

P2PTV: Is it a feasible option for the television industry?
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In Partial Fulfillment of the Requirements of the Degree of
MASTER OF ARTS
in
TELEVISION MANAGEMENT
by
James W. Todd

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Under the guidance and approval of the committee, and approved by all its members, this thesis has been accepted in partial fulfillment of the requirements for the degree.

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I dedicate this thesis and my graduation to my great grandmother, who I know would be very proud of me if she were here right now. I know she is smiling down on me as I finish this thesis.

Abstract

Peer-to-peer technology is a technology that uses a centralized system which usually carries a server/client relationship which is responsible for carrying the load of information for all connected clients. Peers from the peer-to-peer community connect to a central directory where they can publish information about the content they will offer the peers. In order to guide the research, there were three research questions that were focused on. Those questions were:

1. What are some of the possible uses for peer-to-peer television technology within the television industry?
2. What are some of the benefits and downfalls of peer-to-peer technology for the television industry?
3. How can peer-to-peer television technology change advertising revenue if involved in the television industry?

Through these research questions, the results showed that there were many benefits and concerns for peer-to-peer technology being used within the television industry. Through the research it was also discovered that the internet service providers may also play a vital role in the regulation of the technology and how it is used.

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Chapter 1: Introduction

1.1 Introduction

As technology has expanded within the realms of television, video websites such as YouTube have become a very popular source for watching video online. Because of this advance in technology, the television industry has begun to offer a slew of their television content on their websites.

In 2005, iTunes began to offer television episodes for direct payment (Waterman, Sherman, and Wook Ji, 2012). As iTunes began to garner attention, 2005 also saw the launch of YouTube. Although this was a great step for internet television, this was met with a bit of controversy as full episodes of major network series programs were being posted illegally by users (Waterman, Sherman, and Wook Ji, 2012). After a brief period of tolerance, networks and program suppliers issued "takedown" orders under the Digital Millennium Copyright Act (Waterman, Sherman, and Wook Ji, 2012).

As YouTube and iTunes began to experience success, services such as Netflix and Hulu not only expanded on that success, but also built new revenue opportunities for the distribution of new content (Kende, Colville, and Reich, 2013). Specifically with Netflix, in 2010 Netflix was the leading provider of on demand Internet video streaming in the US and Canada, accounting for 29.7% of the peak downstream traffic in the US (Adhikari, 2013).

In 2012, the internet was used as a platform for the delivery of the 2012 London Olympic Games. YouTube and Google showed a live stream of many of the major events that took place during the London games. There were several websites that enabled viewers to watch the Olympic games live, in any time zone instead of waiting until broadcast television showed the events on their schedules. It was believed that internet television was becoming more and more

of a way to expand the audience leading to the idea of internet television becoming more marketable to advertisers (Venneman, 2009).

But there has been a reason as to why most television content is seen on broadcast and digital television. The cost for large scale distribution of live televised events is expensive. The cost for large scale online video content distribution is measured by the Gigabyte uploaded per program. Since bandwidth is paid for per Gigabyte uploaded to the customer, this means that extra customers means costs (Venneman, 2009). Not to mention the fact that the bandwidth the distributor has at their disposal is very limited. Because of this, the quality of the video could begin to suffer, or sometimes the video is compromised altogether because there are too many users trying to access the video feed. However, there is a new technology that is being developed known as peer-to-peer streaming which according frees broadcasters of their dependency on existing distribution companies (Alstrup and Rauhe, 2006). In addition to this, the technology offers a much easier way for broadcasters to distribute on a large scale (Alstrup and Rauhe, 2006).

A peer-to-peer television system allows users to watch live video streams redistributed by other users via a peer-to-peer network (Shami, Magoni, Chang Wang, and Jamin, 2009). By users uploading this content to other users who are streaming, this could be huge cost reduction for the distributing party, something that could become a option for the current television industry for live event coverage worldwide or for simply showing broadcast television channels in real time over the internet (Branch-Furtado, 2005).

Peer to peer broadcasting applications enable individuals to share their video material over the internet in real time with a large group of individuals without having to worry about the high bandwidth burdens. These types of applications enable live sporting events to be watched

as well as other pre-recorded content by connecting to users channel. The only downside to this, something that could become a potential risk to the current television industry, is that these applications are also sued for the illegal reproduction of copyrighted material.

What makes peer-to-peer television an increasing possibility through peer-casting is the fact that there is an ever growing need for consumer bandwidth. With more upload bandwidth capacity available to the consumer, the possibility for high video quality content distribution through peer-to-peer television is closer to happening on a broad scale.

1.2 Statement of the Problem

The peer-to-peer model is a practical solution for broadcasting live events of TV shows to a large number of receivers (Silverston, Jakab, Cabellos-Aparicio, Fourmaux, Salamatian, and Cho, 2011). Much research has been done to see how peer-to-peer television can be improved to better the quality of the video, but no research has been found that actually explains the possible benefits and downfalls of peer to peer streaming in the television industry.

The need to watch television online is growing however. When dealing with online viewing of television, eighteen to twenty-four year olds, watched an average of 105 minutes of internet video, although they still watched over 23 hours of standard television in 2012 (Waterman, Sherman, and Wook Ji, 2012). This is a ratio of about thirteen to one. Screen Digest (2010) also explained that 8 percent of all U.S. television viewing was online in the year of 2010. SNL Kagan (2007, 2011, and 2012) also noted that U.S. television households with multichannel subscriptions went down in 2009 to 88.0%, as well as 86.8% in 2011. In short, the research would suggest that online television viewership has been expanding rapidly, but still not enough to be seen as a replacement to traditional television viewership.

