differential access to the films and television series on Netflix forces the company to create multiple versions of itself: the content library for Netflix Canada is distinct from Netflix Brazil or Netflix Japan, and so on. At the same time, content licensing has become an increasing expense given the proliferation of distribution platforms and the turn by many major content owners to self-circulate their video with services like HBO NOW and CBS All access. Netflix has chosen to mitigate that cost growth by shifting into original programming. Netflix continues to move up the supply chain from solely licensing third party content to international co-productions. It then brands these productions as Netflix Originals for its international audiences. In doing so, it is attempting to cultivate a specific subscriber attachment born out of a sense of artificial exclusivity,

differentiating itself from other streaming services and narrowing the gap amongst the many Netflix catalogs around the world. I contextualize the rise of the “Netflix Originals” brand as a response to regional content licensing practices by content rights holders. While the Netflix Originals brand has come to stand for a certain kind of content, Netflix also articulates it to a “global” level of access and availability. As such, I show how Netflix uses the Netflix Originals brand to fortify its position not in spite of differential content access, but rather because of it.

I also consider how Netflix understands both current and potential *subscribers* in terms of geoblocking. International streaming in fragmented markets reconfigures how Netflix conceives of its subscribers in terms of the recommendation system and viewership data. Netflix wants to erase the geographic borders from its streaming service by pushing for global licensing rights; however, its recommendation system attempts to exercise other forms of control over content flows by demarcating borders around specific “taste cultures,” in order to fully personalize its service for each user. In an international context, this personalized curation means that Netflix tries to act like an intercultural ambassador. Netflix envisions subscribers in terms of a series of preferences, rather than as a series of demographics. These preferences circulate not only at the level of content, as Netflix constructs connections amongst its catalog titles, but they must also attend to local languages (through subtitling and dubbing content) as well as the different modes of payment that might be normalized in each area (for instance, the use of PayPal as opposed to a credit card). As such, geoblocking seems to morph into a different form of market segmentation, where subscriber data that is generated at the level of the nation—in the form of subscriber numbers by country and region—is reabsorbed and redistributed into curation practices and personalized services.



Finally, I highlight Netflix's attention to the technological *infrastructures* that they use to help regulate geoblocking. Netflix works to effectively manage the massive flow of data traffic that its service generates, while also attending to the circumvention by users of filtering technologies that map geographic borders onto digital spaces. In particular, I analyze the shifts in Netflix's stance on subscribers using virtual private networks (VPNs), which mask a computer's IP address so that users appear to be in one country or region when they are actually in another. Netflix attempts to negotiate "Netflix tourism," where people access regional versions of Netflix's content libraries other than their own, or where people signed up from places that did not have Netflix access at all, before its service was widespread internationally. Such practices presented Netflix with a conundrum. Although Netflix tourists violated terms of service, they became paying customers. Netflix continues to operate at a crossroads, as a company whose streaming service is a compromise between content rights holders and regulators who continue to argue for stricter IP enforcement, and various constituencies that push for equal access to content. In this sense, Netflix must negotiate the calls from content owners, other distributors, its own subscribers, and regulators to exercise power as one of many internet gatekeepers, or even internet police. How Netflix has deployed its resources—its PR and marketing employees, its international offices, its company blogs, its engineering teams, and so on—to confront geoblocking and its circumvention offers important insights into Netflix's strategies for international expansion beyond content curation practices or subscriber data.

In order to investigate the interrelations for Netflix amongst content, subscriber, infrastructures, I draw from a variety of official sources to inform my analysis. Among these are Netflix's letters to investors, public conference calls, webcasts, annual reports, and associated reports filed with the SEC, along with posts on the company's official blogs, YouTube Pages,

and Facebook and Twitter, and marketing materials from Netflix's international rollout. In addition, I also use trade magazines and industry publications, popular and academic business histories of Netflix and the streaming video industry at large, and correspondence on online forums that are both about and involve Netflix and its employees. Finally, I analyze some material from the Sony email hack, which has provided some interesting insights into international distribution deals amongst Sony, its affiliated companies, and Netflix. Compiling these disparate sources and reading them in light of one another offers important insights into how Netflix has navigated the complexities of building and maintaining an international subscription-based streaming service since 2010. An analysis of these sources reveals some of Netflix's fundamental assumptions about what kinds of content to distribute and where, how to market to and service subscribers in local and international contexts, and how to deploy infrastructural technologies that best negotiate among distinct sets of interests from content rights holders, subscribers, and Netflix's own sets of management and executive teams.

I marshal these sources in order to describe and analyze content, subscribers, and infrastructural technologies as three core components to Netflix's international business. In the next section, I summarize the phases of Netflix's international expansion and examine how geoblocking implicates each of the three core components in the issues of differential access that geoblocking represents. Finally, I devote one section each to content, subscribers, and infrastructure, before a concluding section in which I elucidate Netflix's strategies for responding to geoblocking circumvention.

### **Geoblocking and Netflix's International Expansion**

Netflix is the largest subscriber-based video streaming service in the world, both by total number of subscribers and by revenue. At the end of the third quarter 2017, Netflix had nearly

110 million subscribers worldwide. According to Statista, over 57 million of these subs are in the United States, which is by far the most. The United Kingdom is second with 10 million subs; Canada has seven million, Brazil has six million, Mexico has five million, and Australia, France, and Germany each have three million. Regionally, Europe has just over 24 million, Latin America has over 12 million, and Asia Pacific has just under 5 million. As of the end of the third quarter 2017, U.S. streaming revenues have outpaced international revenues every quarter since the company started reporting separate revenue streams after the first quarter 2011. The gap has narrowed considerably, however, as Netflix reported at the end of third quarter 2017 \$1.55 billion in U.S. revenue, and \$1.32 billion in international revenue, with the latter continuing the grow as Netflix integrates further into international markets.

Netflix's streaming service expanded internationally in late September 2010, when it launched in Canada. Since that time, the international expansion has moved in several distinct phases. The first phase focused on the western hemisphere. In July 2011, Netflix announced that it had launched in 43 countries, including Mexico, Central America, the Caribbean, and South America. Between March 2012 and October 2015, Netflix slowly rolled out in Europe, beginning its second phase with the United Kingdom and Ireland in early 2012, then moving to the Nordic countries later that year. In 2013, Netflix premiered in the Netherlands. Netflix slowly moved to the central and southern parts of the continent, launching in France, Germany, Austria, Switzerland, Belgium and Luxembourg in the span of one week in 2014. Italy, Portugal, and Spain followed in 2015. The announcement at the 2016 Consumer Electronics Show that it would launch in 130 countries has so far been the final stage of Netflix's international rollout. As of October 2017, Netflix has been unable to officially launch in China, Crimea, North Korea, or Syria.

The geographic expansion has also coincided with a few distinct phases in Netflix’s role in the global supply chain for the distribution of movies and television programming. The first step in the leadup to international expansion in Canada was Netflix’s transition from DVD rental service to streaming service. Netflix had three and a half years between the introduction of its streaming service in the United States and its launch in Canada to complete this transition. An analysis of Netflix’s 10-K forms (see Figure 1)—the annual business report that it files with the U.S. Securities and Exchange commission—shows Netflix clearly signaling its shifts in the core company strategy from DVD rental to streaming. Netflix progresses from the full-scale focus at the end of 2007 (heading into 2008) on the DVD business, while “Internet-based delivery of content” remains entirely ancillary, to the end of 2010 where the DVD business is not mentioned at all as part of the core strategy. Instead, Netflix lays out in the 2010 10-K its vision for 2011 that foregrounds streaming and international expansion: “Our core strategy is to grow our streaming subscription business within the United States and globally.” The shifts between the 2008 and 2009 10-K are subtle but important, as Netflix switches the order in which “DVD by mail” and “streaming” appear, thereby signaling the transition in 2009 toward streaming as a primary business priority.

**Figure 2-1 Netflix Core Strategies as listed in Form 10-K, 2007-2010**

2007	<p><b>Our core strategy is to grow a large DVD subscription business and to expand into Internet-based delivery of content as that market develops.</b> We believe that the DVD format, along with its high definition successor formats, including Blu-ray will continue to be the main vehicle for watching content in the home for the foreseeable future and that by growing a large DVD subscription business, we will be well positioned (sic) to transition our subscribers and our business to Internet-based delivery of content.</p>
2008	<p><b>Our core strategy is to grow a large subscription business consisting of DVD by mail and streaming content.</b> We offer over 100,000 titles on DVD. In comparison, the 12,000 content choice available for streaming are relatively limited. We expect to substantially broaden the content choices as more content becomes available to us. Until such time, by bundling DVD and</p>

	streaming as part of the Netflix subscription, we are able to offer subscribers a uniquely comprehensive selection of movies for one low monthly price. We believe this creates a competitive advantage as compared to a streaming only subscription service. . . . Despite the growing popularity of Internet delivered content, we expect that the standard definition DVD, along with its high definition successor, Blu-ray . . . will continue to be the primary means by which most Netflix subscribers view content for the foreseeable future. However, at some point in the future, we expect that Internet delivery of content to the home will surpass DVD.
2009	<b>Our core strategy is to grow a large subscription business consisting of streaming and DVD-by-mail content.</b> By combining streaming and DVD as part of the Netflix subscription, we are able to offer subscribers a uniquely comprehensive selection of movies for one low monthly price. We believe this creates a competitive advantage as compared to a streaming only subscription service. Despite the growing popularity of Internet delivered content, we expect that the standard definition DVD, along with its high definition successor, Blu-ray . . . will continue to be the primary means by which most Netflix subscribers view content for the foreseeable future. However, at some point in the future, we expect that Internet delivery of content to the home will surpass DVD as the primary means by which most Netflix subscribers view content.
2010	<b>Our core strategy is to grow our streaming subscription business within the United States and globally.</b> We are continuously improving the customer experience, with a focus on expanding our streaming content, enhancing our user interfaces and extending our streaming service to even more Internet-connected devices, while staying within the parameters of our operating margin targets.

In 2013, Netflix decided to expand on this core strategy by orienting itself around a “Long-Term View,” which it published on its Investor Relations website. This Long-Term View argues that Internet TV—which Netflix classifies as “on-demand, personalized, and available on any screen”—is replacing linear TV as the dominant form of video entertainment around the world. More importantly, it articulated a clearer attention to international growth. This strategy envisions the United States as the company’s core focus, where most of Netflix’s revenue comes from, as well as much of its most valuable content. But the global focus in the Long-Term View paints Netflix as a force that transcends geopolitical boundaries while also positioning itself against the limitations of older media conglomerates:

. . . we also believe in the growing ubiquity of the internet and rapid technological progress, and that great, high-quality storytelling has universal appeal that transcends borders. That's why we are increasingly licensing content on a global basis, so Netflix members everywhere in the world can enjoy the same movies and TV series, free of legacy business models and outdated restrictions. (Netflix's View)

This image of a borderless, frictionless, egalitarian, global, and ubiquitous streaming service that revolutionizes previously entrenched models of content access serves as a useful signpost for understanding Netflix's ambitions. The company's leadership clearly knows what it wants Netflix to become. In terms of its size and scale, Netflix is largely succeeding so far in achieving its goal of becoming a "global network." At the same time, a number of obstacles emerged that constrained Netflix's expansion. Netflix's international influence is contingent on a number of important technological and regulatory factors, as well as a growing number of partnerships with local internet service providers, mobile service providers, cable and satellite companies, and consumer electronics manufacturers that produce video game consoles, smart TVs, tablets, and other devices on which the Netflix app is allowed to live.

A few underlying concerns are generally recognizable across the many places around the world that Netflix has targeted since 2010, setting aside for the moment some of the specific differences in local contexts. For one, Netflix needed to contend with existing competitors for "entertainment video"—a phrase Netflix uses in its investor relations documents—in a given location. Such competitors often included other subscription video-on-demand services that were exclusive to a certain country or region; major international internet television and movie content providers like iTunes, Amazon, Hulu, and YouTube; and cable, satellite, and telecommunications providers (collectively known in the United States as multichannel video programming distributors, or MVPDs) that had video-on-demand and "TV Everywhere" initiatives. To complicate matters further, Netflix would also have to maintain relationships with

local internet service providers (ISPs) that delivered its service to subscribers while also owning competing video services. Such relationships proved to be tricky from the outset of Netflix's international expansion. Two days after Netflix announced its launch in Canada in July 2010, Canadian ISP Rogers Media implemented a data cap for its internet service customers (Acland and Wagman 2017). Three other major Canadian ISPs followed suit. These caps were meant to force consumers into making choices about how to use their allotted data, and to cultivate an attitude that data was finite and costly. Quite often, Netflix faced issues with the availability of broadband internet in the first place, with India and Mexico being notable large market examples. In addition, the proliferation of internet-connected devices—from video game consoles, to tablets and mobile phones, to smart televisions, to set-top boxes and digital media players like Roku or Google Chromecast—meant that Netflix would need to package its service as an application that could live on a wide range of operating systems across the world.

Netflix also grappled with existing regulatory regimes at local, national, and international levels. Sometimes, regulatory conditions were extremely favorable for Netflix. As it expanded into Canada, United Kingdom and Western Europe, Australia and New Zealand especially, Netflix was often positioned as a “mainstream media service” in competition with preexisting legacy media services like broadcast and cable TV in those markets (Lobato 2017). However, Netflix benefitted from its status as a broadband-distributed SVOD service in that it was often not regulated in the same way as broadcast or cable, which were subject to local quotas on content or taxes. In Canada, for instance, broadcasters and cable companies are required by law to meet certain quotas for “producing, airing, and promoting Canadian content” (Acland and Wagman 2017). Streaming services like Netflix are not subject to such mandates. Neither are Canadian-based streaming services, but such services are required to collect sales tax and pay

income tax, whereas Netflix is not. Likewise, Netflix and other internet video services were exempt from the 2011 Brazilian Pay TV Law, which was passed to regulate foreign-owned television networks (Donoghue 2017). The law used tax incentives to support the production of content in Brazil, and implemented a content quota for how much Brazilian programming should be broadcast daily. India also has a set of guidelines for non-news channels that dictates rules about what is and is not acceptable content, but Netflix is not yet subject to them. The rules were not written with streaming services in mind, and there has been no firm ruling by any Indian regulatory body as of late 2017. At other times, Netflix had to deal with restrictive regulatory regimes. In May 2017, the European Parliament set content quotas for OTT video services at 30 percent, as part of an overhaul of its broadcasting policies through the European Commission's Audiovisual Media Services Directive (Orlowski 2017). Some European countries had previously instituted their own national quotas, including France's mandate that 60 percent of the library be French productions. In Indonesia, Netflix was forced to confront a film censorship board, which charged that Netflix was carrying content that was too violent or sexual. The state-owned telecommunications company PT Telekomunikasi Indonesia TBK even blocked Netflix's service until the company agreed to adhere to regulations (Pak and Danubrata 2016).

Each of these issues points to just how widely dispersed Netflix's international streaming service and company resources are. Netflix's attempts to build a global media network is in reality a series of interlocking agreements, conflicts, and acquiescence with the demands of a wide variety of stakeholders in a fragmented international media geography. At their core, these issues boil down to grappling with control over access: to content, to information, to material resources. It is in this context that an understanding of Netflix's relationship to geoblocking becomes important. Geoblocking uses internet protocol address databases to determine a user's



physical location via whatever device they use to access the internet, thereby mapping geographic borders onto digital spaces. It is a technology of access control, which has become a vital tool for the management of international data traffic, as well as for the maintenance of separate national media markets (Lobato 2015). As Cameran Ashraf and Luis Felipe Alvarez Leòn (2015) note, there are different forms of regulation, including technical regulations, which focus on the tools used to control the flow of information on the Internet, and activity regulations, which focus on what is controlled. Geoblocking is an instance of technical regulation, one that maps geopolitical borders onto digital spaces. The three core components to Netflix's international business—content, subscribers, and infrastructural technologies—all are implicated in the issues of differential access that geoblocking represents.

A viewer's location matters because digital content rights for video are still largely regional. Up until relatively recently, a show or film was not universally available on Netflix. Geoblocking has emerged as an important issue of content access in part because of the increased value that content rights holders and distributors place on multi-territory licensing deals. Such deals have become more profitable in recent years, with the proliferation of international distribution technologies, as well as the more global focus for streaming companies like Netflix. Traditionally, multi-territory deals were seen as secondary windows for television distribution, after national broadcasters had sufficiently benefitted from exclusive rights to the first release of programming (Steemers 2016). By contrast, as it expanded internationally Netflix began to focus more on multi-territory licensing deals as primary windows of distribution. Netflix wants to fulfill the company dream of becoming a truly "global" network, by offering much of the same content across territories at the same time.

Although it gets much of its content library through licensing deals, Netflix does not simply side with content owners on the issue of geoblocking and the segmentation of digital international media markets. In fact, as will be shown, Netflix has stood to benefit quite a bit from the circumvention of geoblocking. Those who circumvent the geoblock do not simply have free access to content. They are getting around the digital walls in order to pay for Netflix. The act of the monetary transaction is an important distinction in this case. Typically, such transactions are considered outside the “primary” marketplace, where exchange occurs in a legally sanctioned and controlled space. Exchanges beyond these constraints typically operate in a black market, underground way and tend to involve a completely separate set of actors, intermediaries, companies, and so forth. While there is some academic work that focuses on the secondary markets for digital content, it tends to be about informal or unauthorized distribution, where the financial transactions that take place do not involve “Big Media”: for instance, selling illegitimate DVD copies of DVDs on the street.<sup>3</sup> And while there are plenty of cases where businesses attempt to formalize these secondary markets in an effort to legally normalize them, such studies to date that consider secondary markets focus more on the precarity of their legal status.

By contrast, geoblocking circumvention to access Netflix seems to exist in a gray space, a combination of authorized and unauthorized activities: getting around the geoblock in order to pay for the service, rather than to download or stream content for free. Netflix has already established itself as a business with considerable clout in negotiations with content owners and with national and international regulatory bodies. Discussions about geoblocking that involve Netflix do not focus on whether or not Netflix should be allowed to operate in a legal sense;

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<sup>3</sup> See among others Currah 2004, Larkin 2008, Lobato 2012, Lovink and Niederer (eds) 2008, Harris 2007

instead, the questions focus more on how to manage or police circumvention, under the assumption that Netflix will continue to exist. As such, it offers a unique way to understand the complex interconnectedness of international digital media circulation.

An analysis of geoblocking and its circumvention reveals how Netflix operates at a critical nexus point where consumer interests, corporate interests, and regulatory interests all intersect in complicated ways. Netflix negotiates amongst content owners who continue to argue for stricter enforcement of intellectual property rights, users who push for various forms of “open access” to content, and national and international regulatory bodies that enforce legal compliance while at the same time working to ensure economic growth and protect a variety of interests, including personal privacy and security rights. Its overall strategic vision is to become a “universal” service, with worldwide coverage. It wants to not only cross geographic borders but to smooth them over, or even erase them entirely. Part of the push to become a global network is to offer the same high-demand content for everyone. For Netflix, an undifferentiated global market with a full catalogue of premium programming would simplify licensing practices, ease the burden of policing geoblocking borders, and offer a useful marketing campaign for attracting new subscribers (and keep existing ones).

Geoblocking reflects the will of state actors as well as market actors. For market actors—in particular, the content owners who license to Netflix and others—breaking up territories allows for more opportunities to generate revenue through distribution deals. In this sense, the circumvention of geoblocking is seen as a form of piracy that, under the definition of the term extolled by the content owners, takes money out of their pockets. Typically, piracy concerns are bolstered by statistical estimates of lost revenue, which form “a framework of objectivity for trade disputes and the groundwork for their articulation” (Miller et al. 215). These official

statistics, which are generally acknowledged by major state and market power brokers as legitimate markers for managing the flow of cultural content, have tended to approximate as closely as possible a one-to-one ratio between a thing stolen (a DVD, CD, a single digital copy) and that same thing otherwise purchased legally. But quantifying what is actually stolen in the case of circumventing geoblocks to access Netflix is less clear. People are crossing the borders to access content, but are still paying Netflix to use its service. I turn now to how Netflix strategizes about and conceives of issues related to content: licensing terms, differential availability, and how to cultivate the Netflix Original brand.

### **Global Content in Local Contexts: Cultivating the Netflix Originals Brand**

The international distribution of streaming digital media brings with it a series of challenges for how Netflix deals with *content* both in terms of licensing third-party television and films and for branding its Netflix Originals. This expansion began in 2010, at a time when content licenses were granted largely at the level of the nation or a predefined region. Such licensing practices still largely exist. Moreover, these licensing practices assume that distribution itself is controlled regionally by local service operators, whether they are telecommunications, cable or satellite television, or mobile communications companies. Differential access to the films and television series on Netflix forces the company to create multiple versions of itself. In this section, I contextualize the rise of the Netflix Originals brand as a response to regional content licensing practices by content rights holders. While the Netflix Originals brand has come to stand for a certain kind of content, Netflix also articulates it to a “global” level of access and availability. As such, I show how Netflix uses the Netflix Originals brand to fortify its position not in spite of differential content access, but rather because of it.

The Netflix Originals brand constitutes programming across a wide swath of genres that is in some way exclusive to the service. It encompasses programming licensed from third parties, original productions like *Stranger Things*, and co-productions like *Orange is the New Black*—which is produced through a partnership between Lionsgate Television and show creator Jenji Kohan’s production company Tilted Productions—and then more recently by moving into out-and-out ownership. As Karen Petruska usefully points out, there are three distinct forms of content that tend to appear on streaming sites: syndicated content, exclusive content, and original content (Petruska 2015). While syndicated content can be found across multiple services, channels, and networks (from CBS’s linear broadcast to Netflix to Amazon Video), exclusive content is licensed only for a single service. Moreover, original content is a means of branding that content with the signature of the distributor. The stamp of “original” is meant to suggest that the distributor has not only licensed but has also had a hand in the creation of that content. Among the “Netflix Originals” are *Sense 8*, a globe-trotting science fiction series from Lana and Lilly Wachowski, who made *The Matrix* series; *The Get Down*, a musical drama from Australian director Baz Luhrman, set in the South Bronx in the late 1970s; *Unbreakable Kimmy Schmidt*, a comedy from Tina Fey and Robert Carlock, both from *30 Rock*; and *Bojack Horseman*, an animated series. The company has invested in content across the board: dramatized and comedic series (in English, French, Spanish, Japanese, Portuguese, Korean, Norwegian and others), kids shows, stand-up comedy, anime, docu-series, a weekly talk show starring Chelsea Handler, and feature films. Netflix released over 600 hours of original content, and another 1000 hours of content in 2017.

From the beginning, Netflix Originals has been international in its focus and scale. The first example of a show or film to be released as a Netflix Originals was in late 2012 with

*Lilyhammer*, a Norwegian show with an American lead actor in Steven Van Zandt. The show was originally commissioned in 2009 by the Norwegian production company Rubicon TV for the Norwegian public service broadcaster NRK, which at the time was owned by the Scandinavian company Metronome Film & Television. Metronome was purchased by the Dutch company Shine Endemol in 2009, which was itself bought in 2011—one year prior to the release of *Lilyhammer*—by News Corp. While the first season was being filmed, Van Zandt reportedly pitched the show to Netflix, which agreed to co-invest in the production in exchange for exclusive streaming rights in the United States.

This interest in international content predates Netflix’s streaming service. It has long held international markets squarely in its purview, even back to its initial launch in 1998. Netflix’s interest in international content stemmed at first from a desire to add films to its content library for DVD rentals while minimizing content acquisition costs and differentiating itself from more established brick-and-mortar stores like Blockbuster. Such stores thrived on offering new releases of major studio films, which required inventory at massive scale to keep up with demand. As a newly launched company in 1998, Netflix opted to target older, more obscure “niche” films, which were less expensive to purchase and required smaller inventories. Netflix’s first movie acquisitions chief Mitch Lowe realized that many of their initial customers were Indian students in the local California area or technologists working in or around Silicon Valley, and were early adopters to internet-based services like Netflix (Keating 2013). The company started sending surveys to its customers and found Hindi films to be in high demand, as they were difficult to find outside of their home countries, or at local Indian markets. Netflix then began to expand its library to include Japanese anime, Chinese martial arts films, and other international genres that became of interest to its diverse customer base. Netflix has from the

beginning been a company focused on international content and customers, despite its developmental origins in the United States, where it operated exclusively for the first twelve years of its existence.