This could be important to look at because there would be no need for data and information being stored in a local computer system. Other video streaming solutions, most notably Video-On-Demand, do not have live streaming capabilities (Boufkhad, Mathieu, Montgolfier, Perino, and Viennot, 2009). These features naturally make peer-to-peer television technology a strong candidate to satisfy the demand for live or near-live streaming over the internet (Ciullo, Mellia, Meo, and Leonardi, 2008).

Peer-to-peer television technology could cause the television industry to change their business models as well as the technical processes that they have in place to meet the possible benefits and risks peer-to-peer television technology could have on the television industry. Decisions will need to be made within the television industry by television managers and television station owners on how content can and will be offered in the future based solely on the opportunities that peer-to-peer television can provide.

With the idea that the technology of peer-to-peer television offers both benefits and risks to the current television industry, the television industry needs to have a clear understanding and idea of the possibilities of this technology, as well as downfalls that could come with this technology.

With peer-to-peer television being introduced to the television industry, individuals would also have to look at the business model being used now. This would help in determining whether or not the current business model would be something that would need to be changed.

1.3 Background and Need

Internet television will continue to attract supporters and have an audience (Calandria, 2013). Orange and Barlovento (2009) also performed a study in 2009, stating that 42% of Spanish internet users already watch internet television.

The Multimedia Research Group predicts that by 2013 the number of subscribers to Internet protocol television (IPTV) will be 81 million. Even today, the current number of subscribers to Internet pay TV is over 25 million around the world (Calandria, 2013).

It is because of this that the researcher feels there is a need for the study of peer-to-peer television technology. With the increasing amount of individuals watching their television content online, the researcher feels that there is a need to discover the risks and opportunities of this technology.

1.4 Purpose of the Study

The purpose of this study is to see whether or not peer-to-peer television technology would be beneficial to the television industry. The researcher felt that in order to conduct this research properly, a qualitative research method was needed. The researcher interviewed representatives from three media companies. The interviews that were conducted with these media companies were conducted over the phone. Each interview lasted thirty minutes.

In order to compliment this research, a survey was conducted with an audience of 150 individuals. The survey had 25 questions. Some of these questions were multiple choice, while other questions were essay form and yes and no questions. The sample group for this survey ranged from 25 years of age, to 80 years of age.

1.5 Research Questions

Peer-to-peer television could drastically change the current television industry model of online television distribution. Because of this, the television industry might be interested in gaining insight into the possible benefits and downfalls of peer-to-peer television and what this technology could do. To examine the feasibility of this technology, three research questions will be investigated.

- 1.) What are some of the possible uses for peer-to-peer television technology within the television industry?
- 2.) What are some of the benefits and downfalls of peer-to-peer television technology for the television industry?
- 3.) How can peer-to-peer television technology change advertising revenue if involved in the television industry?

1.6 Significance to the Field

Content delivery is changing. Because of this, businesses that want to stay competitive also need to change. The results of this research can guide content providers toward the technologies that are deserving of their efforts, and help those companies understand what consumers are using and what they want to use.

Although the interviewees and the survey participants believed there were some benefits for using peer-to-peer technology, there was an overall feeling of negativity when talking about the technology. This was due mainly to how easy it is to reproduce media files such as movies and music. This could contribute greatly to the literature in this field because it will allow future researchers to continue to analyze the technology and look for the positive uses for peer to peer technology, not only within the television industry, but also just with general usage.

1.7 Definition of Terms

It is important that before going any further with the study of this technology, there is a clear understanding of the terms that are being used. The first term that should be defined is

internet television. Internet television can be seen as a reliable and secure way to integrate video (Thompson and Chen, 2009). This includes broadcast television, targeted advertising, and video on demand that can leverage the internet's technology and power (Thompson and Chen, 2009). Some examples of internet television that can be seen are websites such as YouTube and Netflix.

The next definition that should be explained for this study is peer-to-peer streaming. Since this is a term that is used frequently in the study, it is important to have a clear understanding of what this term means. Peer-to-peer streaming applications, can be seen as applications which offer the capability to watch real time video over the internet at low cost (Bermolen, Mellia, Meo, Rossi, and Valenti, 2010).

With peer-to-peer streaming, it is important to understand what a peer-to-peer network is. A peer-to-peer network is a network that is built over a physical network to overcome the limitation of server-client systems (AlTuhafi, 2013).

In relation to peer-to-peer streaming, it is important to discuss video on demand, which is an important aspect of the technology. Video on demand is defined as enabling individual clients to watch whatever content they want, whenever they want it (Shen, Luo, Zimmerman, and Vasilakos, 2011). This is a vital role in peer-to-peer streaming because the technology can be used for live streaming as well as viewing content at any time.

The live aspect of peer-to-peer streaming can be seen as the live video content being disseminated to all users in real time (Liu, Guo, and Liang, 2008). The video playback for all users are synchronized.

With live streaming and video on demand, it is important to have a clear definition of buffering. This is important to peer-to-peer streaming because this determines the quality of the video that is being seen by the individual. Buffering ensures that the streaming player has a

sufficient amount of data to compensate for the variance in the end-to-end available bandwidth during video playback (Rao, Legout, Lim, Towsley, Barakat, and Dabbous, 2011).

1.8 Limitations

The lack of individuals that were able to talk about the peer-to-peer television technology was a limitation to the study. Although great amounts of data were acquired to go along with the thesis, the research could have benefited from individuals within the television industry who were knowledgeable about the peer-to-peer television technology and how it could possibly affect the television industry. The main reason behind this was because of all the information acquired in the literature review and how some of the information could not be supported through firsthand knowledge. Because of time constraints, as well as the difficulty in finding individuals to speak on these issues, this was something that held back the researching process.

This ultimately meant that there was little information on how exactly peer-to-peer television technology could benefit or harm the television industry. Is this technology even worth the television industry using in future situations? From the interviews and data collected, it appeared that peer-to-peer television technology really wasn't being investigated within the television industry. This made it difficult to find knowledgeable individuals to talk about this subject.

The last limitation for the researching process was that this was a qualitative research analysis on the risks and opportunities of peer-to-peer television technology being used within the television industry. Although there was ample data collected through interviews, to interest individuals within the television industry about this technology, statistics such as dollars and cents would've been very key. This could've shown how much of an impact this technology

could've had on the television industry from a financial standpoint. If this data was available, it was very likely that more individuals from within the television industry could've been talked to.

Chapter 2: Literature Review

2.1 Introduction

Peer-to-peer television technology could change the way people watch television. However, in order for key figures within the television industry to make well rounded and educated decisions about using peer-to-peer television technology, they must have a better understanding of the technology and how it works. Key figures within the television industry must also know the benefits of using such a technology as well as consequences that could come with the technology.

2.2 What is peer-to-peer television technology?

Peer-to-peer television technology is a technology that uses a centralized system which usually carries a server/client relationship which is responsible for carrying the load of information for all connected clients (Lindgren, Olsson, and Chalmers, 2006). When dealing with the centralized system, peers of the peer-to-peer community connect to a central directory where they can publish information about the content they will offer the peers (Lindgren, Olsson, and Chalmers, 2006). When the central directory gets a search request from a peer, it will match the request with the peer in the directory and return the result. When the peer has been selected, the transaction will follow directly between the two peers (Lindgren, Olsson, and Chalmers, 2006).

Peer-to-peer technology is about sharing and obtaining from the peer community. This technology is ideal for video content over the internet primarily because of the massive amounts of peers within the peer to peer community, diminishing the need for constant bandwidth.

In regards to bandwidth, close to 60 percent of the traffic on the internet was accounted for by peer to peer traffic in 2007 (Li, Bo, and Yin, 2007). It is noted that that the main reason for this was because peer to peer systems have a key component, enabling users to contribute resources such as bandwidth, computing power and storage space (Li, Bo, and Yin, 2007). Because of this, the more peers who are watching a certain program, the more this can actually increase the overall performance of the content.

2.3 Buffering

A very important piece of the peer-to-peer television technology deals with the buffering of the video content. This process takes place through buffer maps. The buffer map comes from a remote partner who indicates the chunks that are available from each partner (Hei, Liu, and Ross, 2008). This in turn for each user who is watching a video shares the chunks with other hosts who may be watching the same video. With this schedule, the host requests chunks that it will require in the future, continually seeking out new partners from which it can download chunks.

The buffer maps play a vital role in the video streaming process of peer-to-peer television technology. If the new peer client selects particular peer clients to download video, it needs to send a request packet to exchange buffer maps with the selected peer clients through a gossip protocol that enables a peer to communicate with the other peers by sending a generated message to a set of randomly selected peers (Ketmaneechairat, Hathairat, Oothongsap, and Mingkhwan, 2010). The buffer data is then divided into three key parts. Those parts are the data buffer, buffer map, and sliding window. The data buffer is used to store video frames while the buffer map is used as a bit vector that represents information of available segments for the video stream (Ketmaneechairat, Hathairat, Oothongsap, and Mingkhwan, 2010). Besides having the data

buffer as well as the buffer map, the sliding window is used to store a number of displaying segments. It is from this form of buffer organization, that the video segments will be shown continuously.

The buffer data is then divided into three parts. By dividing the buffer data into three parts, this enables the video to be streamed and stored for users who will be viewing the video content. The buffer data also enables the next available buffer to receive frames for the video to be shown. These new frames are received from other peers by using a sequential scheduling pattern (Ketmaneechairat, Hathairat, Oothongsap, and Mingkhwan, 2010). This means that the next available buffer will be used to receive the video data that users will be watching.

2.4 Video Quality

While peer to peer television technology distribution is going commercial, the video quality delivered to users is becoming very important (Kiraly, Abeni, and Cigno, 2010). When peer to peer television technology was first made available with commercial applications such as PPLive, SOPCast, & TVants, they offered moderate quality peer-to-peer streaming (Alessandria, Gallo, Leonardi, Mellia, and Meo, 2009). Some of today's more popular peer to peer streaming applications such as Joost and Babelgum are offering close to high quality peer to peer streaming. Peer-to-peer streaming systems may contribute to revolutionize the broadcast television paradigm allowing access to a practically unlimited number of broadcasters (Alessandria, Gallo, Leonardi, Mellia, and Meo, 2009).

There are several factors that aid in the user's perception of the quality of video. The first factor is the start up delay. This is seen as the total time it takes to connect to the peer system until video playback starts (Agboma, Smy, and Liotta, 2008). A playback delay of between five

and fifteen seconds is acceptable for most video streaming applications (Salkintzis and Passas, 2005).

The second factor is the channel switching delay. This is the time it takes to switch between channels on a peer to peer network. The channel switch time for digital broadcast services is about 1 to 1.5 seconds (Benham, 2005). The key factor for this will be providing a similar match to that presently experienced in traditional television viewing (Agboma, Smy, and Liotta, 2008).

Another factor when talking about the quality of video is the frequency of service interruption. This can be a variety of things from advertisements that are frequently played between videos, to random changes in network parameters such as bandwidth and delay. This frequency of lack of service quality infers that the user may experience a longer delay and frozen pictures due to constant buffering (Agboma, Smy, and Liotta, 2008).