At the time of its deal to co-invest in *Lilyhammer*, Netflix had only just begun its international expansion, operating in the U.S. and Canada. Netflix moved into original programming with a now famous hands-off approach, limiting their editorial involvement and focusing instead on funding. As it moved through its three seasons of production, *Lilyhammer*'s budget basically doubled each year, from 3.7 million Euro in year one to 7 million Euro in season two to 13.5 million Euro in the final season (Sundet 2016). Netflix's focus on production investment of original programming was in part a reaction to the rising costs of licensing deals for streaming rights to third party-owned content. Content licensing has become an increasing expense given the proliferation of distribution platforms and the turn by many major content owners to self-circulate their video with services like HBO NOW and CBS All access. Such deals tend to be either strict content-licensing or subscriber-revenue sharing. Netflix has chosen to mitigate that cost growth by shifting into original programming. In 2012, Netflix spent \$1.83 billion on programming. By the end of 2016, Netflix spent around \$6 billion, and that number grew even more in 2017. Somewhere between 10% and 20% of that money is earmarked for original content, and that percentage is also expected to increase in the future. The growth in these figures has caused Netflix to rethink how it builds out its library. In terms of the sheer number of different shows and movies on its service, the U.S. version of Netflix has shrunk by around 33 percent between March 2014 and March 2016 (Epstein 2016). Instead of simply aggregating as much available content as possible, then, Netflix has had to become much more selective in its additions to the library. It also means a more targeted focus on producing and

licensing Netflix Original content, pushing harder for global content rights licenses, and working with local content producers around the world to create products with “global potential.” Netflix continues to move up the supply chain from solely licensing third party content to international co-productions. It then brands these productions as Netflix Originals for its international audiences. In doing so, it is attempting to cultivate a specific subscriber attachment by differentiating itself from other streaming services while at the same time narrowing the gap amongst the many Netflix catalogs around the world.

As the service has expanded internationally, the moves from licensing content from other companies, to licensing content that is branded as Netflix exclusive, to finally owning the show or film in its entirety is born out of the desire “to control an increasing number of international territories and windows within those territories” said Netflix head of Original Content Cindy Holland back in June 2014. In other words, the company wants to push for global content rights that it pays for, but it also wants to take advantage of the existing segmented geographies of digital content rights by selling content of its own. This move also serves as a hedge against the difficulties of negotiating for exclusive global rights. With the proliferation of distribution platforms, there is some concern that the major content owners will start to hold back their content from Netflix, or indeed will begin to launch their own streaming services, as CBS and HBO, among other traditional networks, have done. As it expands internationally, Netflix is caught in an interesting paradox: it wants to at once smooth over or even erase geographic borders when it comes to licensing practices, while at the same time it wants to validate and even cultivate the hyperlocal cultural contexts around the world, in accounting for differential tastes through both its recommendation system and in its original content production and licensing patterns.



Creating a recognizable brand identity for a streaming video company follows in the wake of developments that go back to the rise of the cable industry, first with the introduction of niche channels that catered to more specific kinds of audiences (as opposed to the mass media programming of the major broadcast networks), and then in the transformation of those niche channels themselves into brands (McDonald 2016, Curtin and Shattuc 2009). In the context of cable and satellite television, the brand became a way to assert the value of a specific channel (or set of channels) in the face of proliferating distribution services and programming options. As Kevin McDonald has argued, the niche-oriented channels “demonstrated their value to cable operators not through ratings but by formulating a brand that appealed to particular audience segments,” like the Nickelodeon orange splat logo or the “It’s Not TV. It’s HBO” slogan (McDonald 2016).

But what is the “Netflix Original” brand? In building out its content libraries, Netflix works to establish the Netflix Original brand both in terms of how it looks to subscribers and in terms of how to appeal to content creators and owners. In the United States, Netflix bills itself as an alternative, independent service: it is not a slave to traditional success metrics like ratings or box office receipts, it offers production and licensing terms that allow for more creative expression from content producers, it provides access to content that is otherwise more difficult to find, and it delivers that access “over-the-top,” which has become accepted industry parlance for content services that are unshackled from the traditions of cable television, namely program scheduling for live television, including the temporal scarcity of valuing certain segments of the day over others, with only three to four hours of “primetime” available to fill, advertising breaks, as well as elements related to customer service. In the face of dealing with subscription television services, which the American Customer Satisfaction Index rates as the most disliked industry in

the United States, Netflix positions itself as a relatively painless experience: signing up and cancelling are designed to be easy and painless, as opposed to the endless frustrations associated with the customer service call centers of Comcast or Time Warner Cable.

More specifically, however, the company traffics in what M.J. Clarke (2013) has called a beneficial addictive good in transmedia television. More colloquially, this could be understood as binge watching, where “consumption capital” is accrued based on how much one watches. This capital becomes more valuable with subsequent viewings as you move through the show. Netflix began to ramp up this kind of brand identity as it acquired serialized dramas that had originally aired on AMC, FX, BBC and other networks. These licenses were strategically timed such that they interrupted the conventional syndication windows, at least in the United States: subscribers could “catch up” on shows via Netflix before they became re-runs on broadcast or cable channels. This arrangement proved to be symbiotic, as many of these shows appeared on Netflix between seasons, but before the show itself had concluded. This led to increased ratings in subsequent seasons of the show, as people caught up on Netflix then tuned in to watch the show as it aired. It is against the backdrop of binge watching licensed content, a form of viewer behavior that in its most appealing (to Netflix) form serves as the manifestation of a deep emotional investment in the show, that Netflix continues to cultivate the Netflix Originals brand.

The company has spent ample resources cultivating a sense that Netflix was an appealing alternative to the traditional film studios and television networks, one that offered financial flexibility and artistic freedom. In this respect, it is no accident that its first major original programming deal, *House of Cards*, featured high-profile Hollywood A-listers like Kevin Spacey, Robin Wright, and David Fincher. Not only were these names enough to attract viewers, but Spacey and others involved in the show spent a lot of time doing publicity work for both

*House of Cards* and Netflix in interviews and public speeches, emphasizing how the company greenlit a two season, twenty six episode run and pledged \$100 million for the project without forcing the producers into the usual pitfalls of television production, like creating a pilot episode and worrying about whether the show will get picked up or renewed.

Netflix's original programming strategy is born in large part out of its internet-based distribution model, which allows it to circulate its shows simultaneously around the world. Broadcast, cable and satellite have been defined by the capacity to widely transmit one centralized message, and to do so one signal at a time (Lotz 2017). These are technological paradigms of mass media. By contrast, broadband internet distribution is a much more efficient mode of distribution, where the technologies that can compress, transmit, cache, decode and translate data lay the framework for broader distribution at a larger scale. These differences then lead to distinctions in business models for the distribution of television programming. Traditional broadcast and cable television is largely advertiser-funded, rather than funded through subscriptions. Even subscription-only networks like HBO were up until recently inaccessible via authorized channels except as add-ons for traditional cable packages, which still generated revenue through advertising. Advertiser-funded television requires a mass audience to succeed. By contrast, Netflix's subscription-only model is ad-free. The shows in its library do not need mass audiences because Netflix is not operating on the same metrics of success. Moreover, many subscriber-based services, or portals, have begun to operate as lone content networks that are untethered from the perceived restrictions of the economics of content bundling. They embrace specific kinds of programming, aimed at niche audiences, rather than generalized programming aimed at mass audiences. Amanda Lotz (2017) argues that Netflix uses a "conglomerated niche" strategy, by developing a variety of series for a variety of different niches, which it is able to do

given its capacity to serve each of those distinct niches at the same time. This capacity, while not unique to Netflix, nevertheless lays the groundwork for its ability to expand internationally.

I would refine that strategy categorization slightly. Given its international scale and aspirations, Netflix operates in between mass-audience programming and niche programming. Netflix's international focus is a two-pronged approach. First, the company looks for content that fits their understanding of global or universal appeal. Original programming like *Marco Polo* and *Sense 8*, which star international actors and move within the show across international locations, are efforts at a mass media-like appeal on a global scale. Netflix identifies storyline themes, genres, actor charm or relatability, or even character subjects that it flags as having what it considers to be an attractiveness across the world. For instance, Ted Sarandos was asked at the 2016 UBS Annual Global Media and Communications Conference about how the Netflix show *The Crown* was performing. He responded that the show's reception had been "really great and exactly how we'd hoped, which is that Queen Elizabeth is probably the most famous human being on the planet right now, living human being known around the world and people who know the history of her or don't and just know the history of the monarchies around the world are really fascinated by this family and this story" (Seeking Alpha 2016). In this case, Sarandos indicates that one important criteria for considering whether a show could be globally marketed as a Netflix Original is the celebrity factor of the subject. Sometimes, this celebrity is related to a character or set of characters within a show. Other times, the celebrity is linked directly to the actor, rather than the character, as in the case of Adam Sandler's four film deal.

Underlying this appeal to an imagined universal audience is Netflix's attempts to articulate a type of content—a show or film that might appeal to "everyone"—to global access to that content. Moreover, this content is further branded as exclusive to Netflix subscribers, even

as the vision of the show itself is built around inclusiveness of idealized “universals.” It is a response to what Lucas Hilderbrand (2009) has called “access entitlement,” the idea that content access should be equalized around the world. Not only should everyone be authorized to subscribe to Netflix regardless of where they live, but everyone should have access to the same content library. Indeed, it is through such shows as *The Crown* that Netflix asserts itself as an international purveyor of first run content. Not only can people watch the show all at once, and around the world, but they will be seeing the show during its premiere, as opposed to waiting for a predetermined period afterwards. International content windowing strategies traditionally have kept certain people from accessing the shows and films they want to watch. Netflix initially emerged as an important secondary market for television programming, by constructing and then filling gaps between those windows as an international streaming service that was known mostly for allowing people to catch up on ongoing shows. In this sense, the Netflix Originals brand serves as a signal that Netflix has entered the market for first-run distribution and exhibition. Such a move works to invert the power relations between Netflix, content rights holders, and other distributors.

In addition, Netflix has begun to tap into the international box office success of comic book-based tentpole franchises with its 2013 deal with Marvel TV for exclusive rights to shows based on four characters that exist within the ever-broadening Marvel Universe: Jessica Jones, Daredevil, Luke Cage, and Iron Fist. On March 17, 2016 Netflix debuted season two of *Daredevil*. The show was available, in the same moment, in 190 countries. *Wired*'s Brian Barrett hailed this moment as important for Netflix's corporate strategy to position itself “to be the first truly global content network” (Barrett 2016). *Daredevil* marked a watershed moment for Netflix's international expansion, as the first major Netflix Original release following Netflix's

aggressive international expansion just two months prior. In other words, *Daredevil* was the Netflix Original “viewable” to first reach the widest possible set of subscribers. Perhaps more importantly, the scale of Netflix’s reach mirrors its interest in the possibilities of tapping into the Marvel universe as a popular source of intellectual property, with endless opportunities for spinoffs, new series, reboots, and so forth.

This interest in mining Marvel extends to the structure of the shows themselves, as Netflix looks to build shows that work as standalone productions as well as bridges to the broader character universe. This bridging works not only in terms of storylines, but also formally as well, in the relationship between the Marvel content that exists as television programming and the films. Unlike the Marvel films, which tend to involve epic fight scenes that result in the destruction of entire cities, and sometimes are elevated to a cosmic or interstellar scale to reflect their fit for the “big screen,” the television series tend to revolve more around smaller scale intimacies that have become characteristic of the small screen. Not only that, but the Marvel television shows are driven more by character than by plot, as the conventions of long-form, serialized multi-season storytelling offers more real estate for narrative exploration.

In addition to marketing franchises that have “global appeal” (broadly defined) like *Marco Polo*, *The Crown*, *Narcos*, and shows from the Marvel universe, Netflix also cultivates its Originals brand based on productions that are made with specific types of niche audiences in mind. From the beginning of its international expansion, this aspect of its expansion has been received with mixed feelings. Across the world, Netflix naysayers pointed to tropes of cultural imperialism and Americanization, fearing that Netflix would negatively impact the local production, distribution, and exhibition industries and sectors. On the other hand, the aggression with which Netflix has expanded into original programming from around the world—whether

through licensing third-party content or co-producing from the ground up—has been a deliberate attempt to signal Netflix’s interest in incubating local creativity. For third-party content licensed as a Netflix Original, the promise to creators is wider distribution of content that may have initially been restricted to small-scale releases through festivals or local broadcasting.

Netflix’s place in the contemporary media distribution ecosystem cannot fully be understood outside of the shifting contexts for how access to content works. In terms of international content, streaming services often offer a bridge that fills in gaps of differential access to certain kinds of content that are otherwise only available for limited amounts of time, and in limited geographies. For instance, Seung Bak, the founder of a streaming service called DramaFever, said he started the site in 2008 because he wanted to practice his Korean language skills by watching Korean dramas but found that such content was difficult to locate. He could either rent pirated DVDs from Korean supermarkets in Manhattan (where he lived), or he could pay for a premium cable service that offered a limited content library: “a couple of Korean TV networks that only aired a few current episodes with no access to previous shows” (Yu 2013). A former financial industry executive, Bak went to the South Korean TV network MBC and spent six months in negotiations with the company for his new startup to legally license MBC’s content under a revenue-sharing agreement. A large number of other streaming services have popped up in the past several years with similar aims: to increase access to certain types of content that otherwise has limited distribution.

Netflix buys films and television programming from many such distributors, usually in bulk orders. This is one of the primary ways Netflix fills its libraries in new markets. Ordering lesser known viewables from distributors like DramaFever offers Netflix a quick way of obtaining content that appeals not only to niche interests, but also to subscribers in new markets

for whom such content is itself local and well-known. In the process, Netflix offloads some of the work involved in choosing content in the first place, relying on the labor and expertise of distributors like DramaFever to aggregate content based on its knowledge of a given niche taste. Sometimes, such aggregation purchases became mildly controversial in international markets. Shortly after launching in Finland in 2012, Netflix was found to be distributing a version of the Canadian-American sci-fi series *Andromeda* that had been translated by a popular fansub community called “DivX Finland,” rather than using official or authorized subtitles (Van der Sar 2012). Netflix apologized for the error to a local Finnish newspaper and removed that version of the show. While Netflix may not have knowingly used unauthorized versions of shows in this case, they have often used unauthorized distribution platforms like BitTorrent as research sources when deciding on what content to buy, and what films and shows are popular in a given area. During its launch in the Netherlands in 2013, Vice President of Content Acquisition Kelly Merryman told the local tech blog *Tweakers* that “with the purchase of series, we look at what does well on piracy sites” (Schellevis 2013).

Sometimes, Netflix combines these two foci into a single show. In 2016, it began simultaneous international co-production of *Ultimate Beastmaster*, an athletic competition show with competitors from six different countries: the United States, Brazil, South Korea, Mexico, Germany, and Japan. Netflix filmed six different versions of the show, from the point of view of hosts from each of the countries speaking in their native tongue. The only discernable difference across the versions of the show is which two hosts guide viewers through the competition. The show doubles not only as a competition amongst elite athletes but also a competition of nationalities, as the hosts adamantly cheer for the athletes from their respective countries. Netflix then decided to selectively distribute each version. The below table shows data on the show’s



availability from Netflixable, a website that catalogs where given viewables are available across 39 countries (a relatively small subset of the over 190 countries Netflix currently operates in).

The English language version from the United States is clearly the flagship, as it is the only version available everywhere, including the places where the other five versions are available.

The only other overlap is in the United States, where the Ultimate Beastmaster Mexico version is available.

**Figure 2-2: Availability of Ultimate Beastmaster**

Season 1 Ultimate Beastmaster Version	Countries where the show is available
UB USA	Argentina    Hong Kong    Philippines Australia    India            Portugal Austria       Ireland           Russia Bangladesh   Israel            Singapore Belgium       Italy               South Africa Brazil           Japan              South Korea Canada        Luxembourg     Sweden Costa Rica     Mexico            Switzerland Denmark       Netherlands     Taiwan Egypt           New Zealand     Thailand Finland        Norway            United Kingdom France          Pakistan           United States Germany       Panama
UB Brasil	Brazil Portugal
UB Mexico	Argentina Costa Rica Mexico Panama Spain United States
UB Japan	Hong Kong Japan Singapore Taiwan
UB South Korea	South Korea

UB Germany	Austria Belgium Germany Luxembourg Netherlands Switzerland
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The show was renewed for a second season, with a different set of countries in addition to the United States for its versions: Spain, France, Italy, India, and interestingly China. The data above is obviously incomplete, as it omits the vast majority of countries in which Netflix operates. However, the table does shed some light on some of the underlying assumptions about the distribution of original programming across Netflix’s “global” content library. For Netflix, language clearly transcends national borders when it comes to content, and yet language is still used to construct regional market segmentation. This distribution choice seems to be strangely at odds with the very production of the show itself. In every version, all six sets of judges are visible at certain points to the audience. All judges are shown at the beginning of each episode to be lined up in what look like cubicles, with each set of hosts simultaneously performing their hosting responsibilities by serving as master of ceremonies to their respective version while also acknowledging periodically the existence of their fellow hosts. Yet while each set of hosts is on equal footing within the show itself, it is clear from the distribution of the versions that the U.S. version serves as the service’s master copy, given its availability in all 39 countries. Netflix thus seems to be driven at least in part by assigning its own original content to regional libraries based on a broad understanding of language dissemination. The motivation behind this decision is not entirely clear. Why not release all versions everywhere?

It is clear that sometimes Netflix deliberately withholds its original programming despite owing global distribution rights. However, it is only recently that Netflix has held such power

over content in its libraries. Its international expansion has proceeded largely piecemeal, and Netflix has had to adapt some hybridized strategies for negotiating content licenses. For instance, Netflix obtained the streaming rights to certain ongoing shows before they launched their service in many countries. In March 2016, Netflix released the fourth season of *House of Cards*, but that season was not made available to people in Austria, Germany, Switzerland, Spain, Hong Kong, Turkey, and much of Africa. Moreover, in a few countries, no seasons of the show are available at all. Such situations result from legacy licensing agreements in place between Netflix and Media Rights Capital, the production company that owns the show, and Sony Pictures Television, which handles worldwide distribution through a sales partnership (Van der Sar 2016). The first season of *House of Cards* launched on February 1, 2013, with Netflix famously releasing all 13 episodes of the first season at the same time. At the time, Netflix was available in the United States, Canada, the United Kingdom, Latin America, and Scandinavia. Within two months, Sony Pictures Television had sold the distribution rights to the show to companies in dozens of countries. In Germany for instance, the exclusive local rights to *House of Cards* were first licensed to Sky Deutschland, a media company that runs a Satellite Pay-TV platform.<sup>4</sup> The show was available both on Sky's linear programming schedule and its on-demand service. In both Spain and France, CanalPlus obtained exclusive rights to the first two seasons. So, by the time Netflix launched in these two countries, it was forced to contend with the fact that it could not offer one of its flagship original shows, and moreover that local competitors could.

Such examples happened as the result either of a lack of power in licensing negotiations or because Netflix did not foresee or care about the problems of separating its streaming service from its original programming. However, they can also be seen as fortuitous. In fact, it is

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<sup>4</sup> Sky Deutschland operates only in Germany, but is in fact owned by 21st Century Fox.

important to note that Netflix's content is sometimes strategically detached from the service itself. Whereas Netflix's initial international growth strategy involved growing its subscriber base through robust marketing campaigns once they enter a given market, it also uses the strength of the programming itself as a standalone asset. In other words, Netflix-branded content that exists beyond the streaming service has been and continues to be a useful means of international expansion. This has proven particularly true in China, by far the largest market in the world where Netflix's streaming service does not yet operate. For years Netflix has attempted to penetrate the Chinese market with its service, and due in large part to national regulations for economic protectionism those efforts have not worked. Netflix then turned to a different approach in early 2014, reaching a licensing deal with Chinese streaming service Sohu for the rights to *House of Cards*. The show quickly became the most-watched show on Sohu (Wan 2014). In April 2017, it announced another content licensing agreement with the Chinese streaming service iQiyi, which is a subsidiary of the massive Chinese search company Baidu (Brzeski 2017).

This section has detailed many of the critical components to Netflix's international expansion strategies as they relate to original programming. But for whom is this programming made? How does Netflix conceive of its subscribers, and how are such assumptions built into the service itself? Moreover, how does the fragmentation of international markets through geoblocking play into Netflix's strategies for courting new subscribers and keeping existing ones? To address these questions, the next section examines how Netflix's recommendation system operates in the context of international subscriber bases.

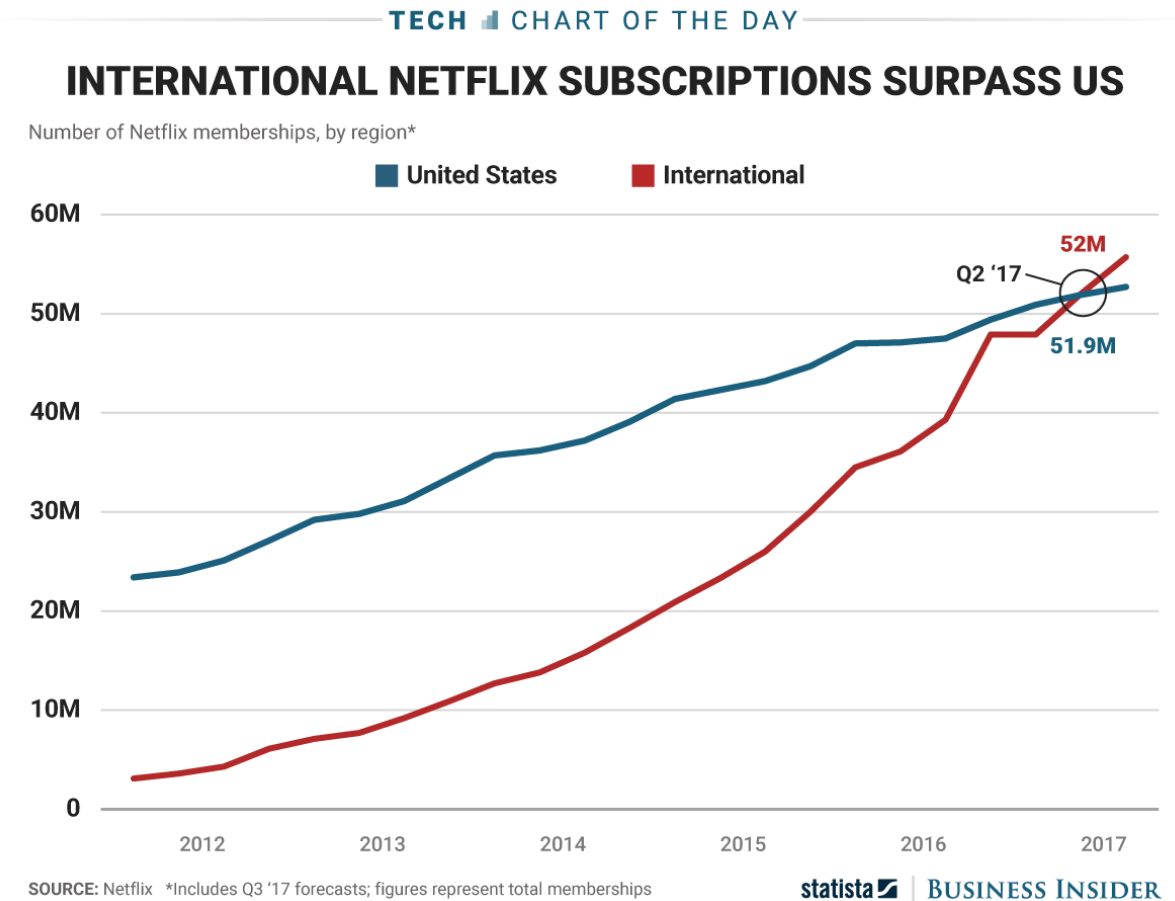
## **Reimagining the Netflix Subscriber in International Contexts**

In this section, I consider how international streaming in fragmented markets reconfigures Netflix's conception of its subscribers, in terms of the recommendation system and viewership data. Constructions of who those subscribers are, why they matter, and what they want out of a streaming service is fundamental to Netflix's international expansion. These constructions are built into certain parts of the streaming service itself. In particular, the recommendation system becomes the engine through which Netflix feeds its assumptions about subscribers back to the subscribers themselves. Although the various proprietary internal algorithmic machinations of its recommendation system are "black-boxed" to a great degree, the recommendation system has always been a core marketing tool for Netflix's service. As Sarah Arnold has argued, the way that Netflix positions its recommendation system as a useful instrument for improving its subscriber's viewing experience "represents a shift in audience measurement and interpretation from the notion of the depersonalized mass to the personalized, the individuated, and the autonomous" (49). Netflix wants to erase the geographic borders from its streaming service by pushing for global licensing rights; however, its recommendation system attempts to exercise other forms of control over content flows by demarcating borders around specific "taste cultures," in order to fully personalize its service for each user. In an international context, this personalized curation means that Netflix tries to act like an intercultural ambassador. Netflix envisions subscribers in terms of a series of preferences. These preferences circulate at the level of content, as Netflix constructs connections amongst its catalog titles. Netflix must also attend to local languages (through subtitling and dubbing content) as well as the different modes of payment that might be normalized in each area (for instance, the use of PayPal as opposed to a credit card). As such, geoblocking seems to morph into a different form

of market segmentation, where subscriber data that is generated at the level of the nation—in the form of subscriber numbers by country and region—is reabsorbed and redistributed into curation practices and personalized services.

Much of the impetus for Netflix to expand abroad so aggressively and in such a short period is to try to accelerate the build out of its subscriber base, as monthly subscription payments are its primary source of revenue. Netflix's letter to shareholders at the end of the 2016 third quarter reveals the extent to which Netflix has begun to rely on international growth. While the domestic subs have grown modestly in the past year, up to 46.5 million from about 42.1 million at the end of the 2015 third quarter, internationally subscription growth has been much more pronounced. As of September 30, 2015, Netflix reported 23.95 million paid memberships. A year later, that number was up to 36.8 million (Letter to Shareholders). In July 2017, Netflix reported that for the first time, international subscribers had overtaken subscribers in the United States during the second quarter 2017. Figure 2.1 from Statista illustrates the comparative rise in subscribers from the U.S. versus the rest of the world.

Figure 2-3: International Netflix Subscriptions Surpass U.S.



Netflix executives identified international expansion as their primary means of growing a sustainable and profitable business, in part because subscriber growth in the United States could not keep up with the rising costs of content licensing and production. However, the projections for when subscriber growth will begin to seriously mitigate the cost of content continue to be pushed into the future, given the accelerated pace of content spending. If anything, servicing subscribers has only become more expensive since Netflix started its international expansion. The average programming costs per streaming customer worldwide have increased from \$16 in the third quarter of 2012 to \$21.50 in the third quarter of 2017. Given the scale and scope of its “global” ambitions, Netflix is clearly betting big on its ability to sign up new subscribers and keep existing ones.

Digital media platforms from Netflix to Facebook to Google largely close off their recommendation systems from public scrutiny, obscuring the processes that connect users of these platforms with the content on that platform.<sup>5</sup> Yet although Netflix tightly guards much of the specifics of its viewership data and how it operates its recommendation system, there is some useful public information available from its official tech blog and other public pronouncements, including publications in scholarly journals by its employees. Such information can be revealing, identifying certain assumptions that those working in the company are making about the relationship between people, content, and culture. Specifically, analyzing these public documents can generate insight into how viewer data gets filtered through the Netflix recommendation system, and how that in turn organizes the content library across geographic regions.

One of the benefits of the company's foray into streaming video—as opposed to digital downloads, for instance—is the constant connection that Netflix can maintain with its subscribers. Shifting from renting DVDs to streaming video meant the company could extract a lot more information about the subscriber's interactions with the content. The DVD business was (and still is) fueled by the one to five-star viewer ratings, because that rating system was the primary indicator that the viewer had actually watched what they had rented. In addition, the major object of the Netflix website for the DVD business was to help people fill their queues with titles that they would only see in the future, as it took several days to exchange a DVD (Amatriain and Basilico 2012). By contrast, subscribers on the streaming service are looking to watch something at that moment. This is one major reason why the “queue” itself was renamed as “My List.” With the queue, the subscriber must “wait in line” for the DVD to arrive at some point in the future; that list is also lined up such that it moves one at a time, in order, based on

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<sup>5</sup> See for instance Gillespie 2007 and 2011, Vaidhyathan 2011, Hallinan and Striplas, 2016



what a subscriber wanted to watch next. By contrast, “My List” reconfigures the element of waiting and the element of the hierarchical ranking. Waiting is now a factor of viewer choice rather than a necessity born out of the DVD-by-mail distribution system.

In the case of DVD-by-mail service, the problem of waiting was for Netflix geographically contained to the United States. It manifested as a matter of efficiency in logistical planning: where to open up distribution centers, how inventory was managed, and how best to work with the U.S. Postal Service to most effectively deliver the most DVDs in the fastest way possible to the greatest number of subscribers, among other factors. By contrast, waiting in the context of international streaming exposes the inequity of digital video geographies. For those actually interested in the service, waiting became a function of either not having access at all to Netflix, or complaining that one’s locally available content library did not contain certain desired shows or films. Moreover, the internet facilitated international information flows such that people from around the world started tracking what was on Netflix in given areas around the world and when certain content would arrive or disappear. Existing and potential international subscribers were thus quite aware of their own lack of access, and at the same time could clearly see what others had access to.

In December 2015, Carlos Gomez-Uribe, Vice President of Product Innovation at Netflix, and Neil Hunt, its Chief Product Officer published an article that digs into the data science of the Netflix recommender system (Gomez-Uribe and Hunt 2015). This article reveals how the company understands what a recommendation system is in the context of streaming video on subscription services, how the company thinks of their subscribers in terms of choices and preferences, and finally some of the ways that Netflix demarcates digital markets. The recommendation system for streaming, as Gomez-Uribe and Hunt write in 2015, “consists of a

variety of algorithms that collectively define the Netflix experience, most of which come together on the Netflix homepage” (13:2). With slight differences based on the type of device one uses to access the service, the Netflix home page is designed to look like a grid, or a matrix: a viewer is greeted with a series of rows of images, and each image represents a distinct title in the catalog.

In Figures 2-4 through 2-8 below, the variations across devices to the Netflix homepage can be seen. All photos or screenshots were taken within 10 minutes of each other on Wednesday November 16, 2016, across the five different devices that can access Netflix in my house: the Netflix app on a Playstation 3 connected via an HDMI cable to an HD TV, the Netflix app on a Smart TV, the Netflix website on a HP laptop, the Netflix mobile app on a Samsung Galaxy S5 phone, and Netflix app on an iPad. The distinctions are subtle in some cases, as with the different row names and titles between Figures 2-4 and 2-5. There is some overlap in others: four of the five figures showcase “Popular on Netflix.” The main banner title, however, is different in four of the five cases, although each showcases a different Netflix Original.

Figure 2-4: Playstation 3

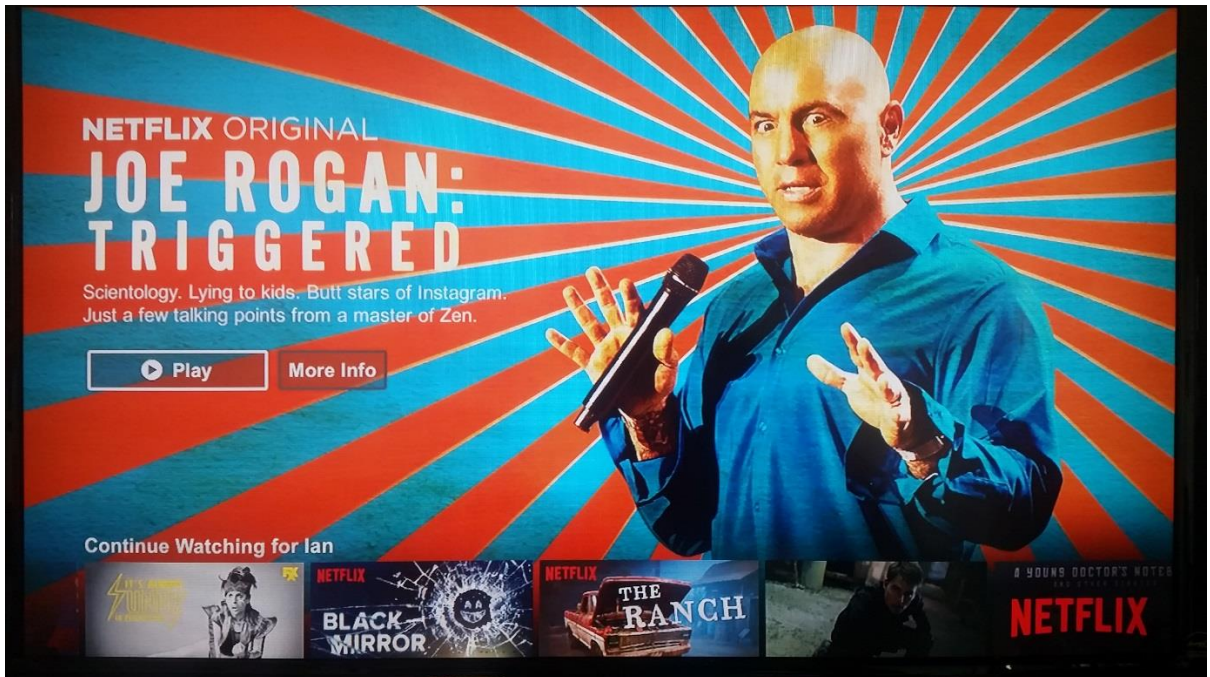


Figure 2-5: Smart TV

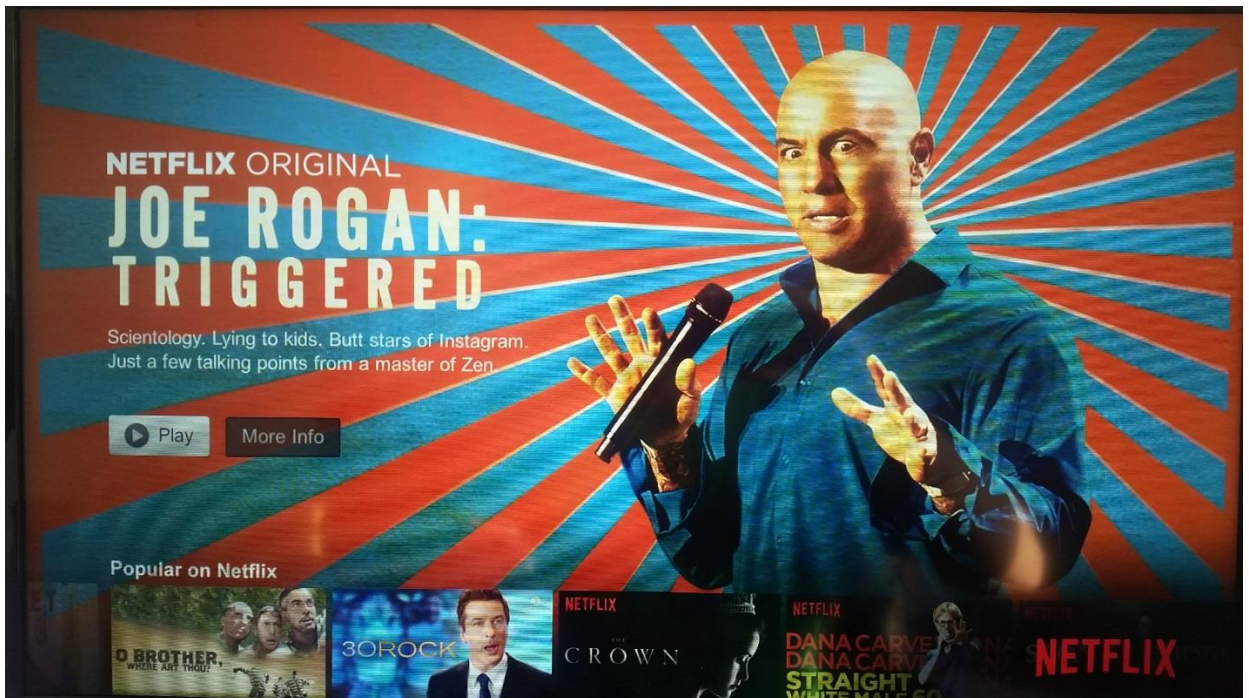


Figure 2-6: Netflix website via HP laptop

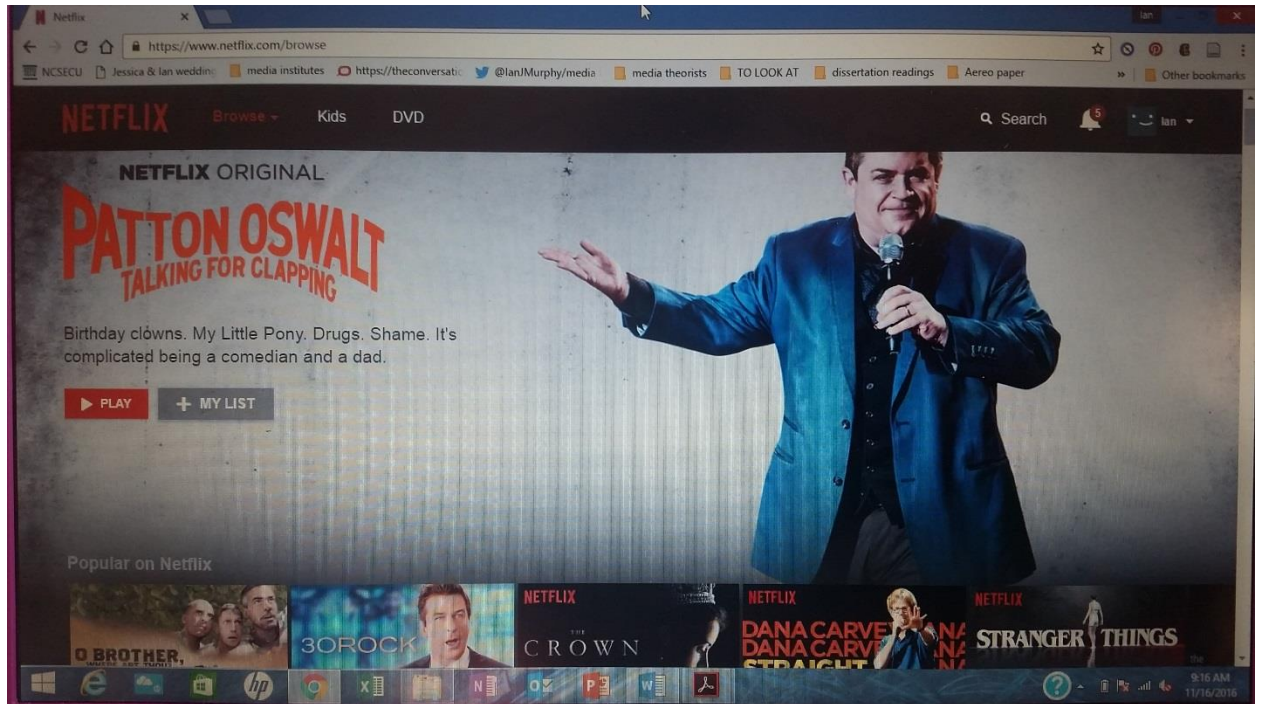




Figure 2-7: Samsung Galaxy S5 phone

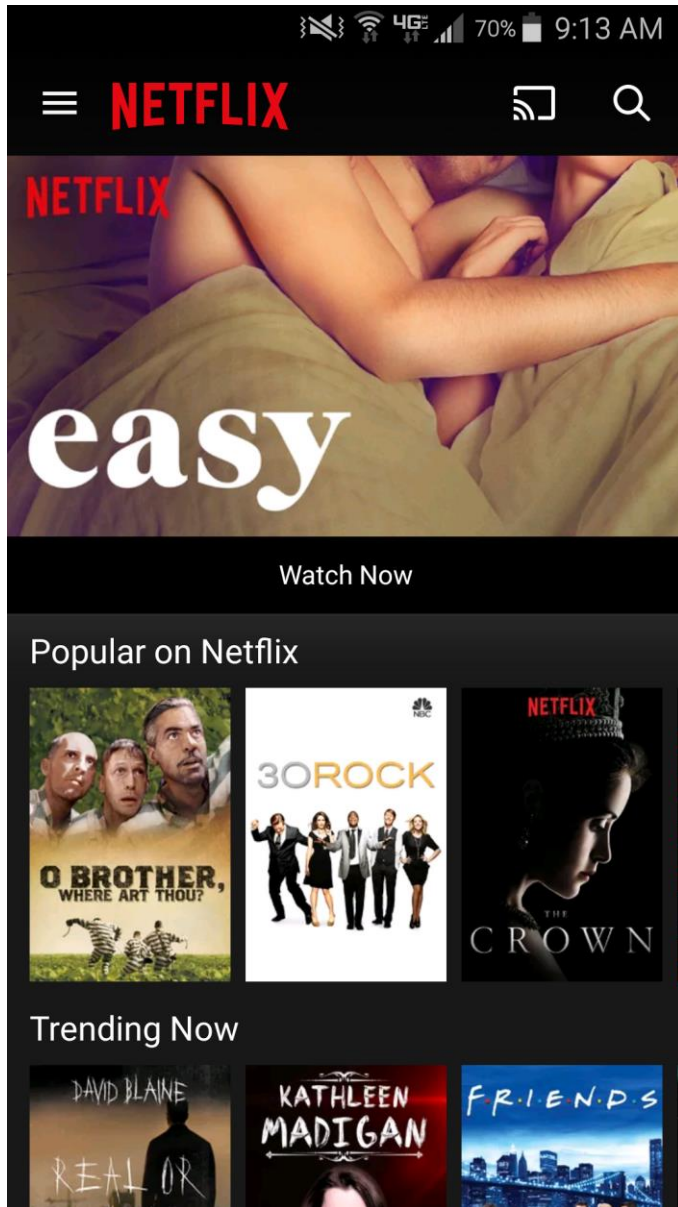
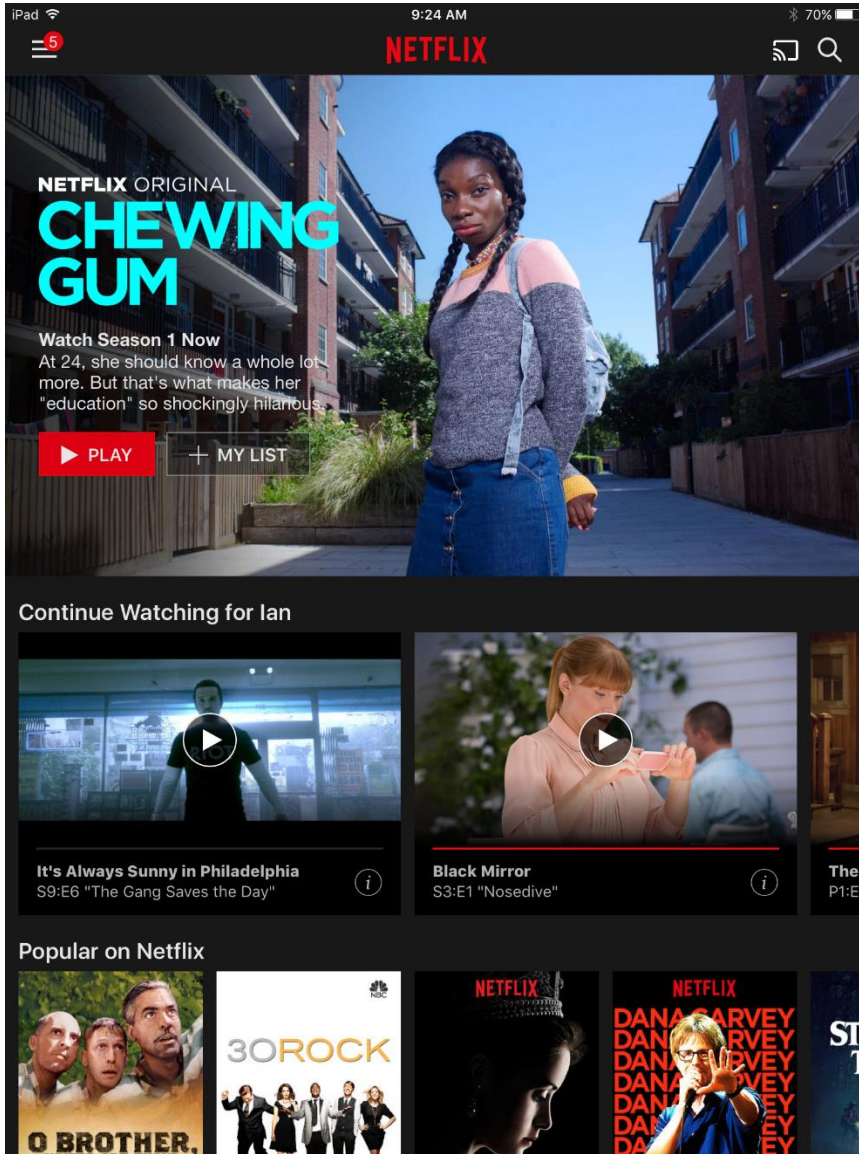


Figure 2-8: iPad



Each title in a given row is related to all other titles in that same row, by a particular “theme”: this theme could be a genre (“Romantic Movies”), popularity (the “Trending Now” designation), when the title became available (“Recently Added”), if you had previously begun to watch (“Continue Watching”), or a row of “Top Picks” titles that Netflix suggests for a specific member profile. These genres and other categorizations are constructed specifically for Netflix. In 2007, the company hired the first set of “taggers”: people who are employed to watch and tag specific titles in as many ways as possible that reflect with some degree of accuracy the many and varied characteristics of each title (Siemens 2015). In January 2014, Alexis Madrigal of *The Atlantic* reported that Netflix had 76,897 unique ways to describe its content titles (Madrigal 2014). Per Gomez-Uribe and Hunt, each homepage has around 40 distinct rows, and within each row there can be up to 75 titles. The recommendation system accounts for around 80% of the hours streamed at Netflix, while the remaining 20% comes from Netflix’s search functions.

Titles are generated within each row by a distinct algorithm, based on the category of the row designation. For instance, titles in each genre row (“Romantic Movies”) are dictated by Netflix’s *personalized video ranker* (PVR) algorithm, which organizes the catalog for each member’s profile. As of November 2016, there can be up to five distinct profiles on a single account. The personalization of the PVR comes from a “blend personalized signals with a pretty healthy dose of (unpersonalized) popularity” (Gomez-Uribe and Hunt 13:3). In other words, the PVR algorithm works by combining data based on a single subscriber’s viewing preferences with a larger aggregated dataset that is culled from across the entire Netflix member base, but that is specific to the genre or other similar filtering category.

The *Top N video ranker* finds a few personalized recommendations, which are organized in the “Top Picks for (user name)” row. Unlike the PVR, the Top N titles are generated from the entire catalog, rather than from a distinct subset of the catalog (like a genre). As with the PVR, these titles are driven in part on “unpersonalized” popularity data, which is used to rank the possible titles that the algorithm recommends. In addition, the titles themselves are selected in part based on personalization criteria, like data on what that viewer has previously watched. The algorithm draws from different periods of a viewer’s history, ranging from what that person has watched in just the past day to what they have watched across the previous year.