The last factor when talking about video quality is the media quality. This is the primary factor affecting video quality. This factor refers to the sharpness, clearness, and non-distortion of media playback (Agboma, Smy, and Liotta, 2008). This is a key factor when talking about the video quality of a peer to peer broadcast.

The peer-to-peer television technology has the potential to revolutionize the television industry, but there are still obvious flaws, primarily with video quality and making sure that the high level of quality will continue.

2.5 Plug-in and software for Peer-to-peer television

Standard media players such as Windows Media Player or VLC are not able to correctly use the peer-to-peer technology (Venneman, 2009). This is mainly because the producers of the

commercial media players have yet to adopt peer-to-peer television technology and implement this in their software. Research has shown that in order to make correct buffering, tracker contact, and upload capabilities possible, a media player plug in or media player software package would be needed (Venneman, 2009). Because of this, every individual that wants to receive or broadcast a stream will need to install this special piece of software.

2.6 Network usage of Peer to Peer television

While peer-to-peer applications may be beneficial for individual users, the emergence of peer-to-peer applications have created problems with internet service providers with the traffic surges and network congestion (Shen Wang, Xiong, Zhao, and Zhang, 2007).

Network usage can be defined as the amount of internet traffic peer-to-peer television uses. In 2008, the internet traffic for this technology was close to 70% for peer-to-peer file sharing (Werbach, 2008). To go one step further, measurement studies consistently indicated that 50 to 70% of internet traffic was caused by popular peer-to-peer applications (Aggarwal, 2008). Most of this traffic was used for the sharing of some type of media file whether it was music or video.

The increasing popularity of peer-to-peer television applications combined with the demand for broadband internet access led to internet service providers considering peer-to-peer traffic unwanted (Dan, Gyorgy, Hogfield, Oechsner, Cholda, Stankiewicz, Papafili, and Stamoulis, 2011). There were many reasons for this. The main reason for internet service providers dislike of peer-to-peer traffic was the increase in traffic costs which would lead to more investments internet service providers would have to make in their infrastructure (Dan, Gyorgy, Hogfield, Oechsner, Cholda, Stankiewicz, Papafili, and Stamoulis, 2011).

Some internet service providers attempted to deploy traffic shaping devices that would limit the sending rates of popular peer-to-peer applications while other companies tried to decrease bandwidth of their heaviest users due to the types of applications they used (Dan, Gyorgy, Hogfield, Oechsner, Cholda, Stankiewicz, Papafili, and Stamoulis, 2011). Most of these technologies relied on the ability to identify the peer-to-peer traffic in the network, whether it was through ports or through deep packet inspection. Because of this, peer-to-peer systems began to use randomly selected ports that had traffic encryption to avoid being detected by internet service providers (Dan, Gyorgy, Hogfield, Oechsner, Cholda, Stankiewicz, Papafili, and Stamoulis, 2011).

In order for peer-to-peer television streaming to work, the consumer would need the internet service providers' cooperation, something that may not be a foregone conclusion because of the possibility of reproducing copyrighted material. However, there has been a proposed idea that could very well get internet service providers on board with the peer-to-peer television revolution. A oracle type of method was discussed, which was seen as a service that could rank potential neighbors according to certain metrics that would be provided and hosted by the internet service providers (Aggarwal, 2007).

It's clear that the internet service providers and peer-to-peer systems could benefit greatly from one another by working together. For the internet service providers, they would be able to manage the flow of the incoming traffic from peer-to-peer users, allowing the internet service providers to provide better service to their customers (Aggarwal, 2007). The only question that would come from that would be how these two technologies would be able to cooperate. If the proper research is done on that issue, as well as extensive development of the proposed oracle

system hosted by the internet service providers, it is possible that people could see internet service providers respective costs go down, as well as the overall performance increasing.

2.7 Capabilities of P2PTV

Peer-to-peer television creates the possibility of reaching anyone that has an internet connection with just a single broadcast. If this technology is developed correctly, peer-to-peer television systems are seen as the next internet killer applications, which is testified by the growing success of commercial peer-to-peer streaming systems such as PPLive and TVAnts which already attracts millions of users (Bermolen, Mellia, Meo, Rossi, and Valenti, 2010). When talking about "the next internet killer applications", it simply means that people have to have that internet because of peer-to-peer streaming and its technology. What this also means is that the content that is shown on television channels that is owned by content aggregators can now become available worldwide at a higher quality. This technology could be used to stream live events such as sporting events worldwide. By doing this, they would be attracting a larger audience than broadcast television. Peer-to-peer streaming could also enable this technology with relatively small bandwidth costs that peer-to-peer streaming needs for their video distribution. Because of the relatively cheap nature that it takes for peer-to-peer streaming to be distributed, anyone could become a broadcaster, and immediately start their own broadcasts in high quality (Venneman, 2009). However, the equipment needed to make these broadcasts would still be expensive, leaving individuals to wonder whether or not the investment in peer-to-peer streaming is truly worth the risk.

The user will ultimately have final say over who gets to watch their content by forwarding the incoming stream and re-distributing this stream to anyone the user likes. An example of this would be if a broadcast from a user is only intended for a certain geographic

location, anyone within this location would be able to view the feed. The people who are watching the feed can then re-distribute this to everyone outside of the designated area using peer to peer streaming technology (Arnoldus, 2006). This type of filtering is known as IP-range filtering, and could be something that could be adapted to peer to peer streaming to give users control over who sees what within a certain tracker server. This fact can also open the door for peer-to-peer streaming users to use their computers as Digital Video Recorders (DVR). With the technology peer-to-peer streaming has to offer, and not needing any type of special hardware, this could become a real possibility (Veeneman, 2009). Since peer-to-peer streaming is a real time broadcast, it would be easy to believe that recording software could become available that would be capable of automatically selecting a start and an end time for recordings.