The *video-video similarity* algorithm, or “sims,” works similarly to the Top N, except it bases its recommendations on a single title rather than sampling from across a subscriber’s previous viewing history. The sims algorithm generates a ranked list of similar videos for every title in the catalog; in this sense, the recommendations are drawn from so-called unpersonalized data, because the ranked titles are based on attributes between titles that are alike and are determined independent of a viewer’s preferences. These titles end up in the “Because You Watched” (BYW) rows. Although the recommended titles within a given BYW are not themselves personalized, the actual BYW rows that end up on a subscriber’s profile are personalized based on viewer history. In other words, although the BYW recommendation list for *The West Wing* is basically the same regardless of whether it appears on my profile or my neighbor’s profile, my neighbor’s viewing history may cause the algorithm to suggest a BYW list for *Arrested Development* instead.

How then does the recommendations system account for the differences across countries between content libraries? Gomez-Uribe and Hunt explain that the recommendation system operates regionally, rather than using a single recommendation system (yet) or using a specific



system for each individual country. Each region is made up of countries that have similar catalogs and that also have a large enough base of subscribers to generate the necessary amount of data for the algorithms to work within the prescribed margin of error. In development is a single system that operates “globally,” and shares data across countries irrespective of region. At the same time, however, the recommendation system can respond negatively as a result of differential content availability: two titles that would otherwise be categorized as similar types of content may instead be classified as dissimilar because the titles do not live in the same content library. In this sense, Netflix tries to account for the limitations of regional content libraries by steering subscribers *away* from content. It is an effort to minimize the recognition of a library’s absence, while simultaneously highlighting the library’s “strengths.” Such algorithmic permutations betray an assumption on Netflix’s part that viewables on its service are inextricably tied to the fragmentation of international markets. Moreover, this connection is exacerbated in a “on-demand culture” (Tryon 2013), when instant access is demanded.

In addition, there are other algorithms that account for cultural data that exists outside the bounds of personal viewer preferences or aggregated information on popularity. Although Gomez-Uribe and Hunt do not say so explicitly, these algorithms are an attempt to account for factors that contribute to the context of a subscriber’s life. For instance, the *trending ranker* offers title recommendations based on an understanding of major events that are happening at a given time. This ranker identifies two different types of trends: repeat events and one-off, short-term events. Repeat events include annual holidays: titles about or involving Christmas tend to spike every December, for instance. One-off, short-term events include natural disasters: the example that the authors use is the arrival of a hurricane, which is “covered by many media

outlets, driving increased short-term interest in documentaries and movies about hurricanes and other natural disasters” (Gomez-Uribe and Hunt 13:4).

This example is born out of an interesting assumption on the part of the authors, which is that the awareness of a particular kind of event correlates to an increased interest in learning about or even “experiencing” in a mediated way similar types of events. Although this is admittedly only one example, it does raise important questions about whether the Netflix engineering teams, which seem to be so advanced in their ability to fine-tune the various components of their recommendation system, are in fact assuming a rather simplistic model of “effects-based” communication with the media. It is unclear the extent to which they can account for the complicated ways that people interact with media at the level of the text and media becomes meaningful in various contexts: cultural, political, economic, domestic, and so forth. Attending to the assumptions underlying how such algorithms work to organize access to media content (and “knowledge” more generally) is profoundly important, as they can shape not only corporate policies on recommendation systems but also public policy as well.

It is important to point out that Gomez-Uribe and Hunt identify the trending ranker as a useful tool for identifying *temporal* trends: in using their examples for both repeat events and one-off events, what is important for this algorithm according to the authors is *when* they happen. What is assumed to matter less is *where* they happened. A closer look at some of the company’s recent public pronouncements offers some insight into how Netflix integrates physical geography into its recommendation system. For instance, in March 2016, Todd Yellin, Netflix’s VP of product innovation, told *Wired* that “There’s a mountain of data that we have at our disposal. That mountain is composed of two things. Garbage is 99 percent of that mountain. Gold is one percent. . . . Geography, age, and gender? We put that in the garbage heap. Where

you live is not that important” (Barrett 2016). A Netflix Tech Blog post from February 17, 2016 from two Netflix engineers who work on algorithms and machine learning refines this statement somewhat:

. . . we sought to combine the regional models into a single global model that also improves the recommendations we make, especially in countries where we may not yet have many members. Of course, even though we are combining the data, we still need to reflect local differences in taste. **This leads to the question: is local taste or personal taste more dominant?** Based on the data we’ve seen so far, both aspects are important, but it is clear that taste patterns do travel globally. Intuitively, this makes sense: if a member likes Sci-Fi movies, someone on the other side of the world who also likes Sci-Fi would be a better source for recommendations than their next-door neighbor who likes food documentaries. Being able to discover worldwide communities of interest means that we can further improve our recommendations, especially for niche interests, as they will be based on more data. Then with a global algorithm we can identify new or different taste patterns that emerge over time (Raimond and Basilico 2016).

Both quotations contest the assumption that geography plays some strong determining factor in the development of people’s “taste” for content. Geography is also a well-established and traditional demographic category of consumer marketing, along with age, class (or socio-economic status), ethnicity, gender, race, and sexuality. Yellin refutes the idea that, as a unit of measurement or as a factor in a dataset, geography can offer useful insight into subscriber preferences. In fact, a slightly deeper analysis into this sort manufacturing of algorithmic culture suggests that Yellin and the Netflix teams would simply prefer to tell a story that minimizes the connection between geography and taste: between where someone lives and what someone wants to watch. This story shifts the common assumption about how to account for “quality” in a cultural hierarchy. The “best” recommendation system is not one that recommends a series of canonical titles that somehow represent the greatest film and television programming, nor is it one that recommends the most popular titles, but rather one that can modulate seemingly disparate titles that may otherwise appear out of place (Hallinan and Striphas 2016, Pariser 2012). This is the essence of Netflix’s curation practices.

Such practices underscore Netflix's efforts to interface with subscribers by eliding geopolitical borders and regional differences in the availability of content. Netflix has worked to equalize subscriber experience with the service, even as the available choices are not always equal. Sometimes these efforts have been clumsy and mishandled, as Netflix has moved into different countries. In 2010, prior to its launch in Canada, Reed Hastings gave an interview where he coyly hinted at the first country Netflix would expand to: "The big market for Hollywood content (after the U.S.) is Europe. . . . Third is Asia. Fourth is the rest of the world. . . . Canada is and was an option. It's sort of international-lite" (Keating 2010). This backhanded slight only served to further underscore concerns about the Americanization of a still nascent streaming economy (Acland and Wagman 2017). Complaints would often loudly and publicly arise when Netflix initially launched in a new country, especially where English was not a primary language. Following its launch in Brazil in 2011, then VP of Global Corporate Communications Jonathan Friedland addressed rising concerns about the lack of subtitled or dubbed content in an interview with Gizmodo Brazil. The company was conducting focus groups to gather feedback on whether people preferred subtitles or dubbing. He made clear that one obstacle the company needed to avoid was basing decisions on a "vocal minority," as opposed to sticking with majority-rule feedback (Heim 2011).

As much as Netflix wanted to elicit feedback from its subscribers, it also felt that it had a pedagogical role to play in markets where streaming video was still in its earliest stages. In 2012, Netflix Director of Corporate Communications Joris Evers noted some of the "unique challenges" that Netflix faced while expanding into parts of Latin America: "Click and watch video subscription services are new to Brazil and as a result, it takes time to educate people about how easy Netflix is to use, how safe it is, and what a great value we offer for a very fair price"

(Stewart 2012). There is a strong element of conversion or even evangelizing to such comments. Evers articulates a sense of responsibility for Netflix to not only introduce the conveniences of internet-based video streaming, but also to work to adjust normative practices of cultural consumption by extolling the virtues of their subscription service. The implications are that Netflix would be improving the lives of the people in these new markets, as well as taming preexisting cultures of unauthorized digital content circulation through p2p downloading. Netflix took a similar approach in the Netherlands when it launched in 2013. After acknowledging Netflix's practices of monitoring BitTorrent in an interview, Reed Hastings told a local journalist that "Netflix is so much easier than torrenting. You don't have to deal with files, you don't have to download them and move them around. You just have to click and watch" (Van der Sar 2013). Moreover, the company line in interviews has been to claim that the existence of Netflix is in fact decreasing traffic on file-sharing sites. In 2012, Chief Content Officer Ted Sarandos was asked by the UK consumer electronics website *Stuff* about how Netflix combats piracy. He responded by saying that

One of the things is we get ISPs to publicize their connection speeds—and when we launch in a territory the Bittorrent traffic drops as the Netflix traffic grows. So I think people do want a great experience and they want access—people are mostly honest. The best way to combat piracy isn't legislatively or criminally but by giving good options. One of the side effects of growth of content is an expectation to have access to it (Edwards 2013).

Speaking to international subscribers through local journalists and bloggers has been a staple tactic for Netflix as it has expanded its service. There is a recognition in such statements that their subscribers are often early adopters of technology many of whom already have access to the content that Netflix is entering a market to provide. Especially early on its expansion, when streaming video (as opposed to digital downloading) was relatively nascent in its adoption,

Netflix adopted what seems to be an “inform and reform” approach: to inform potential subscribers in new areas about the conveniences and superiority of streaming over downloading, while also reinforcing the fact that their service was completely legal in an effort to reform cultural practices. In this final section, I shift focus from subscribers to streaming infrastructures, in order to dissect how Netflix dealt with issues of unauthorized access and the circumvention of geoblocking as it expanded internationally.

### **Conclusion: Responses to Geoblocking and to Circumvention**

Netflix has expanded to nearly 200 countries in less than seven years. While this rate seems extraordinarily rapid, many streaming video consumers were not interested in waiting for Netflix to launch in their countries. Moreover, many people were not interested in remaining restricted to their assigned version of Netflix, given the differences in content libraries. To get around these restrictions, people use virtual private networks (VPNs), which mask a computer’s IP address so that users appear to be in one country or region when they are actually in another. They are then able to access the version of Netflix from the country it appears they are in. Netflix attempts to negotiate “Netflix tourism,” where people access regional versions of Netflix’s content libraries other than their own, or where people signed up from places that did not have Netflix access at all, before its service was widespread internationally. Such practices presented Netflix with a conundrum. Although Netflix tourists violated terms of service, they became paying customers. Netflix thus operates at a crossroads, as a company whose streaming service is a compromise between content rights holders and regulators who continue to argue for stricter IP enforcement, and various constituencies that push for equal access to content. In this sense, Netflix must negotiate the calls from content owners, other distributors, its own subscribers, and regulators to exercise power as one of many internet gatekeepers, or even internet police. Netflix

works to manage the massive flow of data traffic that its service generates, while also attending to the circumvention by users of filtering technologies that map geographic borders onto digital spaces.

Netflix's streaming infrastructure is distributed across the world. In January 2016, Netflix announced that it had finally completed a seven-year process of migrating large parts of its streaming service to Amazon Web Services (AWS) (Brodkin 2016). A major portion of this move involved billing and payments, the migration and general operation of which require sensitivity to the security of people's personal and financial information. According to Yury Izrailevsky, Netflix VP of cloud and platform engineering, "All the search, personalization, all the business logic, all the data processing that enables the streaming experience, the 100 different applications and services that make up the streaming application, they live in AWS" (Brodkin 2016). Amazon's cloud network is housed in thirty-five total "Availability Zones," spread across thirteen regions around the world (Amazon AWS Global Infrastructure). These Availability Zones consist of one or more data centers, "each with redundant power, networking and connectivity, housed in separate facilities," according to Amazon's AWS site. As of October 2016, Netflix operates out of the regions in Oregon, Northern Virginia, and Dublin (Brodkin 2016). At this point, then, Netflix's streaming service no longer works through its own data center space (its DVD business still does, however). Instead, its operations are the function of a series of collaborations with, in many cases (as with Amazon) some of its major competitors for consumer of video services. Part of the management of Netflix's service requires distributed data sites, which offer the flexibility of responding to logjams or bottlenecks in data delivery.

As has been made public on several occasions over the past few years, Netflix uses up an incredible amount of the Internet's capacity, in particular during "peak" hours, in the evenings.

In May 2015, that figure was cited at 37 percent of downstream Internet traffic; streaming media in total reportedly accounted for over three-quarters of all traffic (Protalinski 2015). To help alleviate this stress, Netflix shifted to its own content delivery network (CDN) called Open Connect. The point of the CDN is to have the content delivered locally, rather than to have it travel from one central node (Netflix's headquarters, for example) across thousands of miles through the Internet's backbone. Basically, Open Connect deals with the processes that happen once you hit "play." Open Connect consists of thousands of large hard drives that contain copies of Netflix's library. These hard drives—which are boxes that look like a desktop computer—live all across the country and the world, inside the data centers that are operated by local Internet service providers, either within the ISP's networks or at Internet exchange points, where traffic moves across networks. Depending on the geographic location, some of these boxes hold the entire content library—including multiple copies of the more popular movies and shows—while others hold more stripped-down versions, depending on the geographic rights licenses. When Netflix opened its doors to the 130 new markets in March 2016, it required only four different Open Connect Locations to handle the content demand: these were located in Dubai, Singapore, Hong Kong, and Johannesburg (Barrett 2016).

At the broadest possible scale, Amazon Web Services and Open Connect together encompass the infrastructures that Netflix uses to maintain its streaming service and deliver content to the variety of consumer electronic devices used by subscribers around the world. This all too brief overview serves to underscore the material reality of international streaming services. Rhetoric about on-demand, all-access streaming services, where content is available any time, anywhere, on any device, should not paper over the fact that this content travels from somewhere. It does not materialize out of thin air. Moreover, the path it takes is determined in



large part by technological architectures and regulatory constraints. In this sense, then, Netflix does not simply deliver content to subscribers across international borders, it also to some degree polices those borders and in the process, manifests them in the first place.

Streaming video over the internet has evolved in the context of regional restrictions on access to popular films and television programming. In the process, a whole cottage industry has developed to help circumvent geoblocks. In some places, geoblocking evasion has become a mainstream cultural staple, at least for those early adopters of internet technologies. Ramon Lobato detailed how in 2012 geoblocking circumvention very nearly became a regulatory mandate in Australia. The Australian government announced a Parliamentary Inquiry into how the country could combat what it saw as unfair trade practices with other countries (in particular the U.S.). Australians were fed up with years of spending more for cultural goods. The Inquiry's final report recommended "amending the 1968 Copyright Act to allow lawful circumvention of geoblocking, and educating consumers about how to use VPNs effectively" (Lobato 2015). While such recommendations did not end up passing into law, the gesture itself was taken to be an endorsement by the government for circumventing geoblocking. Netflix proved to be an incredibly popular service in Australia, with unconfirmed estimates of up to 200,000 subscribers in mid-2014.<sup>6</sup> Yet Netflix did not actually launch in Australia until 2015. Australians used VPNs to circumvent the geoblock that prevented them from accessing Netflix's service in the country. They would then sign up as subscribers as though they were in a country that already had access, like the United States.

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<sup>6</sup> See Pocketbook 2014, Taylor 2015, Bulbeck 2014.

For years, Netflix essentially looked the other way on such circumvention measures, aside from including a clause about it in its terms of service. The company's terms of service say the following, with respect to user geography:

You may view a movie or TV show through the Netflix service primarily within the country in which you have established your account and only in geographic locations where we offer our service and have licensed such movies or TV shows. The content that may be available to watch will vary by geographic location. Netflix will use technologies to verify your geographic location.

The 2014 Sony email hack offered some interesting insight into the specific reasons for Netflix's position on VPNs and other circumvention measures. As reported by ArsTechnica, one email sent in November 2013 from Sony Pictures Television's president of international distribution argues that

Netflix are heavily resistant to enforcing stricter financial geofiltering controls, as they claim this would present a too high bar to entry from legitimate subscribers. For example, they want people to be able to use various methods of payment (e.g. PayPal) where it is harder to determine where the subscriber is based. They recognize that this may cause illegal subscribers but they (of course) would rather err that way than create barriers to legitimate subscribers to sign up.

However, in late 2014 claims began to surface that Netflix had begun to crackdown on VPN use in a more systemic way. Many subscribers who used VPNs—and several VPNs themselves—reported that Netflix was no longer working correctly. During the Consumer Electronics Show in early January 2015, Neil Hunt, the chief product officer for Netflix, disputed those claims by saying that the company had not changed their policy on VPNs, and that “people who are using a VPN to access our service from outside of the area will find that it still works exactly as it has always done.” This response is quite coy, because the rhetoric about the extent to which Netflix can “crack down” on VPN use is somewhat overblown. They may be able to

target a particular VPN, but it is also the case that VPNs can adjust. So what Hunt seems to be saying here is that VPNs will work as they always have, *despite Netflix's efforts*.

More recently, Netflix seems to have changed its tune when it comes to VPNs, by more explicitly denouncing their use. For example, in January 2016, Netflix Vice President of Content Delivery Architecture David Fullagar published a post on the Netflix blog, stating that the company would continue to honor regional licensing agreements:

Some members use proxies or “unblockers” to access titles available outside their territory. To address this, we employ the same or similar measures other firms do. This technology continues to evolve and we are evolving with it. That means in coming weeks, those using proxies and unblockers will only be able to access the service in the country where they currently are.

Among the measures that Fullagar alludes to is a blacklisting of IP addresses that Netflix finds are linked to particular VPNs.

While many consumers (and consumer advocacy groups) and content owners agree that some regulation over the flow of streaming video content via Netflix is acceptable, and even necessary, there is no clear consensus on what form that regulation should take. This is in large part because any regulations that are implemented have implications that extend beyond the context of the business of video streaming, and the consumer experience of it. For instance, advocates of Virtual Private Networks argue that efforts by Netflix to block its service on VPNs sets a dangerous precedent, because doing so works to articulate the use of VPNs with unlawful or unsanctioned consumer activity. VPN proponents argue that there are more fundamental and important reasons to use such services that go beyond breaking through borders on the Internet: VPNs offer their users security and privacy. In other words, when Netflix takes steps to block access to its service by VPN users, the company is basically accepting as true the argument that the main reason people use VPNs is to circumvent geoblocking regulation. In fact, there is some

evidence to suggest that Netflix has more actively accepted that argument, at least in terms of its technical team. Elsewhere in his blog post, Fullagar's claims that "If all of our content were globally available, there wouldn't be a reason for members to use proxies or 'unblockers' to fool our systems into thinking they're in a different country than they're actually in."

For proponents of VPNs, such arguments seem tone deaf for a company that wants to position itself as a forward-thinking brand that embraced—and indeed championed—what it saw in streaming as a cutting-edge consumption model. In fact, framing the response in this way, and for the response to come from one of the company's chief engineers, seems to mark an interesting transition for Netflix in how it thinks of itself in certain contexts, from disruptive Silicon Valley tech company to more traditional media company that is interested in the protection of intellectual property. There is little doubt that the head of content delivery architecture understands why people use VPNs beyond simply circumventing geoblocking; however, he chose either explicitly or implicitly to frame VPNs in terms of their ability to break the rules, and ignores their other more upstanding uses. Some have argued that there are different technical responses that Netflix can take to address circumvention. In May 2016, the digital rights group OpenMedia petitioned Netflix to stop targeting VPNs. The petition was signed by around 45,000 people, and offers alternatives to enforcing geographic restrictions, including linking content libraries to credit card addresses. Moreover, the letter articulates VPN use in relation to privacy concerns and net neutrality debates, because VPNs offer a way to ensure that browsing is not throttled by internet service providers. As Netflix has also been a vocal advocate for the principles of net neutrality, the point of this letter seems clear: to try to position users and Netflix as on the same side, and to suggest that the real problem is the way that licensing deals are negotiated. If action needs to be taken, it should be directed at something other than VPNs.

Indeed, it is sometimes the case that VPN users are trying to access Netflix in ways that are perfectly within the bounds of the company's user agreement. For instance, one report cites a transcript between a Netflix subscriber and Netflix customer service, after the subscriber contacted Netflix to inquire about why they could not access a certain film. When told that the subscriber used a tunnel broker, which is a technology like a VPN, Netflix conceded that that was indeed the cause for the disruption in service. The interesting wrinkle here is that the subscriber was based in the United States, and was simply trying to access the U.S.-based Netflix library.

In this chapter, I have used Netflix's international expansion as a case study to explore some of the underlying technological, legal, and economic concerns associated with a fragmented global mediascape. In the next chapter, I turn to Twitter's foray into streaming live television programming to uncover some of the ways that social media integrates with legacy media like broadcasting, as well as artificial intelligence and machine learning technologies.

## *Internet Television Goes Social: Twitter Livestreams the NFL*

### **Marrying Social Media and Television**

In March 2016, several tech companies—including Twitter, Amazon and Facebook—were in the midst of a bidding war for the rights to live-stream Thursday night regular season games of the National Football League for the 2016-17 season. Twitter emerged the winner and agreed to pay around \$10 million to stream the network broadcasts from either CBS or NBC of 10 games. It was one among many live-streaming deals that Twitter struck over the course of 2016, including with the other three of the “big four” professional sports leagues—the National Basketball Association, Major League Baseball, the National Hockey League, the Pac-12 Networks for college sports, and CBS News, which agreed to allow Twitter to livestream its feeds of the Republican and Democratic National Conventions (Isaac 2016).

The deal with the NFL serves as an example of how a technology company and social media platform like Twitter attempts to reinvent itself as a hybrid video broadcaster, in order to broaden its appeal as a more “mainstream” destination for both internet users and advertisers. This transformation involves integrating a popular service for user-generated content, where the barrier to entry for new users is so low that people do not even have to sign up for an account to use the service, with broadcast television, an industry that bottlenecks the flow of information down to a few select outlets. Moreover, Twitter’s deal with the NFL signaled higher aspirations to become the primary mechanism of control for the distribution of live television content over the internet, by building out a streaming infrastructure that can deliver video beyond Twitter

itself, operating across multiple platforms and outlets while also aggregating user data for advertisers. Thus, Twitter's livestreaming deal with the NFL serves as a pivotal case study for thinking about how networked distribution systems are created and sustained, especially as television programming continues to migrate online and onto mobile platforms (Braun 2015). Live television serves as a trojan horse for social networks, as they incorporate broadcast feeds in order to experiment with automated advertising technologies, artificial intelligence and machine learning. As social media companies continue to partner with legacy media institutions to form ever more complex interconnected technological formations, this chapter uses Twitter's foray into livestreaming to explore social media's evolving roles in reconfiguring access to popular culture over the internet.

A primary goal of this chapter is to trace the transmission path that television takes through a hybridized distribution system that connects broadcast networks with social media networks, through web applications, and onto the various electronic exhibition devices that people now use to watch. Focusing on the sets of relationships that make up the distribution path exposes the types of intermediaries for the circulation of television that have emerged in recent years, and which work to control the route that content takes and the nature of our access to it. Such intermediaries are often hidden from public view and are easily overlooked, even in scholarly analyses of online distribution. They include startup artificial intelligence companies and machine learning technologies, streaming infrastructures owned by major conglomerates like Disney, and emerging initiatives from within Twitter itself.

In order to properly assess the implications of this deal for the future of media distribution, this chapter identifies, defines and analyzes the characteristics that make Twitter a viable portal for live television, and the strategies that Twitter has used in order to begin

distributing live television in the first place. As such, this chapter builds on the work of the previous two chapters by re-contextualizing live television in light of the shifting means of distributing television programming and video content more broadly. I expand chapter two's scope of analysis by incorporating live television to deepen understanding of not only how streaming video works, but also how it is defined as a technological and cultural practice. I use Twitter's entry into livestreaming television to analyze how social media logics upend and reconfigure traditional broadcasting logics. By addressing social media's role in television distribution, I further develop the insights from chapter one, which used Aereo to articulate how broadband influences broadcasting conventions, and vice versa.