Peer-to-peer streaming technology is becoming a popular technology in the United States, with this technology already being heavily used in Asian countries during 2008 (Roettgers, 2008). 2008 was seen as the year that China dominated peer to peer streaming, as the Chinese stated that it "put the audience numbers of Western online television offerings to shame (Roettgers, 2008). At this time most of the freeware applications that were being used were China based applications such as PPLive and PPStream. With the development of the peer-to-peer streaming technology, other applications coming from Europe such as Tribler and Rawflow built on the early success of the first generation peer-to-peer streaming applications

The Tribler application could play a key role for the inclusion of peer-to-peer streaming in the television industry. Tribler is a peer to peer streaming application that was created in conjunction with the P2P Next project. This platform was developed enabling peer-to-peer based delivery of video on demand and live streaming in a single protocol, based on the peer-to-peer streaming application BitTorrent (Bakker, Petrocco, Dale, Gerber, Grishchenko, Rabaioli, and

Pouwelse, 2010). The aim of the P2P-Next project was to develop an open and open source platform for content delivery based on peer-to-peer for scalability (Bakker, Petrocco, Dale, Gerber, Grishchenko, Rabaioli, and Pouwelse, 2010).

The P2P-Next project is a conglomerate of 21 partners in 12 different countries with the aim of making broadcasting over the internet available to millions of people through peer-to-peer technology. The P2P-Next project showcased what they were working on in 2008 at the IBC conference when the P2P-Next team developed and displayed the first video end-to-end streaming device capable of distributing professional content to a low cost peripheral known as a Set-top-box, which is used for connecting to television hardware. This hardware was known as NextShareTV (Briel, 2008). The box delivered content on the NextshareTV straight to the television using peer-to-peer streaming techniques. With the NextShareTV application, the P2P-Next group has clearly garnered the attention of governments as well as the current television industry in the future of peer-to-peer television streaming. The major question with this however is that although professional content can be distributed to a low cost peripheral, people still would need to invest in professional cameras and editors to produce this high end content.

What this also shows is that peer-to-peer streaming has the capability of being something that is not just watched on a computer screen.

2.8 Summary

Peer-to-peer television streaming technology clearly has the potential to be a solution to online distribution when dealing with high quality video content at low costs. Many companies have even begun to use the technology for small media sources, still meeting the requirements of quality of service and stability. However, peer-to-peer television streaming's main use is for

internet users and the illegal redistribution of copyrighted content. This is one of the main issues of peer to peer streaming (Veeneman, 2009). This is something that many future television managers will need to address when dealing with this technology. One positive that comes from using peer-to-peer streaming technology however is that it will require less bandwidth for individuals to use worldwide. Because of this, peer-to-peer streaming would be very suitable for the coverage of live events that traditional networks may not be able to cover, such as cable or satellite (Veeneman, 2009).

A conclusion can be made that it would be a relatively small venture for the actor that wants to play a key role in the development of this technology. It also doesn't hurt that distribution costs for the video content would be low as well.

Chapter 3: Methods

3.1 Introduction

The following research questions were addressed in this study:

- 1.) What are some of the possible uses for peer-to-peer television technology within the television industry?
- 2.) What are some of the benefits and downfalls of peer-to-peer television technology for the television industry?
- 3.) How can peer-to-peer television technology change advertising revenue if involved in the television industry?

A qualitative method was used to gather the appropriate data for the research. Interviews as well as survey responses were used to collect data for the study. This data was then categorized into four themes related to the research questions.

3.2 Participants

The participants who were chosen to participate in this study were chosen through various methods. For the interviews that were done, they were selected because these interviewees were available and accessible at that time. There were three participants. These individuals all work for media companies that use or have a good idea of the peer to peer technology. Fabian Gordon was a participant who currently works for Ignite Technologies. Ignite Technologies provides one of the industry's most secure content delivery systems (www.ignitetech.com, 2013).

The next participant Marty Lafferty works for the Distributed Computing Industry Agency. This company is a voluntary, organization with representation from all substantially affected sectors of the distributed computing industry. This includes but are not limited to platforms for storage, transmission, and various other digital media rights holders.

The last participant in the interviewing process is a digital expert who works for a major east coast market television station who requested anonymity.

The participants who were chosen to take part in the survey were chosen through a random assignment sampling group. The participants in the study were from diverse ethnic backgrounds. There were 153 participants in this study, with three participating in the interviewing process, while the other 150 participants participated in the survey process. 16 of the participants were between the ages of 18 and 25. 39 of the participants were between the ages of 25 and 40. 57 of the participants were between the ages of 40 and 60. Lastly, there were 39 individuals who declined to give their age for the study.

The 3 participants that took place in the interviewing process were all males. When talking about the survey process however, 71 of the participants were male, while 79 of the participants were female.

The participants were really diverse when it came to education. The 3 participants in the interviewing process all had a college degree. 5 of the participants in the survey attended high school, while 29 of the participants have a high school diploma. 21 of the participants have an associate's degree, while 50 of the participants have a bachelor's degree. Lastly, 36 of the participants hold a master's degree, while only 10 participants have a PhD.

One hundred and twenty-six of the participants were Caucasian while 7 of the participants were African American. 8 of the participants were Asian while 5 of the participants were Hispanic.