In the following section I contextualize Twitter's role in the broader media ecosystem, as a social media platform with international reach, but with a business model that suggests a lack of future sustainability for the company. It is within this context that Twitter's decision to livestream broadcast television makes sense. Then, in the next section, I detail Twitter's deal with the NFL. I unpack this deal and scrutinize it, in order to piece together the circulation path that connects social media to broadcast television. I then transition in the next sections from contextualizing and explication to analysis. I start with an analysis of Twitter's role as a gatekeeper for broadcasting content. Following this analysis, I document Twitter's development of a hybrid technical infrastructure for livestreaming, with one section each on: Twitter's infrastructure for authorized, formal broadcasts (like the livestreams from the NFL); Twitter's acquisition of Periscope, a platform for user-generated, informal broadcasts; and finally, Twitter's "front-end" infrastructure, which deals with distribution issues at the level of the interface with the user. Finally, I conclude with a brief assessment of the marriage between broadcasting and social media and its implications for the constitution of distribution circuits. On



the whole, this chapter illustrates the technical, institutional, and organizational architecture of Twitter's television distribution system: the layers of technologies and how they interconnect, the many business partnerships in play, and the way that Twitter restructured its own internal structure to reorient itself around livestreaming television.

### **Reimagining Twitter from Second Screen to Livestream**

Twitter is supposed to operate as a tool that facilitates decentralized communication. It is free to join and erects minimal barriers to entry aside from internet access. One need not even create a Twitter profile to use the service. The platform itself is also open to “user experimentation and reappropriation,” whereby users can modify some of Twitter's tools to their own ends (Tufekci 2017). But as a publicly traded company that does not generate revenue through subscription payments (like Netflix does or Aereo did), Twitter relies on internet advertising to make money. While Google (and YouTube) and Facebook are the most dominant platforms for advertising on the internet, Twitter still maintains a robust, multibillion-dollar annual revenue stream from ad sales. In the fourth quarter of 2015, Twitter reported \$556 million from ads shown on its platform, with another \$85 million coming from off-Twitter ad sales that it generates through its MoPub mobile ad exchange and TellApart, an automated ad-buying startup that Twitter acquired earlier in the year (Peterson 2016). Since August 2014 when it introduced “Promoted Video,” Twitter has incorporated video ads into its business more and more. As of the fourth quarter of 2016, video became the largest portion of Twitter's ad revenue (Swant 2017).

This growth in video ads on Twitter is part of a series of broader trends across multiple media industries. As the use of mobile devices increases worldwide, advertisers and online publishers have for the past few years continued to experiment with different ad formats to

account for the changes to consumption patterns and the smaller screen sizes. More emphasis has been placed on advertising in “storytelling formats” with elements of interactivity that are supposed to draw audiences in, rather than the static formats of traditional internet advertising like banners (Edmonds 2016). Video is considered a useful format on social media sites, as they can be formatted to fit across a variety of screen sizes and can also blend into a user’s timeline or feed. In addition, traditional video is a gateway to more experimental forms of advertising—and sponsored content—that offer more immersive experiences, including virtual and augmented reality. Entering the market for live television streaming allows Twitter to further enter the market for video advertising, as the cultural expectations for ad breaks during broadcasts—especially for live sports—is already built into the viewer experience (in particular in the United States).

Increasingly, Twitter company executives are making decisions that recentralize control in an effort to stabilize the platform’s reputation, to generate a stronger user base, and ultimately to maintain a growing revenue stream through ad sales, data licensing, and content partnerships. Twitter can be an organizational tool for gathering people together or disseminating messages in a targeted way, a means of gathering data about user activity and information flows, a way to facilitate how people navigate space online by linking “content” (news articles, websites, and so on) that takes people off Twitter’s platform, and now as a television. It can be used for one-to-one communication as well as one-to-many and many-to-many. It is an unmitigated success in its ability to ingratiate itself into the culture by offering numerous ways of rewriting, for better or worse, many of the norms of popular language with its #hashtags and its 140-character limit. It has become an integral tool of communication for “the mainstream media.” Reporters regularly use Twitter to report breaking news, and tweets are often integrated into national and local

broadcasts, and are published on innumerable popular websites as sources of information. At the same time, President Trump claims Twitter is his most effective way of speaking directly to “the people,” so that he can actively bypass the mainstream media (CNN 2017). Of course, for someone with the gravitas of the President of the United States, these two affordances of Twitter tend to converge. Not only is the President tweeting to his followers, but the media will inevitably cover such tweets, thereby offering another wide audience.

This platform flexibility has sparked what Twitter executives seem to consider an existential crisis for the company, stemming from a lack of clarity about what Twitter actually is. On an earnings call in August 2015, CEO (and Twitter co-founder) Jack Dorsey gave voice to this anxiety by stating that “an answer to ‘why Twitter’ must be articulated clearly (Peterson 2015). He announced an upcoming marketing campaign aimed both at potential users and at investors that would work to address that question. The company’s Chief Marketing Officer, Leslie Berland (who had been hired from American Express in January 2016), admitted at the 2017 Consumer Electronics Show that there has been ongoing confusion about Twitter’s “purpose” since it first launched in 2006: “So, we were a platform, a product, a service, a water cooler, a time square, a microphone, and we are every single one of those things” (Kapko 2017). At the same time, this crisis has its own strategic value for Twitter, which seems to publicly complain about how to articulate its purpose every few years. In 2010, Twitter co-founder Evan Williams steadfastly argued that the initial confusion the company felt about its purpose – “is it a social network? a Facebook feature? – were put to rest: “I think it’s pretty clear now that Twitter is a real-time information network” (McGirt 2010).

Although it operates as a social network, Twitter’s executives have for years cultivated its relationship to more traditional mass media, especially television. While individual users

continued to take advantage of—or be mystified by—Twitter’s open design, the company insisted on hitching its wagon to television’s star, first as a second screen that facilitated discussion about TV programming, and then more recently as a source of programming itself. Twitter jumped into the excitement in the mid-aughts over “interactive television,” the latest craze to try to tap into potentials for “democratizing” television by turning it into a two-way medium. Twitter started to strike up partnerships with broadcast and cable networks to help them integrate viewer tweets into broadcasts. Twitter offered the immediacy of event access that by this point had become rote for traditional television, and at a granular level that broadcasts did not reach. Tech literate early adopters could turn to Twitter for updates on local events, following along with tweets from people “on the ground,” that broadcasters would often ignore, before broadcasts were on television. In 2013, Twitter’s then-CEO articulated this vision of Twitter’s symbiosis with television to *Forbes*, in an article titled “How Twitter Will Save TV (and TV Will Save Twitter)”:

As we’ve grown, it’s become more and more clear to us that the characteristics that make up Twitter—public, real-time and conversational—make it a perfect complement to television. TV has always been social and conversation-driven. It’s just that in the past, the reach of that conversation was limited by the number of people in a room or who you could talk to on the phone or the next day at the watercooler. Broadcasters have come to understand that Twitter is a force multiplier for the media they’ve created (Bercovici 2013).

Part of the initial effort to rebrand the company was to try to shift the public perception of how people can use Twitter. Some of these changes have been subtle, but were implemented to recalibrate expectations and perceived social anxieties about the impetus for users to constantly be sharing their thoughts via tweets. For instance, in 2016 Berland had the company moved from the social networking category of app stores to the news category. Doing so is an effort to foreground Twitter as a tool for gathering information, while shifting to the background its use as

a tool for *generating* information, which it had originally been intended for as a microblogging service. The move from social networking to news also brings with it an implicit shift in Twitter's role as an information processing platform, specifically in terms of the company's capacity to serve as an editor, curator, and culture filtration system. The turn to live television is a natural extension of Twitter's rebranding as a news app in the sense that, like with news, people tune into live broadcasts to find out "what's going on."

Twitter made its mark with the television industry as the second screen: the device that people are using while watching television (the first screen), which facilitates trackable user communication (Nee and Dozier 2017; Gil de Zúñiga, Garcia-Perdomo, and McGregor 2015; Cameron and Geidner 2014; Rossi and Selva 2014). The second screen offers a feedback loop where people can express their thoughts on a particular show, which is enticing for marketers and advertisers. It also operates as a platform for supplementary content (behind-the-scenes looks at actors or the production process, for instance). Early iterations of the second screen tended to involve polls for reality shows, where viewers text or call in to vote. This idea has a few distinct but related valences. For one, the second screen is of secondary importance to the first, or primary, screen: the television. Twitter has positioned itself relative to the major industrial players in the television industry as the platform for audience output: it is the outlet for people to communicate about the inputs from the television. The second screen also inverts the idea that broadband and broadcast paradigms are at odds with each other, and can actually be in lockstep. Twitter's relationship with the television industry becomes symbiotic, as it is a tool that links together the centralized control of mass media with the user-generated control of social media. Underlying the assumption of mass media is the commodification of audiences: shepherding groups of people "together" in order to sell access to them. The dominant means of

doing this for broadcast television has typically been in terms of the *scale* of the audience: the larger the better. With the emergence of cable television in the 1980s and 1990s and the proliferation of channels specializing in specific kinds of programming, the “niche” audience became important for advertisers. Whereas the large audience was thought to be valuable in size alone, the niche audience was small in number, but more “passionate” about the programming. Social media offers both hyper-niche and mass scales of audiences through its surges in user traffic. In addition, the second screen tethers the user to a programmer schedule, by creating a common space where viewers of the same show or live event can go to express themselves. Not only do users gather on Twitter, they often do so at appointed times.

For years, much of Twitter’s business model has been built on exploiting this construction. When they unveiled in May 2013 their “Twitter Amplify” program, they framed it as a set of multi-screen partnerships, where the second screen—Twitter—performs as the marketplace where broadcasters, advertisers, and consumers all can meet and interact:

We think these types of two-screen sponsorships are a win-win-win. Users receive spectacular, timely content that rounds out their TV experience or reminds them to tune in. Powered by Promoted Tweets, broadcasters reach new audiences and open up new business lines. Brand advertisers get, for the first time, an integrated cross-platform tool for reaching the social conversation wherever it happens (Roberts 2013).

One major component of the second screen is its interactivity, which has created more direct lines of communication among users, content owners, advertisers, and so forth. For broadcasters, the second screen has been an effective tool for extracting more detailed information about its audience, and in ways that move beyond simply considering the viewer-show relationship. This is because the second screen, the mobile device, is always connected as “part of the ubiquitous computing continuum” (Snickars and Vonderau 2012, pp. 9). Part of the way that this continuum is constructed is through “passive” measurement of user activity, through for example audio

watermarking and audio fingerprinting, which can operate in the background to capture user activity without intruding on user experiences (Lee and Andrejevic, 2014).

The social network as second screen provides an added benefit for both users and for advertisers and broadcasters, because a user's social network tends to operate as a way to collaboratively filter what is otherwise information overload. Twitter, Facebook and other third-party apps which are designed specifically to act as second screen silos have all begun in the past few years to build this filtration system into the very design of the service by incorporating a "trending" feature. Unlike the recommendation algorithms that operate beneath the surface on these services, the trending features are incorporated as part of the user interface in a way that is specific to the content or event itself, rather than to the relationship between the user and the user's social network. In other words, what shows up in Twitter's "Trending Now" are key words, topics, or events that have reached a certain audience size, and that a sufficient number of users are tweeting about. What is foregrounded here is not that "Trending Now" is personalized *for you*, but rather that it is generally of interest to a "mass" of users. For broadcasters and for social media companies, the second screen always *assumed* that the user was watching the primary screen, the television. The second screen was therefore one means of ensuring that an audience did in fact exist: that there were people watching the content and at the same time. Of course, this is often the case; however, there was still an unknowable distance between the second screen and the primary screen. By integrating the primary screen into its platform, however, Twitter can theoretically erase that distance. In the next section, I describe and analyze Twitter's first major attempt to become the primary screen: the 2016 deal to livestream regular season games from the National Football League.

## **The Twitter Deal with the NFL**

Sports and other live events like awards shows are seen as steadfast revenue sources for broadcast television networks and the legacy television ecosystem. In the past several years, the price of live sports rights contracts between leagues and networks has increased immensely. Cable and broadcast networks charge distributors to carry their content on a per subscriber basis. ESPN charges by far the most of any network: as of August 2016 the monthly fee was \$7.21 per sub, with an additional \$0.90 for ESPN2 (Sherman 2016). This has more than doubled from ESPN's 2007 subscriber cost, and far outpacing the cost of other channels, both cable and broadcast. At the same time, the major sports league and the broadcast and cable networks have for years looked for ways to generate new forms of income through video, while also working to preserve their existing and quite lucrative partnerships with conventional media distributors. The NFL's deal with Twitter reflected these dual priorities. Twitter beat out several other kinds of companies that were all vying for the contract with the NFL—including Amazon, Verizon, and Facebook—despite not bidding the highest amount of money. Twitter's less competitive offer included a proposal for an advertiser revenue split and non-exclusive streaming rights, which meant that the NFL could sell the rights to other streaming platforms beyond Twitter.

In addition, Twitter's streaming deal continued an ongoing collaboration with the NFL. In 2013, the NFL joined as an early "multi-screen" partner in Twitter's Amplify program, in which the NFL authorized various brands to distribute video clips and highlights from its games to be circulated on the platform. Twitter's hashtags serve as an organizational tool for all those interested in a particular game, team, player, or in professional football in general. Curating attention in this way offers the NFL a form of brand reinforcement. The NFL also sells pre-roll video ads that play before the game highlights; the deal with Twitter involved a revenue share of



the advertiser money. Verizon Wireless and McDonalds served as the first two major sponsors of the program; Microsoft later joined the same year. Each of these companies paid millions of dollars for the ad rights, revenue that was split between the NFL and Twitter (Sloane 2014). The initial partnership for the 2013-14 season allowed only allowed highlights from the league's Thursday night games. The league expanded those rights to the Sunday games for the following season.

Twitter's foray into livestreaming is more than a function of technological integration or a desire to become a broadcaster. The decision to livestream begins with a partnership, rather than an organically grown broadcast division. Further, the partnership with the NFL reflects a corporate culture that seems to operate through the cultivation of specific relationships between employees. In addition, Twitter's relationship with the NFL—and with the television industry—was actively baked into Twitter's executive hiring practices. On July 1, 2014, Twitter announced that it was hiring Anthony Noto as its Chief Financial Officer. Noto had served as the managing director of Goldman Sachs' technology, media, and telecom investment banking group. Part of his previous experience at Goldman Sachs' had been to organize Twitter's Initial Public Offering only a few months prior, in November 2013 (Luckerson 2014). He also had prior experience service as a CFO. In January 2008, Noto was hired by the National Football League to serve as the first CFO in five years. Often, the Chief Financial Officer is the company interface with Wall Street. The CFO is charged with convincing investors that the company is on the right (profitable) path. For a social media company like Twitter, this has meant being able to show sustained user growth, as well as robust advertising revenue quarter by quarter, year over year. Noto is also not the first Twitter employee with a background in television media. Former head of the Twitter's TV initiative Fred Graver came to the company after three decades working in

television, including running the Travel Channel. Former head of revenue Adam Bain, whom Noto succeeded, came from Fox (McGirt 2013). CEO of BET Networks Debra L. Lee serves on Twitter's Board of Directors. Twitter co-founder and CEO Jack Dorsey also serves on the board for the Disney Corporation.

To examine Twitter's deal with the NFL it is first useful to look at its major precursor, which happened a year prior. The National Football League announced on June 3, 2015 that it had sold the exclusive rights to stream a single regular season game to Yahoo for \$20 million. It was the first time that the NFL, a notoriously tight-fisted organization that closely guards its intellectual property, sold broadcasting rights for distribution online. This agreement granted Yahoo the right to livestream the game not only in the United States, but around the world, for free. Not coincidentally, the game in question against the Buffalo Bills and Jacksonville Jaguars would also be played overseas, in London. It would be scheduled such that it streamed on the east coast of the U.S. at 9:30 am (2:30 pm in London), precisely three and a half hours before the NFL's typical Sunday games kick off, which is about the duration of a single game.

Two things are important to note here, as they relate to the broader story about livestreaming broadcast television. The first is the centrality of the scheduling process for television. This deal with Yahoo was an attempt by the NFL to introduce a new time slot for NFL programming into the broadcast schedule. A typical Sunday NFL schedule has a set of games on Sundays at 1 pm EST, then another set of games with staggered kickoff times between 4 pm and 4:30 pm EST, and then an 8:30 pm EST game scheduled for Sunday night primetime. Adding the 9:30 am game in London was an experiment in a fourth Sunday time slot. In other words, although Yahoo's distribution mechanisms offered a new and officially sanctioned means for watching the NFL, both for its core American audience and for those abroad, this deal largely

maintained the traditional temporal control elements of an older medium. The second important factor here is how this scheduling paradigm reinforces the Americanism of the sport, even as it starts to travel overseas. Specifically, the centrality of the east coast of the U.S. is the standard “zero hour” around which the rest of the country itself for this kind of television programming. Playing in London opened up the European market for the NFL, while also appeasing the scheduling paradigms for the core audience in the United States.

Having contextualized and described Twitter’s deal with the NFL in the previous two sections, I now devote the next four sections to an analysis of the deal, the complications of integrating social media platforms with live television broadcasts, and the implications of the deal for the future of livestreaming.

### **Twitter as Gatekeeper**

The NFL’s interest in expanding interest in American football to international audiences corresponds with opening up access to broadcast feeds through the livestreams on Yahoo and then on Twitter. With a conventional broadcast, access to the feed is geographically restricted to regions in the United States. Such restrictions exist in part because the NFL wants to fragment the American market for purposes of selling advertising, but they also exist in part because the technological constraints of traditional broadcast technology meant that feeds would only travel so far. For NFL fans, the game that one sees depends on where one is located. Games are restricted to local markets and surrounding areas, for the most part.

In entering the video streaming business, Twitter is functioning as a de facto gatekeeper for content. However, they seem to be rewriting the industry rules for how a gatekeeper operates. For instance, part of the deal with the NFL to stream games was that Twitter would keep the streams open not only to Twitter users, but to anyone. Those people interested in watching via

Twitter do not need to log into the service, which is different from other sports streaming services. Major League Baseball—former parent company to BAMTech, which runs Twitter’s streaming technology—has for years offered its own streaming service, which is kept behind a strict paywall. Twitter’s openness here is emblematic on the one hand of the broadband-era logics of interoperability, as competing business interests can collaborate to create a seamless user experience. At the same time, the logic of interoperability is overlaid with the desire to monetize attention and user interactions, as well as to produce the very conditions of interoperability that such “partnerships” allow in the first place.<sup>7</sup> Twitter’s streaming deal pushes it further into the role of a broadband-age broadcaster, in the conventional sense of free over-the-air broadcasting. Their lack of a required login represents Twitter acting as a replacement for broadcast networks, at a time when people are shifting away from consuming video through traditional television, and when with initiatives like CBS All Access the traditional broadcast networks are themselves creating exclusive streaming services hidden behind subscription paywalls. In addition, it is expanding the idea of the broadcaster, which had been confined mostly within national borders; for Twitter (and indeed for its content partners), there is opportunity to cultivate international audiences.

This question of control over access to live television content is of crucial importance in the case of Twitter’s livestreaming of sporting events like the NFL. On Twitter, the game becomes disarticulated from geographic location, because anyone anywhere who has access to Twitter can watch the game. Even the national borders did not serve as geofences for these games, as was the case in chapter two. While travelling in the Philippines in September 2016, for instance, I was able to watch one of the games via Twitter on my iPad. Authorized streaming of

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<sup>7</sup> See Braun 2014, Ananny 2013, Lessig 2006

live television broadcasts that are unencumbered by geoblocking are still not commonplace. However, a whole host of unauthorized, informal streaming options exist through the internet that offer even casual internet users access to live television that is otherwise unavailable through other means. Reddit in particular has a devoted community of streamers who tap into live broadcasts, funnel them through websites they create to host (and sometimes through YouTube), and retransmit them to the broader public through links posted onto Reddit. The idea of Twitter as a gatekeeper positions streaming within the familiar constructs around piracy. Such constructs need to be refined to consider the cultural practices that streaming represents. In this sense, the concept of “access” itself can be instructive. One way of differentiating unauthorized circulation of live television from unauthorized downloading of shows and films is the idea that *when* an event—a game or match, an awards show, a debate—happens matters a great deal to those who want to watch it. There is an implicit desire to participate in a televised event, which is distinct from the sense of theft that piracy discourses perpetuate. As Burroughs and Riggs note, “streamers are not ‘pirating’ material as much as they are tactically ‘sneaking into’ the digital stadium” (378). In other words, rather than thinking about unauthorized streaming as taking someone else’s private property, it should be thought of in terms of being let into someone’s party without an invitation.

Twitter’s deal with the NFL would not threaten to unseat or usurp the traditional broadcast networks in the way that Aereo’s service did, for instance. Rather than create its own unique “broadcast,” Twitter is instead paying for the right to retransmit the original broadcast of NBC or CBS. This triangulation of Twitter, national networks, and content owners is markedly different from the more traditional configuration: the network, content owner, and local broadcast station. In this sense, Twitter takes the place of the station as the purveyor of content

through the “last mile”: the way that the content itself enters the home. Like the station, Twitter takes the prepackaged feed from the national network and then becomes the most direct distribution intermediary between content and audience. But whereas the local station is bound by the restrictions of the geographic market in which it resides, however, Twitter reaches markets around the world. So, access restrictions to the game through Twitter is not enforced at the level of the broadcast itself, but rather as a function of the availability of Twitter itself. Twitter is somewhat geographically restricted thanks to the licensing agreements that it strikes with the companies that host its app in their store. Apple’s App Store offers no artificial geographic restriction (beyond where they are not available anywhere), but Microsoft’s Xbox One makes the app available only in the US, the UK, Australia, Brazil, Canada, and Mexico.

In addition, Twitter’s livestream deal with the NFL interrupted the conventions of live television, which is built on the seamless flow of content across time, per the programming schedule. What distinguishes the livestream in Twitter’s case is that their access to the broadcast feed does not extend beyond the single event: the NFL game, in this example. On a conventional broadcast for a game televised on Fox or CBS—the two networks from which Twitter received its feed—one tunes into the channel either before or after the game and finds programming constantly running. By contrast, once the game concludes, the feed is effectively turned off and removed from Twitter. Rather than delineating restrictions on a map, they are instead placed on the clock, as it were: the feed is only available on Twitter while the game is on.

By acting as a direct intermediary, however, Twitter also works to elide its very existence in the distribution process, so that ideally viewers are consciously unaware of the platform while they are watching (and even as they also use the platform to comment on the live programming). The NFL streaming deal is in this sense an experiment in creating a “frictionless” viewer

experience, one that lowers the barriers to entry for a potential audience. For instance, just before streaming its first NFL game, Twitter also announced that it launched several apps that were built for television, including with Amazon's Fire TV and Fire TV Stick, as well as the aforementioned Xbox One. Viewers who use these apps need not actually log into Twitter to watch the games. Twitter also pushed to syndicate the livestream: viewers could in theory watch the livestream via Twitter's technology, but on a different website, app, or platform. They have been working not only on the necessary tools needed for embedded live video, but also on the intricacies of the partnerships. Time Inc. negotiated a syndication deal with Twitter just in time for the first Thursday night game in 2016, which would allow Twitter to embed the stream across multiple websites owned by Time, including Time.com, the Sports Illustrated site SI.com, and two major sports blogs: themmqb.com and fansided.com. This move to syndicate is an effort by Twitter to expand its reach beyond its own platform. Syndicating the streaming video follows in the footsteps of a prior decision by Twitter to start selling its Promoted Tweets on other sites and other apps. A company with an ad campaign on Twitter can move these ads to third-party properties; in February 2015 Twitter announced a partnership with Yahoo! Japan and the social media site Flipboard. This deal includes the design and message of the ad campaign as well as the technologies that allow a message to be seamlessly integrated into the "native" look of the third-party site or app.