3.3 Measurement Instruments

There were two different measurement instruments used in order to gather data for the study. The first type of measurement method used was a researcher made instrument. This was used primarily for the survey that was administered to the 150 participants. The survey had 25 questions and dealt with how much the participants knew about the peer-to-peer technology. The survey itself was administered at random over a website called Survey Monkey. The participants were also chosen at random while the questions were written by the researcher.

The second measurement instrument that was used was several interviews with individuals who knew information about the peer-to-peer technology. This would prove vital to the data gathered because it would enable the researcher to have two forms of objective data with two of the participants being in the peer-to-peer media field, and the other participant being from a major east coast television station.

The procedure that took place to acquire this data was through interviews that ranged from twenty to twenty five minutes. These interviews covered anywhere from ten to fifteen pre determined questions. Although there were many questions, these questions focused on the three research questions that were described in the earlier portion of the thesis. The way this data was acquired was through several phone calls. The questions were written and transcribed by the researcher.

3.4 Data Analysis

The collected data was transcribed and categorized in terms of the research questions and emergent themes. The questions that were asked in the interviewing process were specifically matched to answer the three research questions. In order to have the data aligned with the right categories, a coding method was used. By using this method, the interview data as well as the

survey data was organized into a limited number of themes and issues regarding the research questions. Data was also taken from the survey and categorized into the necessary categories according to the research questions. Data was also compared between the survey and the interviewing process to see if the information complimented each other.

Chapter 4: Results

4.1 Introduction

The findings from this study were categorized according to major themes and patterns.

4.2 What are some of the possible uses for peer-to-peer television streaming within the television industry?

One of the main issues that was analyzed during the interviewing process was some of the possible uses for peer-to-peer television streaming within the television industry. During the interviewing process, it was clear that the streaming of large events was a huge possibility for peer-to-peer television. However, there were some stipulations that needed to be met in order for this to actually take place. This was reviewed in greater detail by Fabian Gordon of Ignite Technologies. Gordon explained how important it is to know how many people are available for the network simultaneously. This was very crucial for this technology to work, especially if this was a live event. Building further on that topic, Gordon also stressed that for the individuals who are on the internet, or on the network somewhere where helping each other makes more sense than not helping each other. A common example of this that Gordon noted was the idea of someone in New York helping someone stream something in California. Does it make practical sense? While it may sound like it doesn't make much sense, Gordon cited in fact that, those individuals probably transmitted more data than we needed to in order to get that stream. In a situation where there are a million viewers however, that number becomes a bit more attractive. Gordon concluded that as we increase the number of recipients, their likely proximity to each other from the internet geography perspective, not from a physical geography, is far more likely.

Another topic that was discussed with Gordon revolved around some of peer-to-peer streaming's possible uses within the television industry and the possibility of creating private television channels. The big idea behind this was the fact that individuals could not only generate their own content, but these individuals could also watch content from other individuals. Gordon specifically reviewed social media sites such as Facebook and YouTube and how people simply have the desire to create and watch content. The next logical step in that process would be to make their own specialty channel. The big difference between this channel on YouTube, and this channel using peer-to-peer technology would be the question of whether or not the content creator would be able to charge a subscription fee for this content.

Participants who were focused on the survey were asked similar questions to the interviewees. When asked about how individuals prefer to watch their television programs, close to 87% of the participants said that they preferred to watch their content on a television set. The next choice after the television set was 16% of the participants preferring a laptop. What this data tells the researcher is that even though the television set is the overwhelming choice to watch content, some participants somewhat agree with Gordon in the idea of watching media content on their laptop. This media content could be anything from Facebook or YouTube, to even streaming websites such as Hulu or Netflix.

When asked about how participants preferred to listen to their music, close to 57% of the participants chose their mobile devices. 42% of the participants chose the CD player, while 20% of the participants chose the laptop computer again.

As the interviewing process continued, the researcher spoke to Marty Lafferty of the Distributed Computing Industry Agency. Lafferty also felt like peer-to-peer streaming could also be used for streaming large events. When asked about this possibility, Lafferty discussed major

events such as the Super Bowl as well as the Olympics and how they were prime examples because of being ideal for peer-to-peer distribution. Lafferty explained how the more popular an event is, such as the Super Bowl, the better peer-to-peer streaming technology would be in terms of an efficient distribution technology. This was similar to what Gordon discussed about the larger number of viewers, the more attractive the streaming possibility.

The idea of producing content was also brought up during the interview with Lafferty. During the interviewing process, Lafferty was asked if it was possible for peer-to-peer technology not only to enable individuals to produce content, but also if it could enable individuals to produce movies and television quality content. Again, Lafferty responded by saying absolutely, and even analyzed how this was going on today as we speak. The big issue that Lafferty saw with this however, was licensing, something that was touched on with one of the other research questions.

The last person interviewed during the data gathering process was a digital expert at a major market east coast television station who wanted to remain anonymous. The researcher was able to converse with this individual and get their take on peer-to-peer technology within the television industry. When asked about the idea of live streaming a major event through peer-to-peer streaming technology, the digital expert decided to look at this from the perspective of news being a live event.

The digital expert addressed the news being their Super Bowl and how this was something that was produced live and free without ads. The digital expert also discussed how some of this technology was already being used to stream live events, but on a smaller scale. The digital expert also referred to a website known as channel surfer, which enabled people who went out of town, or if they were on vacation to still see their hometown teams, through peer-to-

peer streaming. The digital expert also suggested that certain companies may be in trouble if they don't catch up to what peer-to-peer has to offer for large sporting events. To further elaborate on this, the digital expert referenced the Olympics and how peer-to-peer streaming allowed a more customized experience. Primarily, if there was a sport during the Olympics that wouldn't normally be televised, peer-to-peer technology would enable viewers to watch this sport, while also having broadcasters who actually knew about this sport. This data was also seen in the survey as some of the participants preferred to watch their television content on their laptop computer, desktop computer, or their mobile devices. This tells the researcher that some of the participants are already starting to see the point the digital expert is trying to make. This is something that could set peer-to-peer television technology apart from more traditional television channels.

4.3 The possible downfalls of peer-to-peer television for the television industry

While there are many benefits for peer-to-peer television streaming technology within the television industry, there are going to be some downsides to using the technology. The main downside for this technology has always been how easy it is to steal and reproduce content, whether it is music, television shows, or even movies.

When Gordon was asked about this issue, he responded by explaining that people have been stealing content forever. When participants were asked during the survey whether or not they have ever downloaded music or television files for free, 62% of the respondents said no, while 39% said yes. Although there were less individuals who admitted to stealing media content than the researcher initially expected, this could still caution many television managers from using the technology. This is something however, that is not going away any time soon, regardless of whether or not peer-to-peer technology catches on within the television industry.

As long as there is a form of media in the world, people shouldn't be too surprised when this information is reproduced or stolen.

Individuals were also asked how often they download music or television files for free. 3% of the participants in the survey responded by saying always, while only 2% of the participants said often. The researcher saw a spike in the numbers however as close to 11% of the participants said they sometimes steal music or television files for free, while close to 57% of the participants said that they never steal music or television files. Gordon was quick to point out however, that because it is easily accessible to us, doesn't make it right to do. After looking at the numbers however, the researcher began to wonder if future television managers would see this as too much of a risk. Even if the peer to peer technology proved effective for television managers, would the idea of easy illegal reproduction steer them away?

Gordon also discussed an interesting topic in regards to Napster and the scandal with the large quantities of stolen media. The question behind that, which was raised by Gordon, was whether or not, this actually hurt the music industry. In the end, Gordon came to the conclusion that this would be more of a moral dilemma for individuals. There would be no exact way to tell whether or not this would be something that would directly affect the television industry.

Although individuals were already asked during the survey if they ever downloaded music or television files for free, the researcher also asked the participants if they ever shared the files they downloaded. 67% of the participants said that they have used the internet to download or share files, while 33% of the participants said they have not used the internet to download or share files. To complement the previous question, the researcher then wanted to know what kind of programs the participants used to download their files. There were many answers as some

individuals said they used a peer-to-peer streaming service known as Bit Torrent, while other participants said that they used a program known as Limewire.

When Lafferty was asked about the issue of easily reproducing content, there was an immediate issue regarding the rights holders in regards to the business model. Lafferty went on to explain that if the right holders were requiring the end users to contribute a license fee or a subscription fee per use for video on demand, they would then need to make sure that the technology being used is secure and updates often. Lafferty compared it to a client server technology system.

The results from the survey also gave more insight into some of the downfalls of using this technology in the television industry. Participants in the survey were asked about their media library and just how much of that library comes from downloading. Close to 80% of the participants fell into the 0 to 20% bracket for their library, while only 7% fell into the 80 to 100% bracket for their library. In addition to how much of their library comes from downloading, the researcher also asked the participants if they ever shared those files with their friends and family. 66% of the participants who took the survey responded by saying that they never share the files they download with their family and friends. However, 13% of individuals did respond by saying that they sometimes share their files, while only 2% of the participants said that they always share their files with their family and friends.

In addition to downloading and sharing with family and friends, individuals were also asked whether or not they also upload these files they download to websites where other individuals can go and download those files. 80% of the individuals who responded to the survey said that they never upload the files they download to online websites. However, 5.80%

of the respondents said that sometimes they do upload their files to websites for other people to download.

Another possible downfall for using peer-to-peer streaming technology within the television industry could be with the internet service providers. In the literature review, the researcher discussed how the internet service providers didn't like the peer-to-peer technology. However, with peer-to-peer technology's ability to easily reproduce media content for free, the researcher wanted to ask in the survey if the internet service providers should take a bigger role in stopping this. When the researcher asked the participants whether or not they believed that internet service providers should block access to pirated copies of music and videos, there were many different responses. One of the participants responded by saying:

"No. The creators of music and videos are artists who should want their work to be shared. Payment should have nothing to do with it. See Girl Talk or Radiohead albums where they let fans pay what they wanted. They actually made more money this way."

One of the other respondents in the survey disagreed with the previous respondents by saying "Yes. It's illegal." Another respondent when asked this question responded by saying:

"No. Realistically, that would place too high of a burden on the ISP's and the cost of the internet access would have to go up to cover the added labor and technology that would be needed to even attempt blocking access to all such sites."

In relation to the internet service providers, the researcher asked a follow up question on the survey that dealt with the search engines should be required to block links to pirated music and videos online? Again, the responses were mixed with some respondents siding with yes,

while others said no. One respondent was quoted saying: "Yes, it's illegal and the artists lose out on earning potential." One respondent however was quoted saying:

"No, I don't. Search engines are just that and only that, engines for searching (in case that wasn't clear to some people) and any inorganically derived bias implemented to favor particular results over others goes against the very idea of a search engine."

Another respondent responded to this question by saying that "not all peer-to-peer file transmission is pirated material. If search engines block them, they'll also block the legal transmission of materials."

This was actually a great response that segued into another question the researcher asked the participants. This question dealt primarily with support blocking links to illegal content at the expense of blocking legal content. One response to this question was, "No because then everything is blocked." Another comment explained that, "I would only support blocking links to illegal content." The researcher saw that many of the participants that said no had more detailed explanations as to why they felt this way. The participants that responded by saying yes however really didn't have any type of explanation for their rationale.