Such syndication practices reflect broader trends in online advertising, especially as social media becomes more integral to the circulation of digital content and vacuums up more advertising revenue. Twitter, Facebook, and other popular social media platforms have opened up new tools and teams of employees whose job it is to focus on flattening out advertising messages so that it blends into the flow of information on their platforms, through native ads and

sponsored content. Facebook created Anthology, “a new group of leading video publishers, who, together with the Facebook Creative Shop, will work with brands to produce outstanding advertising content for Facebook” (Facebook Anthology). Among these “leading video publishers” that partnered with Facebook on Anthology are Funny Or Die, The Onion, Vice Media, and Vox Media. These kinds of programs are ways for social media companies to further ingratiate themselves into the production process of advertising, by initiating a kind of hybrid creative agency that is part in-house and part outsourced to other publishers (Herrman 2016). This push by social media has led in turn to more conventional publishers also creating in-house creative agencies that produce third-party native advertising. The New York Times Company created in 2014 the T Brand Studio, which would produce for marketers like Netflix and Cole Haan sponsored content in the form of multimedia articles that would look like the Times own journalism, and would live on the Times homepage. Since then, T Brand Studio has shifted focus to a creative agency that produces content that can live beyond the Times website. It was a response to the industry trends shifting away from marketing on websites like the Times to marketing directly on Facebook and Twitter (Moses 2016).

I now turn to examine some of the most important technical infrastructures that Twitter has built or acquired, which lay the foundation for its foray into livestreaming television programming, in order to piece together how they fit into the broader circuit of media distribution.

### **Assembling a Hybrid Technical Infrastructure: BAMTech, Artificial Intelligence, and Twitter’s Livestreaming System**

Twitter reoriented itself in several distinct ways throughout the process of becoming a livestreaming video platform, in order to reconcile its existing infrastructures with those needed



to import broadcast feeds. When it streamed NFL games, viewers saw the same feed they would watch if they tuned into CBS or Fox: the same broadcast announcers, sideline reporters, and camera shots. To integrate the CBS broadcast feed into its existing infrastructure, Twitter turned to BAMTech, a video streaming and technology services company owned by Major League Baseball. The company was born out of MLB Advanced Media, which Major League Baseball Commissioner Bud Selig formed in 2000 to manage MLB's online intellectual property and web-based ticket sales. In August 2015, BAMTech was spun off of MLB Advanced Media and became an independent company that manages video streaming (among other software and technology services) for HBO Now, the NHL and World Wrestling Entertainment. Disney purchased a one-third stake in BAMTech in August 2016. BAMTech holds a lot of power in the livestreaming market; Disney's bet here is that ownership of BAMTech will make it easier for them to launch a video sports platform that integrates much of ESPN's content, and offer a hedge against the continued drop-off in cable television subscriptions (Kline 2016). Twitter has been pushing to build out its own internal streaming platform (or "product," as they call it), in addition to partnering with BAMTech on the NFL. Twitter's first foray into live video coverage was in July 2016 with the Wimbledon tennis tournament, in which it streamed live interviews and analysis (ESPN owns exclusive rights to air live matches) (Wagner 2016).

While it operates the technical infrastructure for Twitter, BAMTech's institutional architecture is also a complex web of business partnerships, including across sports leagues. In 2015, the company started to move beyond purely technological deals, moving instead to co-own some of the content itself. They struck deals with the Professional Golf Association and the National Hockey League that gave BAM the streaming rights to the content from each. The NHL deal gave the league a 7-10 % equity stake in BAM. Many of BAM's deals have been with

content companies that do not have much in the way of in-house distribution technologies. In this regard, BAM offers expertise in building out the necessary infrastructure for large-scale streaming, which helps content companies save valuable time and money. HBO's streaming project HBO Now, for instance, was originally expected to take nearly three years and cost \$900 billion. After deciding to contract BAM instead, HBO Now was finished in three and a half months and cost less than \$50 million (Wagner 2016). Twitter's partnership with BAM is unique in this respect (although BAM also struck a deal with Sony's Playstation Vue as well).

BAMTech operates the backend of Twitter's streaming service by managing video traffic capacity. As a mode of distribution, streaming is basically media that is displayed as it is received in transmission (Sandvig 2015). It is the de facto distribution mode for broadcast television, and although it seems ubiquitous and has become normalized for many millions of people, streaming video on the internet is a relatively new phenomenon. This creates a disparity between consumer expectations and the technical strain on tech companies that engineer the streaming infrastructure. As a designated "pioneer" in live streaming video, BAM Tech uses this disparity to its advantage. In an interview in 2015 with the tech and media website *The Verge*, BAMTech CEO Joe Inzerillo analogized the difficulty of his company's objectives with adapting to life on a different planet:

What people forget is that the internet, as a technology, was never designed to do something like this—deliver flawless video simultaneously to millions of people . . . I liken it to trying to live on Mercury. The plane is completely inhospitable. Every day all you're doing is [fighting] a battle for survival in a place that really does not want you. Streaming video on the internet is sort of like that (Popper 2015).

The bravado rhetoric is a function of the corporate culture of many tech-based companies, and the Silicon Valley legacy buzzwords of "innovation" and so forth. However empty and overwrought such buzzwords may seem, they are quite meaningful for those who

work at such companies, where there is often a deep internalization of the philosophy of problem solving. For instance, during a 2015 interview, Joe Inzerillo was asked about how his company can be so skilled at “combining technologies from different disciplines” and how they “get at that combinatorial approach.” Far from a standard vapid response that often comes from such interviews, Inzerillo provided some insight into the ideology behind how he runs his company:

Fundamentally I’m a big subscriber to the philosophies of [Yale Professor of Mathematical Sciences] Benoit Mandelbrot. Mandelbrot had this idea about intellectual fortresses. This was the thought that you can’t understand a specific problem outside of your discipline. This is a computer science problem, or a hardware problem, or a legal problem, for instance. Mandelbrot believes that those intellectual fortresses stifle innovation. I believe that this happens today at a more granular level. What you see now is that the millennial companies . . . don’t understand the difference between the roles (Hendrix 2015).

Inzerillo expresses not only a recognition that a livestreaming infrastructure is a hybrid of multiple technological capacities, but a self-conscious desire to structure his company such that the employees’ relationships to each other and to their various work problems reflect the way that the technologies are assembled.

Hyperbole aside, the implication here is that BAM Tech has figured out how to stream video effectively, and to scale it in such a way that it becomes a seamless viewer experience for millions of people. Streaming allows for a more flexible user experience for multimedia; instead of downloading a large file, the media can be consumed in bits, as the encoding-decoding process takes place. In the wake of the rise of streaming as a normalized protocol on the internet, other supplementary technologies could modulate different aspects of the distribution process. Adaptive bitrate streaming is one example, in which software can sense the strength of a user’s network signal and adjust the quality of the content accordingly. This flexibility helps to reduce bottlenecks or buffering, which can disrupt the viewer experience as well as the network itself.

Other technical components go into the process of connecting social media to television. Twitter uses artificial intelligence, specifically machine learning, for purposes of information sorting and curating, to build in their words “a product in which people can easily find new experiences to share and participate in” (Dorsey 2016). Twitter created a group of researchers, engineers, and scientists called Cortex, which is dedicated to working out the various problems of operating their platform at such an international scale by developing new machine learning techniques (Twitter Cortex). In conjunction with the development of Cortex, Twitter has acquired small startup companies that focus on specific machine learning problems: they purchased Madbits in July 2014, Whetlab in June 2015, and Magic Pony Technology in June 2016, a company that specializes in visual processing by creating “algorithms that can understand the features of imagery” (Dorsey 2016). Magic Pony is one of many companies working on software that teaches other software—and itself—how to perform tasks without needing explicit programming instructions. Magic Pony’s software is useful for improving the video experience on Twitter’s platform. Streaming video systems rely largely on compression capacities, which can modulate the size of the information packets that flow through the transmission circuit based on the underlying bandwidth at given points in that circuit. Technologies like those of Magic Pony can work to replicate higher resolution images out of lower quality images—analogue to a person’s ability to conjure up an image in one’s mind, without having the image in front of them—by “learning” the mechanics behind compression languages. They are able to recognize, for instance, statistical patterns in varied resolution images and how to translate those patterns into complex characteristics of physical form, like edges, textures, lines and curves, and lighting (Knight 2016).

In addition to the backend technologies that manage streaming video and the experimentation with artificial intelligence, Twitter also offers data aggregation and processing services that are translated into the language of conventional television industries to appeal to advertisers. For instance, it launched a program with Nielsen in October 2013 called Nielsen Twitter TV Ratings that worked to capture the reach and effectiveness of conversation on Twitter about television. These ratings measured both the so-called “authors” of the tweets, as well as the “audience” for those tweets and the life cycle of the tweets themselves: how and where they spread through the social network (Nielsen 2013). At the same time, Twitter’s pitch to broadcasters for integrating their two services involves rearticulating the audience in more conventional terms: as groups of people who gather in the same place and at the same time, per the broadcaster programming schedule. Social media is positioned as offering unique affordances that can potentially alter the nature of live television’s traditional advertising revenue model. In particular, Twitter performs as a digital living room—one that is constantly surveilled and monitored—which provides not only the video content, but the platform for viewers to speak in 140 characters. In its push to integrate livestreaming, Twitter works to create an environment that encourages the type of private communication once reserved to the living room, but that makes such communication public. As Fred Graver, Twitter’s head of TV in 2013, said, using Twitter while watching television creates “the world’s biggest couch” (McGirt 2013). Except with Twitter, there is an increased level of direct interaction among people that with conventional broadcast television were separated by screens. For instance, in the NFL example, Twitter becomes a site not just for audiences, but also for players, coaches, team employees and ownership, professional sports journalists and amateur sports bloggers, and even representatives from advertisers and sponsors of the game. All can and do directly interact on the platform.

Although it will transmit the network broadcast—including national ads—part of the deal with the NFL gives Twitter the right to sell its own advertising in the space on the broadcast that is typically allotted for local ads. This is in part a response to the popular analytics industry rhetoric that audiences have become increasingly fragmented because of the proliferation of platforms for distribution and consumption. Moreover, not only are hundreds of millions of people using social media, but the companies that operate these sites have worked diligently, and sometimes controversially, to normalize the idea that tracking user activity is simply a matter of course. For analytics firms, this can be extremely useful, because although traditional television ratings required their “Nielsen families” to opt-in to the service—that is, to agree to be tracked in the first place—social media users must voluntarily opt-out of tracking. Often, opting out is made to be counterintuitive for users, and there can be no fail-safe method for ensuring completely that one is not tracked even after doing so. User activity on any of these platforms invariably leaves traces, or backchannels of data that social analytics firms mine in order to make all sorts of connections between users and brands (Highfield, Harrington, and Bruns 2013). The partnership with Nielsen came about as an effort by Twitter to harness the authority of the Nielsen name to come up with an industry-standard measurement for social media analytics. At the time, several startup companies like Trendrr, SocialGuide, Bluefin Labs and others were vying for position in the measurement marketplace, each working to convince companies that they had the most accurate and useful means of determining user engagement, and indeed of defining what “user engagement” means.

It has become clear in recent years that social media analytics play an important role in success metrics for television programming, representing a new “market information regime” for audiences (Kosterich and Napoli 2015). In other words, as an audience measurement system,

social media analytics has come to possess a certain amount of authority for participants in the audience marketplace. It is now a standard currency for gauging “success” in industry terms. This information regime works by inverting the traditional broadcasting logic for distribution. This logic worked through a content-centric conceptualization of the process, where distribution was first and foremost a matter of foregrounding the importance of the content itself, and then finding ways to create and monitor an audience for that content. Success was then measured in terms of audience exposure to content. With “social TV,” and with Twitter’s livestreaming initiatives, the potential audience already exists and moreover the metric of success shifts from “exposure” to “engagement”: it is not simply about whether or not they have seen the programming, but how they are interacting with it, talking (and tweeting) about it.

### **Periscope and the User-Generated Broadcast**

The decision by Twitter to begin livestreaming mass media content did not come in a vacuum, but rather was a calculated response to the underlying usage patterns of its service. Furthermore, major media companies perceived in Twitter’s usage trends a threat to the market dominance of their professionally produced content. Twitter is a service that exists largely through user-generated content, whether those users are individual people or representative of larger institutions. As such, it represents a crucial conflict point between formal and informal media economies (Lobato and Thomas 2015). But unlike other examples of such a conflict (like with Netflix, which does not publish user-generated video but does facilitate informal access through geoblocking circumvention), with Twitter and other forms of social media, the formal and the informal seamlessly intermingle. Twitter wanted to offer livestreaming on the formal front with deals to livestream NFL games and other major events.

If in Twitter's foray into livestreaming it is attempting to become a broadband-era broadcaster, it is worth considering how and to what extent logics of streaming and of social media reconfigure the traditional logics of broadcasting. Following José van Dijck and Thomas Poell, social media logic "refers to the processes, principles, and practices through which these platforms process information, news, and communication, and more generally how they channel social traffic" (5). For instance, the level of interactivity on the social media platform complicates the assumptions about regulation. The broadcast paradigm relied in large part on strict control over the windows of distribution. Efforts by viewers to skirt those windows, when they happened, largely occurred "elsewhere," or using methods that were beyond the scope of the broadcast business. By contrast, with Twitter's entrance into livestreaming, social media became a catalyst for both authorized and unauthorized streams of broadcast feeds and other forms of video programming. One striking example of this is Periscope.

Twitter acquired the livestreaming application Periscope in March 2015, which allowed users to create their own livestreams right from their phones. Twitter built the capacity to broadcast via Periscope into Twitter's platform in December 2016, so that informal livestreams now lived in the same place. By mixing the formal with the informal, Twitter thus offers the means to circumvent corporate (and legal) access controls while at the same time ensnaring users within the digital media industries' own distribution processes (Ruggs and Burroughs 2016). As such, in its turn to a video-centric business model where all users are potential broadcasters of "television," Twitter exposes the linked discontinuities between the traditional media industries and social media in the struggle over control of video circulation. This architecture is a hybrid of disparate elements that when mixed combine to create a sustained whole. Michael Curtin (2009) calls this type of media "matrix media," and sees it as a point of differentiation between a more



conventional media paradigm: “If the classical network era was characterized by centralized production and transmission to an undifferentiated mass audience, the matrix era is characterized by interactive exchanges, multiple sites of productivity, and diverse modes of interpretation and use” (13).

Periscope is an example of decentralized broadcast or spontaneous distribution, offering anyone with a smartphone the opportunity to open up a window into their world, to share video of what is happening around them (Ruggs and Burroughs 2016). Almost immediately the app became controversial for major content companies and distributors of television, in large part because of two separate instances that involved HBO. During the premier of the fifth season of *Game of Thrones*, dozens of Periscope livestreams emerged in which users who were watching *Thrones* would point their camera phone at their television, creating their own broadcasts through the Periscope app (Jarvey 2015). Then, on May 2, 2015, boxing fans worldwide watched the ring of the MGM Grand as Floyd Mayweather Jr. defeated Manny Pacquiao in what had been marketed as “the fight of the century.” The fight was an extraordinarily lucrative event. It set the pay-per-view revenue record by generating over \$400 million, which very nearly tripled the previous record of \$150 million set in 2013 (also for a Mayweather fight) (Associated Press 2015). In addition, all over the world people had their mobile devices trained to television sets and computer screens, and many thousands of Periscope feeds were “broadcasting” the Pacquiao-Mayweather fight. As Christina Warren, Mashable’s chief technology reporter, recounted in a piece following the fight, Periscope’s map showed streams from all over the world, including a stream from a police department in Africa (Warren 2015).

In the case of Periscope, HBO faced an interesting conflict: it decried the use of Periscope to provide unauthorized streams of the fight—to which it (along with Showtime) held

exclusive distribution rights in the U.S.—even as it incorporated Periscope into its own distribution strategy. HBO published videos through Periscope showing Pacquiao in his locker room before the fight (Kelion 2015). The content served as a complement to the fight itself, by offering fans an inside look at the boxer's pre-fight rituals. As a means of providing “social video”—where users not only can watch content but also interact with each other through live commentary—it was both an unmitigated success and a highly controversial means of “piracy.” It is the exact sort of interactive event and user experience that many media companies are migrating towards, from broadcast and cable networks investing in “second screen” analytics to news organizations integrating forms of “citizen journalism.” It was considered such a success that then-Twitter CEO Dick Costolo tweeted rather controversially at the end of the fight that Periscope itself, rather than Pacquiao or Mayweather, was the big winner of the night (CBS SF Bay Area 2015).

In December 2016, Twitter integrated Periscope’s livestreaming capabilities into its own platform, so that users can now broadcast video through the Twitter app itself, rather than through Periscope’s standalone app. This convergence underscores the complicated sense in which the formal and the informal means of circulation intersect through social media. Not only would Twitter offer the capacity to act as a formal (NFL streams) and informal (Periscope streams) secondary market for the redistribution of television content, but it also deconstructs the parameters of the professional “primary” broadcast by giving users the opportunity to create their own streams from within the events themselves. For large-scale events like an NFL game, this means that the tens of thousands in attendance who potentially own a mobile device could redistribute (unauthorized) the copyrighted content from on-site. As such, Twitter pivots from

being solely a second screen that is supplemental to the “main event” to acting as a primary screen that offers content straight from the source.

This capacity for user-generated broadcasting reframes the question of access to such events by reconfiguring the nexus of access control. Traditionally this nexus is maintained through the relationship between the sports league (or the content owner more broadly) and the broadcaster, which works to dictate terms of access not just to the event itself—with tiered pricing for tickets for instance—but also to the televised feed (Hutchins and Rowe 2010). According to conventional broadcaster logic, control over the feed occurs through geographic market segmentation that stipulates where the feed is available, as well as the nature of exclusivity of the feed: should it be televised via free over-the-air channels, through cable channels that require a subscription, or with a direct transaction like pay-per-view, as was the case with the HBO boxing match. As social media platforms become more video-centric, however, their large-scale international network of connections upsets these practices through a relative indifference to such measures of artificial scarcity.

In this sense, then, Twitter’s deal with the NFL and other professional sporting and non-sporting events serves as a negotiation between the formal and informal elements of live video circulation via social media. For content owners, livestreaming through Twitter is not simply a new form of revenue, nor does it only signify access to new and larger audiences; it also represents a capitulation to the breakdown of barriers to access and an opportunity to rewrite new ground rules for access on their own terms. Despite claims by social media that they are democratizing access, the exercise of power over the rules of use often occurs through established legacy media institutions, starting from mainstream “influencers.” For example, in August 2015 Facebook launched its own user-generated livestream application called Facebook

Live, but the rollout was quite distinct from that of Periscope. Instead of simply opening the app up to all users, Facebook's ostensible beta test gave access to only a select group of celebrities. It was a clear effort to not only generate buzz for the new app, as well-known media figures like Dwayne "The Rock" Johnson and Serena Williams set about livestreaming the mainstream celebrity culture that they represent (with all the requisite endorsement and advertising opportunities that such celebrities), but also to tacitly establish certain levels of formal, stylistic, and tonal conventions. There is built into these social networks a broadcast-centric way of thinking about distribution. Part of the way that something "goes viral" in the first place is when it passes through one or some of the few "influencers" on a given platform like Twitter. These "influencers" are in effect Internet-era broadcasters. Some form of endorsement by them—a retweet, or a mention in a Facebook post—can reach many millions of people.

These influencers do not simply exist on top of social media platforms; rather, they are co-constituted through the platforms. Twitter's algorithms are programmed to value people with large and vibrant social networks in ways that are distinct from other people, thereby erecting a hierarchy of social relations where large followings can equate to high levels of "trust." This approach to information processing and filtration goes hand-in-hand with Twitter's business model, which is built around advertising. In the ever-present drive to find the perfect balance between monetizing the platform and producing a communication tool that is free, easy to use, and popular, the rise of "influencer marketing" makes sense (Carter 2016). Advertisers needed an alternative route to reach their audiences, who no longer pay much attention to traditional advertising forms.

## **Tech Infrastructures and Livestreaming at the Interface**

While Twitter must maintain a robust interconnected web of back-end infrastructures to manage the integration of livestreaming with its existing service, it also has a range of more front-end infrastructural technologies that it uses as tools to deal with issues at the level of the interface. Much of the impetus for Twitter to use these forms of artificial intelligence is to automate the process of content moderation, the filtration and curation processes that sort material on its platform, so that such processes can operate more efficiently in “real time” and on such an enormous international scale. Traditionally, people rather than technologies performed such moderation tasks. Often, these people were volunteers with an emotional stake in the given community or network, as is the case now with Wikipedia. Many of these volunteers were offered remuneration other than money, such as access to online services for free or for a reduced fee; more recently, however, digital labor divisions that specialize in content moderation have cropped up both in-house at major companies like Google (Roberts 2017, Postigo 2003). Often, this work gets outsourced to firms like Sykes and TaskUs, which tend to employ people in the Philippines and India, and pay them low wages. This work is difficult for machines to do, as it requires a nuanced level of cultural, linguistic, and imagistic literacy and context in order to make accurate decisions about what is and is not acceptable, appropriate, or desirable. This has shifted, for Twitter in particular, in the past couple of years from human labor to machine-targeted work. Twitter continues to acquire small startup companies that specialize in AI and “deep learning,” a term for computation systems that can mirror the human brains neurons. These systems are useful for visual recognition in both photos and in videos. With livestreaming video, it is difficult for distribution platforms to recognize quickly enough what is actually in the video in ways that translate into human visual language, and further into the means of connecting

users to each other through the videos. Twitter facilitates these means of connections in a commercialized space, by linking content to brands and advertising, and then by linking content and advertising to users.

Twitter works to articulate this technological capacity to commercial interests, legal regimes, and consumer-user desire, thereby negotiating the synthesis of mass media and social media. Part of the impetus to deploy so many resources to content moderation is from social pressure from its users (as well as various activist groups, regulatory bodies, and investors) to take greater control over the content that flows through its platform. There are some inherent contradictions to the way that Twitter approaches livestreaming video, which points to some problems with the fundamental assumptions about using social media as a broadcasting platform. First, Twitter looks to remove itself from the user experience of the service, preferring to present as “neutral” a position as possible, while at the same time cultivating the interactivity that is a major part of what defines social media in the first place. Social media interactivity has come to mean a breaking down of borders between traditional categories of actors: “regular folks” can communicate directly with celebrities, politicians, and brands; producers, consumers, advertisers, and distributors all intermingle. But as an entity engaged directly in distribution, Twitter works to keep its own levels of interactivity in the background. This includes engineering decisions about the system of curatorial algorithms that run on the platform, as well as regulatory decisions about how to deal with harassment and abuse. It faces some harsh criticisms for not acting as either police or editor—or both—in certain circumstances, including the publicity over then-candidate Trump threatening to weaponize his followers against Megyn Kelly in 2016, the trolling of Leslie Jones following the release of *Ghostbusters*, and many other examples. In addition, livestreaming video requires some level of attendance to copyright laws. Twitter has

worked to program certain technologies to this end. For instance, Magic Pony’s technologies can be deployed to filter *out* content like unauthorized copyrighted material, even as they can also help to personalize user feeds, thereby filtering *in* content through collaborative filtering, where videos and tweets are recommended for you based on how well your taste profile matches up with other users.

Another technical issue that Twitter faced in integrating live broadcasts of the NFL games with its preexisting interface is how to synchronize all screens in order to construct a consistent flow of time between the game feed and the separate tweet streams. Getting this aspect of the livestream correct was of vital importance, because Twitter was using the game to broaden its appeal. In this way, Twitter appropriates legacy media to try to build up credibility as a user-friendly experience. Moreover, by distributing the broadcast feed over its platform rather than possibly reworking the format of a football broadcast by producing its own, Twitter is also implicitly attempting to recalibrate the social norms and customs of its users. Claims that social media facilitates a certain level of user agency have been critiqued for ignoring the underlying infrastructures that allow for user interaction in the first place (Moe, Poell, and van Dijck 2016). Rather, what types of content users encounter on Twitter is in part a measure of curation technologies and business incentives. Before it began to actively distribute live content, Twitter’s platform control worked by constantly negotiating normative behavior that emerged through the kinds of tweets that users—both institutional and individual—published. Once Twitter itself became a “publisher” by casting feeds of the game, new dynamics emerged that operated separate and apart from—but also in conjunction with—the dynamics of curating user-generated content (like exercising preferences that foreground certain users or kinds of tweets over others, or personalizing user feeds). For instance, using the broadcast feeds from CBS or Fox served

offered viewers a degree of comfort in the familiarity of announcers, reporters, and other aspects of the in-game viewing experience, even as the means of accessing the game is altered.

Twitter is not simply chasing live events to incorporate into its platform; rather, it is working to create a situation where the act of viewing mirrors the “logic of the event” by cultivating a feeling of shared participation during the event itself (Lee and Andrejevic 2014). Moreover, this event logic is programmed into the interface itself in order to match the pace of the event with the pace of people’s reactions and comments to it. When the integration of the feed and the tweet stream works well, Twitter itself recedes into the background. The initial launch of the game’s feed proved rocky in this respect. One of the big problems that Twitter had to tackle is a basic issue of scale: how to best create a livestream experience where the video is not constantly buffering, which produced frustrating delays. Some of the issues that affect this technology question were encountered almost immediately after the first game started to stream. The video stream was not completely synchronized with people’s Tweets about the game. There was a delay between the video as streamed on Twitter and the broadcast on CBS, such that the tweets that commented on the game outpaced the flow of the game itself, as the game was being broadcast through Twitter. In this way, the Tweets acted as spoilers, detailing audience reactions before those who were actually *watching* the game on Twitter saw the plays. The time delays were being tweeted about in real time, and there even seemed to be delays between mobile networks or mobile devices, so that one person’s Twitter stream could be at a different point in the game from another’s (Hoffman 2016). Conversation on Twitter would then turn from focusing on the game to focusing on the way the game was being distributed, and on the problems with Twitter itself.



In addition to negotiating with the NFL, Twitter also in June 2015 leaked news of a “top secret” internal project called Project Lightning, which later debuted as “Moments” once it went live to the public. Moments was launched as a curation tool for Twitter. When the company sees a lot of conversation about a topic or event, it designs a gallery-like space and brings together content on the platform that can be easily found by users when they click or tap on the lightning icon on the site or app. The project was overseen by Katie Jacobs Stanton, the head of Twitter’s global media operations who runs a team of editors that curates a collection of videos and tweets for each “moment.” According to Stanton, the project is a response to what is basically a filter and search problem on Twitter’s platform: “the challenge we’ve had over the years is, although we have the world’s greatest content, it’s like having a television without a channel guide or even a remote control. There’s no way to really find it or contextualize the content. So [Project Lightning] is this beautiful vessel for us to surface great content and make it more delightful” (Honan 2015).

This problem of how to manage information is not a new one for Twitter, or for social media in general. In one sense, Moments is Twitter masquerading as a newspaper by standing in as Twitter’s front page. The editorial decisions, Stanton points out, are made by people rather than being solely automated. This feature adds a mass media layer on top of the personalization of the person-to-person capacities that Twitter offers, thereby integrating the two logics into Twitter’s interactive commercial economy (Lee and Andrejevic 2014). As reported by *The Wall Street Journal* at the time, these measures are consistent with Twitter’s overall corporate strategy to “complement TV networks. By streaming these events, it could help a broadcaster draw the so-called Millennial generation back to TV—18-25 year-olds that these days spend more time on their mobile devices and are the biggest demographic group on Twitter” (Koh 2015). On the

other hand, there is evidence to suggest that in fact internet-based streaming platforms have been leveraged *against* the networks by the NFL, even as Twitter looks to work with the networks in tandem. Using streaming platforms as an alternative to television distribution is a way to drive up the prices for games, which are expensive for networks.

Part of the integration of social media and television is a shift in the navigational logics of the content business. There is a tension between so-called “push media” and “pull media” that can be partially reconciled at the intersection of social media platforms, mobile devices, and mobile apps. Pull media assume a gravitational magnetism, where people are attracted to a particular place in order to consume content. Push media, by contrast, seeks out the audience, like the push notifications that pop up on one’s phone, where an app will alert the user that something has happened that demands the user’s attention, whether this is a breaking news story from the CNN app or an alert that a friend has tagged the user in a post on Facebook. In this sense, then, Twitter’s livestreaming of NFL games signals a move to go where people are, rather than to bring people to where the content is. Push media has been a staple business practice for Web 2.0, which reflected a shift from the relative stasis of Web 1.0, where sites kept their interconnections to a minimum and running in the background, to a more pronounced increase in “the social” as reflected through software applications. Far from a purely technological shift, however, the ethos behind Web 2.0 reflected a shift in commercialism on the Web that wanted to harness “human interactions that grow semi-organically” (Everitt and Mills 2009).

The app provides a distinct mode of information delivery from the web browser. The interface design is important here: the ability to scale down information from a horizontally-oriented computer screen to a vertically-oriented, and typically much smaller, mobile screen. In addition, the decisions to give the app an assertiveness with the user, via push notifications, alters

the nature of the relationship between user and information by addressing what had been a rather fundamental question for content owners, advertisers and marketers, and consumer technology companies. They all had understood how to manage the user—and how to give the user a degree of autonomy in use—but what about how to get the user to use in the first place. The drug and addiction parallels here are not incidental, in this sense, and represent another valence of the “push” media (mirroring the drug pusher). The push notification initiates the interaction between user and media. This “appification” of content paradoxically builds in some of the logics of broadcasting, by “channeling” user attention into a more structured environment (Lee and Andrejevic 2014).

### **Conclusion**

And so here we find two entities that each represent titanic and powerful media paradigms joining forces, as it were. Broadcast television (manifested here through the NFL), a highly-concentrated industry operating on top of a publicly-owned infrastructure, actively converges with Twitter, a social media platform with the capacity to give voice to “the many,” running on top of a privately-owned infrastructure. In much academic literature that details the various economic, technological, legal, and cultural dynamics of internet-based media in “the digital age,” social media platforms like Twitter are often juxtaposed with legacy media structures in order to emphasize various points of similarities and departures in how media operate. Often, this has meant looking at supersession: the way in which one paradigm of distribution has overtaken another. For instance, van Dijck and Poell discuss how mass media logic get subsumed by social media logic. One emblematic concept in this transition is the shift from programming to programmability. Where programming refers to one-way traffic in information defined as “the ability of a central agency to manipulate content in order to define

the audience's watching experience as continuous flow," programmability refers to two-way traffic, defined as "the ability of a social media platform to trigger and steer users' creative or communicative contributions, while users, through their interaction with these coded environments, may in turn influence the flow of communication and information activated by such a platform" (van Dijck and Poell 5) But in some ways, social media and broadcast have begun to co-constitute each other. For instance, CBS News Political Director John Dickerson said in February 2017 that broadcast and cable media stations often set the agenda for the morning conversations based on Trump tweets.

It makes sense then that social media companies and television broadcasters are seemingly natural bedfellows, as both traffic in the marshalling of large numbers of people into the same space, and at the same time, thereby driving a "sense of collective immediacy and participation" (Couldry 2002). Furthermore, the migration of television onto the internet via social media is an important counterpoint to the historical construction of internet architecture itself. As Christian Sandvig notes, the internet was born not simply out of the principles of peer-to-peer distribution. There was a concerted effort in the 1960s to fashion the internet as the anti-television. Sandvig notes a lesser known paper of internet pioneer J.C. Licklider called "Televistas," which he prepared for the Carnegie Commission on Educational Television in the late 1960s. The problem with the technological system of broadcast television, according to Licklider, is that it is homogenous and its traffic flows one way: ". . . the main intrinsic defects of broadcast television are that it offers everyone the same thing and does not give viewers a direct way of participating . . ." (Sandvig 2015). He offered an alternative vision of a more selective set of infrastructures—the ideas behind the internet—that were based in an architecture of participation and choice.

More pointed questions arise, however. What to make of the seeming massification of social networks? Or the hybridized broadcast-broadband infrastructure at the heart of livestreaming? This transformation of social media is not simply the “next logical step” in its evolution, given the increased capability of infrastructural technologies and consumer electronics to operate faster, process more data, and handle richer forms of media. Nor is it merely a response to consumer demand for more options for video consumption. Instead, it is a largely intentional re-engineering of the medium that combines privatized commercial interests—the ability to assemble large audiences for relatively few sources of content—with technical decisions that dictate rules for how content flows and the nature of user interaction.

## *Moving Distribution Forward: Amazon vs. Google and the Battle Over “Intelligent”*

### *Distribution*

The three preceding chapters analyze the development of streaming services that circulate television programming over the internet, and across geopolitical and commercial borders. Through the case studies of Aereo, Netflix, and Twitter, I highlight a series of conflicts or collaborative initiatives between conventional power brokers of the television industries, outsider technology companies, and hybrid entities. Each of these cases exposes a distinct set of ramifications for the underlying conditions of contemporary media distribution. First, my analysis of the Aereo lawsuit demonstrated how legacy regulatory paradigms in the United States that dictate terms about the circulation of popular culture continue to be co-opted by traditional media institutions as well as new technology startups. The outcome of legal battles between Hollywood and Silicon Valley determine, in part, the shape of future models of media access. Second, traditional local, national, and international constraints on access to popular culture are stressed by the proliferation of broadband internet service and the expansion of major entertainment companies with global aspirations, as the Netflix case study shows. Third, such companies must attend to the seismic shifts reshaping content circulation on the internet, as social media companies like Twitter and other gatekeepers work to become the platform upon and through which all online activity takes place, including access to and participation in live media events.

This final chapter is shorter and more speculative. I present a case study of a conflict between Google and Amazon over the compatibility of cross-platform streaming media, in order

to analyze the emergence of smart home devices—especially smart speakers like the Amazon Echo and the Google Home—as vehicles for media distribution. Each of the case studies in this dissertation considers attempts by commercial entities to control and normalize technologies of the home, in particular personal computers of all shapes and sizes, including smart phones, laptops, video game consoles, tablets, media players, and televisions. Whereas the previous three chapters focus their attention elsewhere—to regulatory paradigms, international content licensing practices, and social media’s entrance into livestreaming—this chapter shifts focus to these consumer electronic devices and the systems of networked technologies that undergird their increased interconnection in the still-nascent “smart home.” This chapter takes the smart speaker as its central focus, to analyze how Google and Amazon are attempting to turn it into the main hub of this interconnection. Not only does the smart speaker serve as a control center for the circulation of media, it also represents a gateway to other smart home devices that might monitor and regulate the other household functions like temperature, lighting, food inventory, laundry, and security. Moreover, by focusing on Google and Amazon, I expand the scope of the previous chapters to reflect the staggering ambitions of these two corporations: whereas the earlier cases focused on companies’ attempts to develop streaming services, Google and Amazon are working to become all-purpose distribution ecosystems.

These two tech giants hold an increasing amount of influence over the distribution of not only television, but all types of media, and indeed all forms of “data” in ways that none of the other companies chronicled in the previous chapters can rival. Aereo operated largely as a distribution application, facilitating the circulation of content. With its recent move into the licensing and then production of original programming, Netflix has become more of a vertically integrated company, exercising control over multiple stages of the supply chain. Twitter turned

into a platform for both watching and contributing to conversations about programming. By contrast, Amazon and Google are attempting to streamline all aspects of media distribution into a singular circuit. Both companies operate a streaming platform and are continuing to ramp up production of television programming. In addition, both are attempting to control as much of the underlying distribution infrastructure as possible, the hardware and software. With Amazon Web Services, Amazon has a clear and overwhelming head start on cloud computing platforms, upon which companies like Netflix rely for logistical support of streaming traffic. Google is investing more resources into its Google Cloud Platform, in an effort to catch up. On the other hand, Google is firmly ahead of Amazon in mobile computing, with the dominance of its Android operating software as well as the growing sales of its Google Pixel smartphones.

Both companies have a successful line of media streaming players, namely Google's Chromecast and Amazon's Fire TV devices. Recently, both companies have also moved into engineering voice-activated smart home products, including the hardware devices—like smart speakers with a video screen such as Amazon's Echo Show and Google's Home—and the underlying “personal assistant” software—Amazon's Alexa and Google's Personal Assistant. Individually, these ventures represent areas of business growth in their own right. Collectively, they fortify the flagship enterprise of each company—e-commerce for Amazon and search for Google—and by extension Amazon's and Google's control over data, the tech world's gold standard currency. Amazon and Google each leverage their ability to effectively harvest the ever-expanding ocean of data to reinforce their power in existing markets for the distribution of goods and services (including media), while also muscling into emerging, ancillary markets as well, like those for voice-activated smart devices.



Amazon and Google have made a series of decisions in recent years about whether or not to allow their streaming products or services to be sold, operate on, or be accessible through the other's platforms. In December 2017, Google decided to remove YouTube from Amazon's media players, including the version of the Amazon Echo smart speaker that comes with a video screen. Such decisions have caused an on-going conflict between Amazon and Google, which offers analytical opportunities that perfectly align with this dissertation's concern over the reconfiguration of content access. This chapter analyzes this conflict through an analysis of the smart speaker, in order to address how networked technologies that circulate traditional media forms overlap with conduits for networked access to more than just programming. I begin this chapter with an introduction to one important aspect of the on-going conflict between Google and Amazon: Google's removal of YouTube from Amazon's Echo Show. I then transition to an analysis of the development of the Echo Show and other smart speakers, and of the role that such devices—and the underlying, voice-activated artificial intelligence software—are playing in the smart home ecosystem.

By doing so, I expand the overall trajectory of the dissertation as it relates to internet television. The Aereo case study served as a rudimentary example of circulating "old media" over the internet. It was broadcast-centric, involving broadcast networks, local television stations, antennas, and regulatory statutes enacted in the early days of cable television. The Netflix chapter expands the scope, shifting focus to a Silicon Valley company looking to upend conventional models of television distribution and production while simultaneously attempting to become a global media network. While I use Netflix to examine the fragmentation of distribution markets on the internet, this chapter also is still cloaked in the formations of old media, especially television. The Twitter chapter enlarges the scope by incorporating social media into

the distribution of television. Like both Aereo and Netflix, Twitter entered into the distribution of television content from outside the “closed broadcast-cable-satellite circle” described by Barry Diller in the Aereo chapter. Unlike Netflix, Twitter had a preexisting business and service that existed beyond television, even as it was also invariably linked to the television industries in all sorts of ways, including second screen initiatives. By integrating its livestreaming initiative into its platform for user-generated content, Twitter created an entire ecosystem of the television experience by facilitating the ability to watch, react to, and follow journalistic coverage of programming—and even generate unauthorized retransmissions—all in the same place.

Google and Amazon are the next step in the expansive trajectory of media distribution that I trace in this dissertation. By focusing on their conflict over platform interoperability and the development of the smart speaker with a screen, I progress from a consideration of a television ecosystem (in the case of Twitter) to a consideration of how the circulation of television fits into a much larger distribution ecosystem that extends far beyond traditional media industries. I chose television as the primary mode for understanding all of these changes, in the first place, because it serves as such an important bridge between older but still present twentieth-century technological formations and more emergent formations from the twenty-first century. Thus, this dissertation uses the circulation of television over the internet to identify post-internet circuits of media distribution and analyze their constitution. For Google and Amazon, media content circulation is incorporated into—and subsumed by—an entire ecosystem of networked technologies that becomes embedded in the (smart) home.

Google and Amazon are working to centralize control over this ecosystem. To counterbalance the theme of centralization, I end this chapter with a brief consideration of blockchain technologies. A blockchain is a distributed catalogue of data records, where each

record is constituted as an encrypted block of code. Proponents of blockchain technologies highlight its core functionality and utility as a means of decentralized control, offering a vision of the future that is a direct antidote to the forces of consolidation and conglomeration that Amazon and Google represent. The blockchain technology reframes distribution in terms of indexes and transactions, rather than flow or scheduling. I speculate on the role that blockchain tech might play in the future of distribution, and how future media research might engage with blockchain tech as a useful object of analysis.

### **From Distributor to Destination**

In early December 2017, Google announced that it would remove YouTube from Amazon media players, including the Amazon Echo Show, their smart speaker with a screen (Nicas 2017). Google claimed that this move was in retaliation for Amazon's decision to not sell Google products—like the Google Home smart speaker or the Chromecast media-streaming player—that compete with Amazon's own devices. This move was just the latest in an ongoing dispute over the terms under which each company could operate on the other's platform that has stretched back for years. For instance, Amazon had already blocked its Prime Video service from being used on Google Chromecasts. It also built workarounds that allowed users of the Echo Show to access the YouTube website through a web browser, to evade Google's removal of YouTube's platform-native app. Such workarounds violated YouTube's terms of service, Google argued. In a response to Google's announcement that it would remove YouTube from Amazon's devices, Amazon argued that "Google is setting a disappointing precedent by selectively blocking customer access to an open website" (Dastin 2017). The maddening fragmentation of the streaming ecosystem is on full display in this dispute. This fragmentation is further

exasperated by the diversity of networked technologies in play, including the websites, applications, devices, and platforms that are run by Google and Amazon.

At the center of this dispute is the Amazon Echo Show, one model of Amazon's line of smart speakers. Google also has a line of smart speakers called the Google Home. These smart speakers are "home assistants" that through voice activation can execute an ever-growing list of actions, including playing music, radio, or video services, facilitating online shopping, and serving as a phone for calling other Home or Echo devices. Amazon first released its Echo devices to Amazon Prime members in November 2014—then to the general public in late June 2015—while Google's Home devices launched in the United States in November 2016. Although they are currently marketed largely as devices for consumer convenience in the home—and in particular as vehicles for the circulation of media content—both the Echo and the Home are Amazon and Google's attempt to establish control over the emerging "smart home ecosystem" (Gibbs 2018). The speakers are able to connect to a relatively limited but growing suite of software applications—akin to a laptop or mobile device connected to the internet—as well as other devices in the smart home, including the temperature gauge, lighting system, door locks and doorbell, security system, kitchen appliances, and smart TVs. The smart speaker would then operate as a central hub controlling the domesticated version of the internet of things, facilitating machine-to-machine communication throughout the home and connecting back to the cloud computing systems owned and operated by Amazon and Google. The dispute over YouTube therefore has implications for the way that Amazon and Google are reconfiguring access that are broader than the availability of a video streaming service.

For instance, the openness of these proprietary ecosystems remains a major question going forward. Google's withholding YouTube as a retaliatory measure suggests a possible

lockdown of the smart home ecosystem through a pay-to-play arrangement between businesses. Both Amazon and Google insist that they plan to resolve the dispute over YouTube in short order, implying that they are working out a set of terms that would restore the streaming service to the Echo Show. It is worth lingering here to consider the parameters that Google and Amazon might set around these terms. Such considerations lay the groundwork for moving discussions about distribution forward, to encompass the interconnectedness of each company's proprietary ecosystem (and of the interconnectedness across ecosystems). On the one hand, this dispute appears to be akin to the carriage arguments between networks and broadcasters over retransmission fees from the Aereo case study. YouTube is the internet analogue to the broadcast networks, which are freely accessible over-the-air. As discussed earlier, the rise of retransmission consent fees coincided with the proliferation of distribution outlets for programming, first with cable and satellite and then with more recent internet-based services for live TV (including, of course, YouTube itself). Despite the veneer of "disruption" that seemed to be caused by the internet, however, the negotiations over retransmission fees have always been couched in content-centric terms: these disputes are about recalibrating the financial worth of intellectual property in an age of distribution abundance, rather than scarcity.

Such comparisons are worth considering, because retransmission consent becomes a way to think through the responsibilities that those companies who control distribution platforms do and should have to the people for whom such platforms serve as fundamental means of information access and communication. Retransmission consent ties emerging internet-based distribution services back to "old media" formations like broadcast television to serve as a reminder of the principles that in theory—if not wholly in practice—govern digital information infrastructures. Retransmission consent also illustrates the complications inherent to circulating

content over the internet on the back of public airwaves. It is an issue that has become financial in nature, given the aggressive rise of retransmission fees, but this financial valence serves to underscore what is at heart a basic problem of communication. The accumulation of these fees reveals the power dynamics at play in decisions about who can use digital information infrastructures to communicate in the first place, and the conditions under which such communication is allowed.

In the case of Amazon and Google, however, this framing is limiting because it fails to take into account the place of streaming video in the broader ecosystem that Amazon and Google are cultivating. As Danny Kimball (2015) argued with respect to sponsored data and zero-rating practices with mobile devices, these kinds of disputes signal a more aggressive shift by Google and Amazon away from conduits of communication practices (search for Google and retail shopping for Amazon) and toward roles as media distributors, where they charge providers of “content” (broadly defined) to connect to users. But this role is just one smaller aspect of Google and Amazon’s ambitions. As internet connectivity continues to shift from computer, phone, and television screens to an ever-expanding array of devices through the Internet of Things, both Amazon and Google are jockeying to become not only fundamental gatekeepers that control the growth and operations of networked technologies, but also to create interconnected products and services that become destinations in their own right. In this respect, Google has come a long way since an infamous 2004 *Playboy* interview with founders Larry Page and Sergey Brin, in which Page declared “we want you to come to Google and quickly find what you want. Then we’re happy to send you to the other sites. In fact, that’s the point. The portal strategy tries to own all of the information” (Sheff 2009). Amazon developed in much the same way: as a pass-through point for connecting buyers and sellers. Thinking about the YouTube dispute in these terms

shifts the focus away from the old media formulations, like content carriage. Instead, removing YouTube from the Amazon Echo Show represents a power play over the growth and strength of a self-contained (if interconnected) proprietary ecosystem, where each company becomes a destination rather than a middleman. Moreover, the destination is grafted onto the (smart) home itself, built into not just the media screens and audio players but also the appliances, electricity, and architectural infrastructure.

### **Amazon's Alexa and the Rise of Voice-Activated Operating Systems**

The “personal assistant” software on the Google Home and Amazon Echo devices serves as the connection between the user and the devices. The assistant also is the central software hub, controlling all of the devices that are connected within a given space (the home, in this case). Amazon's assistant is named “Alexa.” Alexa has a growing array of “skills” (for Google's personal assistant, the equivalent capacities are called “actions”), which are recognizable commands that prompt the software to take some action: to launch Spotify, play the radio through Tune-In, dim the lights of a connected room, look up information, offer driving directions, tell a joke, and so forth. These skills were initially the result of an open-source hackathon from a community of application developers outside of Amazon, which Amazon then parlayed into its own community tool for developers called Echoism.io. This community tool enabled developers to integrate Alexa Voice Services into outside connected products. Amazon even offered tutorials and templates on skill building for early-stage developers. Google opened a similar website for developers interested in creating “actions” for its Google Assistant. These skills then become integrated into the broader proprietary network of interconnected devices and software owned by Amazon and Google.

In addition to the developer toolkit, Amazon has invested quite a bit of money into fostering development of Alexa skills. A few days after releasing the Echo speakers to the public in June 2015, Amazon launched a \$100 million Alexa Fund to invest in startups interested in integrating and developing for Alexa. In November 2017, Amazon invested another \$100 million into the Alexa Fund, this time in support of international expansion efforts. This is part of an aggressive growth plan for Alexa services, which moved into the United Kingdom and Germany in late 2016, India in October 2017, Japan in November 2017, Canada in December 2017, and Australia and New Zealand in early 2018. As of August 2017, the Alexa Fund had backed over 20 startups, according to *The Wall Street Journal* (Haggin 2017). Just as the skills developed from the toolkit become integrated into Amazon's proprietary network, these startups become organizational nodes in Amazon's conglomerated network. The startups create standalone businesses that also serve as Amazon "partners" by funneling new technologies that create new opportunities for amassing and analyzing valuable user data.

(As an aside, the Alexa Fund has also infiltrated higher education. In March 2017, Amazon announced the launch of the Alexa Fund Fellowship, which promises to support the development of academic programs in a number of engineering fields related to artificial intelligence and voice technologies. The fellowship program launched with four universities: Carnegie Mellon University, University of Waterloo, University of Southern California, and Johns Hopkins University. Each university receives cash funding, Alexa-enabled devices, and "mentorship from the Alexa Science teams to develop a graduate or undergraduate class curriculum" (Amazon Alexa Fund Fellowship). In addition, in 2017 Amazon held its first Alexa Prize competition, open to teams of universities research students from around the world. The competition asked teams to build a "socialbot" using conversational artificial intelligence that



could “coherently and engagingly with humans on popular topics such as Sports, Politics, Entertainment, Fashion and Technology for 20 minutes” (Alexa Prize Proceedings). Google also has a number of collaborations with higher education—including Stanford and U.C. Berkeley—and startup labs that work on issues related to artificial intelligence. The connections between media and technology firms and sectors of (higher) education are underexplored in this dissertation, but they are worth monitoring as contemporary understandings of what internet-based media distribution is and how it works continue to expand beyond conventional media industries and entities.)

Amazon’s Alexa serves not only as a piece of software, but as an entire operating system: the central piece of software that allows other applications to interact with the device’s hardware. As such, this voice-activated artificial intelligence software represents the latest “platform war,” following on the heels of computer operating systems (Windows vs. Mac), phone operating systems (Android vs. iOS), mobile phone hardware (Apple vs. Samsung), and even social media (Facebook vs. MySpace, then Google, then Twitter, and so forth). Although Apple’s Siri and Microsoft’s Cortana continue to develop as voice-activated interfaces, Google and Amazon have staked their claim in the past few years as the companies with the predominant voice technologies. Such software is meant to be a one-stop shop, a central control that folds media forms like television and music into the language of actionable commands. Cornering this market then becomes an important strategic initiative for building out a functional, profitable smart home ecosystem. Not only does strong voice-activated AI software offer new avenues for developers to reach consumers (and thus new opportunities for generating valuable data), but such development takes place on Amazon’s (or Google’s) terms, according to the specifications and requirements of the Alexa platform.

The personal assistant software is increasingly becoming disarticulated from the hardware (the Echo or, in Google's case, the Google Home) as well. Amazon and Google are both working to integrate their personal assistant software into more computers, home appliances, automobiles, and other technologies. Each new device then becomes an experimental, ancillary market in their own right, but these markets are also already tied back into the Alexa (or Google Assistant) world. They are even mixing one company's hardware with another's software in some cases, as when Amazon announced in March 2016 that Alexa had been integrated into Google's Nest, a smart home thermostat. Such an example is a conspicuous splintering of ecosystem control, where one corporation produces the device—and the software that runs the Nest—and the other runs the software that connects the device to others. The implications for the management of the valuable consumer data produced by the use of the Nest in this example are not fully clear, but offers interesting possibilities for future research. To what extent does the Nest's underlying software communicate with Alexa? Are they sharing consumer data? What are the terms under which such sharing is allowed? Although Google and Amazon are in competition over the future of the smart home, such distribution arrangements are very likely to continue because they maximize the network effects—where the usefulness of a service increases with each new user—of both hardware and software. Moreover, the nascent stages of market development, when users of Alexa products and smart home devices are still “early adopters,” would seem to necessitate such experimental distribution arrangements, since market control is still somewhat up for grabs.

Amazon has had a leg up on Google in the development of personal assistant artificial intelligence for a few years. One of the major stories from both the 2016 and 2017 Consumer Electronics Shows was the seeming ubiquity of Alexa; in 2016 *The Verge* reported on Amazon's

“stealth” takeover of the smart home via Alexa-connected technologies (Statt 2016), while in 2017 *Wired* reported that “You can’t walk the sprawling floor of the Las Vegas Convention Center without tripping over a speaker, an appliance, or even a robot or two that supports Alexa” (Pierce 2017). Google has reportedly ramped up its efforts at the 2018 CES, announcing a series of tech that integrate with Google Assistant. More importantly, Google reportedly came to CES 2018 with an aim to be as visible as possible: it reportedly built an enormous installation in the convention center parking lot, wallpapered the Vegas monorail in advertising for Google Assistant, and plastered “Hey Google” on billboards all over the area (Pierce 2018). Google is aggressively attempting to catch up to Amazon in partnering with manufacturers of voice-activated devices, after Amazon had a two-year run in which it successfully integrated Alexa across a wide spectrum of products.

Until 2018, both Google and Amazon have been inconspicuously present at the Consumer Electronic Shows the past few years. Neither, tech giant had an official booth set up in one of the largest annual worldwide tech tradeshows. The reason for their absence bridges the software question with a set of issues related to hardware in this dispute. The Internet of Things consists of an ever-expanding range of networked technologies, including an assortment of connected hardware. Google and Amazon have taken slightly different tracks when it comes to the internal development of smart hardware, despite the fact that both produce media players and smart speakers. For instance, Google was able to successfully launch an array of smartphones as part of an internal phone service initiative called Project Fi. By contrast, although Amazon briefly entered into the smartphone market with its Amazon Fire phone in 2014, the failure of that venture appeared to shift Amazon’s priorities toward hardware partnerships rather than internal hardware development. It also offered some lessons for the importance of being first in a

given market, which it then applied to the smart speaker. While the smartphone market has largely been cornered for years by Apple and Samsung, the smart speaker market seemed wide open. More specifically, however, the smart speaker market also represented an opportunity to experiment with a central hardware hub that would serve to connect the rest of networked devices in a future-oriented smart home. Neither Google nor Amazon seems too interested in producing or owning much of the other hardware in a smart home, however, with a few exceptions (including the Google Nest). Instead, both seem to approach hardware largely through partnerships with third parties, which largely explains their strategy at the Consumer Electronics Show the past few years. Google's Assistant and especially Amazon's Alexa are present everywhere at CES, even if the companies themselves seem to be absent. It is in the embodiment through hardware of their AI software that Amazon and Google start to make their mark. Their interest in staying largely behind the scenes at the tradeshow—even as media outlets and tech blogs offer effusive coverage of their respective dominance in this space—mirrors the ultimate goal in this platform war: to become the *standard* platform, into which all other applications must build.

Yet despite the utopic idea of rendering electronic activity into a universal brain, whose or what software is operable continues to be a largely commercial decision. Amazon's outcry over Google's decision to set "a disappointing precedent by selectively blocking access to an open website," by removing YouTube from Amazon's smart devices highlights the economic pressures that constitute much of the artificial boundaries that still exist for digital distribution. Amazon has for years refused to allow its own Prime Video applications to be compatible with Google's Chromecast media player, even though that same application is available through Microsoft's Xbox, Sony's Playstation, a variety of smart TVs from different manufacturers,

Roku, and many other media players. The mobile application for Prime Video on Apple's iOS allows video playback—and downloading videos for offline playing—but only for videos catalogued as included with a Prime subscription. Other videos that need to be bought or rented are available on the iOS app only as search options. Users—even Prime subscribers—cannot buy or rent those titles through the app, but they can add such titles to their “watchlist” and later complete the purchase via the website or through a fully functional version of the application, as found on any of the other media players.

The fragmentation of this functionality, where different versions of the same application exist across multiple platforms, and sometimes do not operate at all on certain platforms, underscores the fundamental reality that both Amazon and Google view video distribution as a kind of trojan horse for getting people to use—and produce valuable data through—their software services. Both Google and Amazon started outside the world of television; what attracted them to media distribution is the opportunity to continue to harvest consumer data that they can then leverage into new software and hardware. Much of this data comes from the integration of artificial intelligence software into preexisting distribution circuits, including those that circulate television and film. Thinking about distribution in this way offers the potential for new objects of analysis for the study of distribution. For instance, rather than considering how gatekeepers structure access to screen content and its circulation over the internet—an animating force of much of this dissertation, to be sure—focus might turn instead to how the act of media gatekeeping becomes entangled with the development of broader systems of networked technologies like the Internet of Things. Here, distribution morphs from connecting viewers to content into connecting data to corporate structures of data analysis.

## **Internet Distribution 2.0: Blockchain and Distributed Decentralization**

Consolidating control over voice-activated artificial intelligence software in the hands of two multinational corporations—especially the preeminent purveyors of online retail and search—clearly has profound implications for the future of internet distribution. Over the years, video creators have cried foul when Google implements changes to its algorithms. Google’s made a series of algorithm changes in early 2017 that caused many creators to lose a significant amount of ad revenue, and inspiring the term “adpocalypse” (Weiss 2017). Amazon has also been known to exert its distribution power over retailers, offering perks to companies that agree to their partnership terms in ways that can handicap those who choose not to become partners, by for instance allowing third-party resellers to sell their products and elevating partner visibility in the online search results (Satariano 2014).

A number of initiatives are underway that look to disengage media—and any instance where data of any kind is stored, transacted, moved, or otherwise processed—from this model centralized control. The biggest current buzzword promising technologies of “true” decentralization—like the P2P networks of Bittorent or other file sharing communities—is a blockchain, whose most famous current application is with cryptocurrencies like Bitcoin. A blockchain is a distributed catalogue of data records, where each record is constituted as an encrypted block of code. These blocks of code are open to all computers on the network, which independently verify the information stored in those blocks through what is typically a “mix of cryptography and game theory” (Church 2017). Each node in the network has a copy of the database of records, making it much harder to falsify, hack, or otherwise modify the contents of a single block.

Blockchain represents the clearest link between two fundamental problems underlying the commercialization of media distribution: the concerns over intellectual property rights and over transparency about the operational mechanisms that circulate content to consumers. Each of the preceding case studies analyzes how these two problems have manifested as television programming is distributed over the internet: Aereo's attempt to retransmit live local television without paying the networks, Netflix's role in policing—or ignoring—the circumvention of geoblocking, and Twitter's ability to facilitate both sanctioned and unsanctioned livestreams of the same event by leaving its platform open to all kinds of users. This link is most acutely felt when blockchain is contextualized in terms of the emergence of new tech gatekeepers like Google and Amazon, as well as Twitter and Netflix, and other companies like Facebook that receive less attention here. The blockchain technology theoretically solves these problems by treating distribution in terms of indexes and transactions, rather than widespread flow or structured scheduling. Thinking about distribution in this way reframes the problem that content rights holders have in each of these cases in terms of verification: the ability to authenticate and account for where a digital (and thus nearly infinitely reproducible) copyrighted work circulates on the internet and what entity facilitates that circulation.

In terms of media content, the decentralization represented by blockchain suggests a renewed interest in building tools and systems that maximize what continues to be an idealized gold standard in internet distribution: disintermediation, or the promise that the open programmability of the internet would breakdown conventional media barriers. In the case of media industries, disintermediation is framed in terms of creators and audiences interacting more directly. As this dissertation makes clear, the many interconnected nodes of a distribution circuit either have been or are in the process of being cornered by entities that want to capture as much

detail as possible about every step in the circulation of media content online. The apparently seamless experience of online distribution is in reality often “characterized by blockage” (Lobato and Meese 2016). This blockage tends to be the result of an enactment of commercial power, or disputes among power brokers that limits or shuts down access. Meanwhile, a recent op-ed in *The New York Times* offers a utopic description of a typical transaction that takes place through the blockchain:

The whole exchange takes no more than a few minutes to complete. From my perspective the experience barely differs from the usual routines of online life. But on a technical level, something miraculous is happening—something that would have been unimaginable just a decade ago. I’ve managed to complete a secure transaction without any of the traditional institutions that we rely on to establish trust. No intermediary brokered the deal; no social-media network captured the data from my transaction to better target its advertising; no credit bureau tracked the activity to build a portrait of my financial trustworthiness (Johnson 2018).

Moreover, the blockchain might serve as an interesting technological means of reconciling the competing economic imperatives of scarcity and abundance. In terms of cryptocurrency, one capacity that blockchain holds is that its record logs enable it to preserve the rivalrous, exclusive nature of the currency: in other words, rather than infinitely multiply the digital currency, the blockchain carefully catalogues any transaction to ensure that when the “money” enters the receiver’s possession it also leaves the sender’s. This problem has been at the forefront of digital media distribution for years, as content owners continue to worry about replication through online piracy and copying. Such concerns were paramount in sparking the rise of streaming services, which normalized the consumer interaction with content through a model of access rather than ownership.

The music world has started toying with the possibilities of blockchain technologies in terms of reconciling how to maximize the capacity for abundance in internet distribution while



also adhering to the economics of scarcity that make up the financial backbone of the industry. For Grammy-winning musician Imogen Heap, the blockchain represents a chance to standardize and streamline the process of cataloguing ownership data of music, so that the process of documenting and paying royalties from streaming services can become more transparent and comprehensive (Heap 2017). Such a system—which is more theory than practice at this point—would build a universal database of music with a complete set of metadata about each song (or album or artist), including information on production and ownership. Moreover, this database would be inherently tied to a mode of exchange, as the cryptographic work of filling each “block” with info on music is rewarded with the blockchain’s underlying currency: in the case of music, this currency is called “Musicoin.” This mode of exchange manifests in the form of a “smart contract,” which is basically a layer of coded commands on top of the metadata about the music. In other words, the smart contract not only describes what information is inside the block, but also what actions—an exchange of currency, for example—should be undertaken when someone wants to listen to that music. At its most basic, this system represents a more secure form of peer-to-peer distribution imbued with the principles of the capitalist mode of production.

More recently, a new decentralized network called VideoCoin emerged for integrating blockchain technology into digital video. While proponents like Imogen Heap market Musicoin as a useful system for connecting artists to fans while fixing remuneration issues for musicians, VideoCoin takes a different approach to how blockchain technologies can be translated to the distribution of video. In a blogpost introducing VideoCoin, CEO Halsey Minor focuses on how VideoCoin offers a more effective means of managing the networked computing power necessary to encode, store, and distribute video. VideoCoin addresses two fundamental “problems” of networked video distribution (Minor 2018). First, while there are plenty of video

cloud providers like Amazon Web Services or Google’s Cloud Platform, there is also an overabundance of unused servers, resulting in inefficient energy administration and wasteful spending by video-based businesses. Second, the vast majority—Minor claims up to 80 percent—of internet bandwidth is video. To address these issues, VideoCoin assembled a decentralized network of computers and servers, as well as an incentive structure for those computer and server owners to get paid (in VideoCoin) in exchange for allowing some or all of their computing power to encode, store, or distribute video.

Minor is trying to commercialize this network in part by mobilizing interest from the conventional television industries. VideoCoin’s Head of Strategy, for instance, is Seth Shapiro, formerly of Disney and DirecTV, who apparently also serves as the Governor of Interactive Media for the Academy of Television Arts & Sciences, as well as an Adjunct Professor in the School of Cinematic Arts at the University of Southern California. Such a venture offers interesting research potential, pushing discussions of media distribution into more “material” directions by focusing on the political economy of computing power as an underlying condition of the circulation of media content.

Skepticism abounds over the viability and scalability of incorporating blockchain into the digital music streaming ecosystem. Still, the impulses behind experimenting with blockchain without sacrificing the affordances of an international media streaming service reflect a broader pushback against the kinds of distribution blockages examined in this dissertation. That pushback recognizes the positive “network effects” of a service like Spotify, Netflix, or Twitter—or Google and Amazon—but rejects the essentially closed, privatized nature of the underlying aggregation of user data on which such services are built. As such, blockchain represents efforts to reset the conditions of internet distribution into a hybrid version of today’s

commercialized system with the pre-commercialized version of the internet, where information exchange was not predicated on the monetization of user data. Such experiments continue to proliferate and mark a wealth of new research opportunities moving forward.

### *Afterword*

In this dissertation, I have focused on discrete forms of media, technology, and popular cultural forms, such as Aereo's local broadcast retransmissions, Netflix's regional content libraries, Twitter's livestreams of sporting events, and domestic streaming platforms marketed by Google and Amazon. As a trajectory for this dissertation, I have moved from older paradigms of media distribution in broadcasting to all-purpose distribution ecosystems of networked technologies. I have acknowledged the ongoing influence and importance of legacy media models within emergent ones. Media distribution is a useful analytical category for assessing these developments, because it emphasizes accounting for *what* resources are deployed in the circulation of media, evaluating *how* they are deployed, and toward which ends. But scholarly analyses of these developments tend to be couched in terms of conventional ideas about what constitutes a media industry and what does not. In the process of writing this dissertation—starting with broadcast networks and working through to sketches of blockchain technology—I have tried to push the limits of my own understanding of both “media” and “distribution” as analytical categories. I conclude here with a few observations and questions that are meant to invoke further inquiries into the expansive stakes of media distribution. In particular, I gesture toward areas and sectors that were overlooked or underemphasized in the dissertation. The point is to consider these developments together, and in concert with the examples from this dissertation's case studies, rather than to isolate each of the following examples on their own. What might happen if media industry studies began to incorporate objects of analysis that exist

beyond—but are inextricably tied into—traditional media industry forms (like television, music, film, video games, or radio)? How might a focus on “distribution” help us understand the full scope of the cluster of changes occurring in the technological mediation of commercial popular culture?

Contemporary media distribution encompasses any number of other areas of social life, especially as major media and technology companies continue to extend into sectors including healthcare, medicine and pharmaceuticals, biotechnology, robotics, education, governmental administration, voting, law enforcement, public safety and security, the military, public and private transportation, finance, agriculture, and space exploration. The “Big Five” tech companies—Alphabet’s Google, Amazon, Facebook, Apple, and Microsoft—are investing in many of these areas, while startup ventures often leverage the popular discourse of Silicon Valley by piggybacking off the ubiquity of certain brands to analogize their own existence: “It’s like Uber but for . . .” or “it’s Netflix for . . .”

Healthcare is one area ripe with developments involving distribution circuits and consumer technologies. For instance, in late 2007 Microsoft launched HealthVault, a web-based system for storing personal health records. Microsoft marketed HealthVault as a centralized place for people to store medical records, making the records instantly mobile, easy to transfer between healthcare providers, and easy to aggregate records from multiple providers. Microsoft worked hard to ensure that privacy and confidentiality were maintained, taking a number of security measures including encrypting all data. Moreover, in the intervening years Microsoft has offered opportunities for tech startups to partner through HealthVault, which it now refers to as a “unique, feature-rich development platform for consumer and patient engagement” (Microsoft 2017). Thus, Microsoft is using the area of personal health records as a pretext for inviting

software developers to create applications that are compatible with HealthVault and to transform how forms of “content” (in this case, health records) circulate on its platform. In 2011, Microsoft even enabled social media authentication by linking HealthVault with Facebook, and in the process recognizing “Facebook’s central role in people’s lives by allowing users to sign into HealthVault using their Facebook credentials” (Bishop 2011). Facebook’s role as a central portal facilitating all kinds of online activities is apparent here. In addition, a driving force behind Facebook’s success—the sense of connectivity the platform engenders—is being built into the very fabric of marketing, and into the discourse connecting marketing companies to the industries they service, including health care. The website for the 7<sup>th</sup> Content Marketing for Life Sciences conference describes the aim of the event:

As digital health develops into a commoditized product, pharma organizations are evolving from being product-oriented companies toward becoming solution providers. This progression impacts far more than how content is disseminated — it shapes how content is developed, designed, personalized, targeted and reviewed internally. It even influences the channels that content is used on, the platforms it is shared through, and the devices customers use to interface with it (7<sup>th</sup> Content).

This (almost nauseating) level of techspeak suggests just how much networked healthcare extends into the mobile body. Consumer electronic devices become more than technical prosthetics that extend people into the world, but also help people, healthcare professionals, and companies to monitor bodily functions, fitness, and wellbeing.

Of course, wearable tech like FitBit is doing the same kind of monitoring, but also operates through gamification, whereby the impetus to use the FitTit comes from the promise of a reward like meeting one’s step goals for the day. Meanwhile, virtual reality and augmented reality technologies—so beloved by gamers (and the film industry, with their experimentation with 3D)—are steadily becoming more popular tools for therapy, as means of not only

monitoring one's health but also finding flaws and fixing them. Studies about VR's possible role in therapy go back to at least the 1990s, but use of such technologies is still not widespread.

In November 2017, the Food and Drug Administration approved a pill that is equipped with transmission sensors that give doctors and other healthcare providers information about when or whether patients ingest their medicine. Sensors can transmit information about when pills are taken to a smartphone app that is accessible to a patient's doctor and "up to four other people, including family members" (Belluck 2017). Such networked medicine shifts the distribution focus found in the last chapter of this dissertation—technologies of the "smart home"—to that of the body itself. The two-way communication of recent media technologies that are used in the distribution of popular culture—where users of a streaming service like Netflix are providing useful data to the company as they make their content preferences and viewing habits known—gets embedded within the body itself in the case of these "digital" pills.

Another area where such developments are occurring is in urban development. For instance, Google's "corporate sibling" Sidewalk Labs agreed in late 2017 to a controversial urban revitalization plan in Toronto that would create a mini "smart city," and which Canadian Prime Minister Justin Trudeau argued would make "technologies that will help us build smarter, greener, more inclusive communities" (Austen 2017). This project demonstrates how the management of people, cars, and other mobile objects circulating through a given space is increasingly subject to the same technology and concerns of contemporary media distribution, for instance cataloguing purchases and traces of movement that can be used in data analysis to more effectively "personalize" services. Informal video distribution has of course also infamously made its way into everyday interactions with policing, as the mobile applications of social media platforms like Twitter and Facebook offer people a way to broadcast their (often

tragic) interactions with law enforcement. Such recordings offer video documentation of interactions that are also always distributed to an audience. Such functionality extends beyond social media as well. The ACLU of North Carolina has developed an application called Mobile Justice NC that offers the same recording and broadcasting functions, but rather than transmit to an audience of “friends” or “followers,” the Mobile Justice NC app connects directly to the ACLU. The ACLU markets this application as a tool for ensuring transparency in how law enforcement officials interact with people in everyday life, recalling discussions about disintermediation in conventional distribution. In the event that an interaction with law enforcement goes wrong, a user of the Mobile Justice NC app is automatically patched into the ACLU’s network of advocates, bypassing third party “intermediaries” that might corrupt video evidence along the way.

Education is another sector that is increasingly resembling media distribution. The South by Southwest conference, for instance, expanded into education in 2011, the twenty fifth anniversary of the conference’s first run. The conference uses education as a broad backdrop against which participants can discuss new frontiers for integrating technologies into the classroom, bringing together educators, tech businesses that create products and services for education, and governmental and non-profit organizations. Education is of course a focal point of paramount importance for integrating distribution technologies. Not only are technologies developed to help facilitate teaching and learning of specific educational curricula, but also deploying such technologies in the classroom means exposing younger people to how they work, thereby normalizing their use. Moreover, major tech companies like Google have also launched standalone educational websites and services that purport to serve as one-stop shops for technological pedagogy. Visit “Grow with Google” and choose from among any number of



different initiatives, under such rubrics as “learn new skills,” “grow my business,” “help my students,” or “scale my startup.” Such initiatives operate as massive scale, and integrate conventional forms of media—like video tutorials—into their lessons.

Meanwhile, Amazon has continued to aggressively leverage its strength in digital consumer data and e-commerce into more industries. For instance, it extended into retail grocery with the purchase of Whole Foods, is preparing to launch a merchant shipping service to rival UPS or FedEx, and recently began talks with JPMorgan Chase & Co. about entering consumer banking services. While Amazon grows into new sectors, Apple responded to slowing iPhone sales by experimenting with marketing to younger people through YouTube channels when it launched the iPhoneX. Apple bypassed many of the mainstream media and tech bloggers who normally receive iPhones to review prior to the launch, which helps to spread the word among established Apple-philes. Instead, it sent iPhones to popular personalities on YouTube, so they could create review videos, in the hopes of attracting new customers. Google ran into hot water with its own expansion efforts in the summer of 2017, when the European Union ordered it to pay 2.4 billion euros for violating antitrust laws about how it displays shopping ads. It was one of many regulatory moves beyond the U.S. aimed at curbing the unchecked growth of major tech companies.

These are just a small sample of sectors beyond conventional media industries and media formations where the stakes of contemporary distribution—and of distribution circuits—are brought to bear. Such examples offer an array of paths forward for future projects that researchers from a “media studies” perspective might provide some interesting, innovative, and worthwhile insight into.

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