With music and media files being easy to reproduce through peer to peer streaming technology, it was imperative to ask if individuals believed that internet service providers should block access to websites that provide access to pirated copies of music and videos. The response from many of the respondents who took the survey were mixed. Some individuals believed that internet service providers should not block access to websites with copies of pirated music and videos because, "The internet should not be limited by anyone." Some individuals however, felt

that internet service providers should block access to these websites because, "Copyright holders should be protected."

4.4 How can peer-to-peer streaming change advertising and advertising revenue if involved in the television industry?

When interviewing the digital expert, there was a topic that came up in regards to advertising structure. It's clear that most television shows have commercial breaks for advertising purposes. However, the digital expert when asked about this topic saw a possibility for peer to peer technology to use more of an embedded approach for advertising. The digital expert referenced that when a viewer watches a video on the company website, there are no commercial breaks. However, there are pre-determined advertisements that are played before the main video. This is something the digital expert feels peer-to-peer technology can take advantage of.

The possibility for a side banner form of advertising was also discussed between the researcher and the interviewee as well. The reason why this was discussed was because of the capabilities of videos being shown without any form of advertising. Video websites such as Hulu and Netflix are ideal for video watching without any form of advertising. When speaking to the digital expert, both parties felt strongly about possibly having advertisements on the side banners of these videos.

When this issue was discussed with Lafferty, it was clear that peer-to-peer could benefit the advertising structure in place today within the television industry. According to Lafferty, the reason for this was because the television industry wouldn't have to invest a great deal in trying to protect the content and preventing people from playing the content back on their own time.

Lafferty also discussed the possibility that, if the television industry began to use peer-to-peer technology, the advertising model would be focused on driving viewership. The focus would be on the cost per thousand viewers, which would result in more money. Lafferty concluded that through this new model that could be brought in by peer to peer technology, because the television industry wouldn't be paying that extra cost for distribution, this would become a very attractive model for television industry managers.

Chapter 5: Discussion

5.1 Introduction

With the statement of the problem and the research questions dealing with finding information showcasing the benefits and downfalls of using peer-to-peer streaming technology within the television industry, there was significant data acquired.

5.2 Discussion

There was an adequate amount of data acquired in regards to the benefits of peer-to-peer streaming technology within the television industry. What was interesting about the data was the fact that both the peer-to-peer interviewees as well as the digital expert agreed on some of the benefits for peer-to-peer streaming technology. The interviewees talked about the great importance of having many viewers and participants when using the technology. This was explained in great length primarily because the more participants the technology uses, the stronger the streaming signal will be.

It wasn't too surprising when it was explained that the less amount of individuals you have participating in the stream, the less likely the stream will work. This would be something that could be somewhat of a detriment to peer-to-peer technology. The topic of stability would then have to come up, as would this form of streaming technology be stable? The questions then became whether or not this would even be stable as some of the streaming capabilities we use today. Ultimately, this feels that in order for someone to properly use this technology, someone would have to find a way for peer-to-peer technology to be more stable and not so reliant on great amounts of people.

There was also interesting information received regarding peer-to-peer's capability to stream large events. The main event that was used as an example was a high profile event such as the Super Bowl. Some of the interviewees agreed with the idea that peer-to-peer one day could be able to stream a large event such as the Super Bowl. However, the researcher was somewhat reserved on these findings because of how peer to peer technology is predicated on the amount of individuals you have participating in the stream. It appears that peer-to-peer streaming technology needs to be defined substantially before the technology is used for large streaming events.

It was also intriguing how specific peer-to-peer technology could be in regards to the type of event a viewer may watch. The digital expert gave a great example of this in regards to the Olympics. The digital expert talked about how the Olympics when shown on NBC or any other channel is only prone to showing events that are well known. Peer-to-peer streaming technology could give individuals the opportunity to watch their favorite sports within the Olympics while also having knowledgeable broadcasters talking about the sport. This was also something that was talked about during the interviewing process in regards to individuals creating their own television content.

Even before the data collecting process, creating content was seen as one of the big assets that peer-to-peer technology possessed. By continuing to redefine the technology while also correcting the main issues, it would appear that peer-to-peer technology would be the ideal technology used for creating new content that other individuals could watch. Many of the interviewees compared it to YouTube, but on a better scale with more capabilities. The main difference between the two however, would be the possibility for individuals to possibly charge a subscription rate for the content that these individuals are producing.

Although the research was able to show that there would be many benefits from having peer-to-peer technology within the television industry, the research also highlighted some disadvantages to using the technology.

The big disadvantage found in the research with using peer-to-peer streaming technology was seen not only through the interview process, but also through the survey responses as well. The common disadvantage seen in using the technology dealt with peer-to-peer technology and how easily the content could be reproduced. This is something that has plagued not only peer-to-peer technology, but also the television industry. It is believed that until this situation is dealt with, peer-to-peer technology could be nothing more than a channel for individuals to illegally download television shows and movies. The digital expert brought up the issue of morality when it came to the downside of using peer-to-peer technology within the television industry. Regardless of the measures the television industry takes to punish those who obtain their media illegally, individuals will still obtain their media any way they can. If this continues to be an issue, individuals may not be able to truly take advantage of what peer-to-peer has to offer.

Another disadvantage of the peer-to-peer streaming technology that was found primarily through the survey results was whether or not internet service providers would play a prominent role in the blocking of pirated media content. The data acquired from the survey suggested that most of the respondents were mixed in terms of how they felt. Some individuals believed that the internet service providers should not have a hand in blocking the content that is on the internet, while other respondents felt that the internet service providers should have a bigger hand in the blocking of illegal media content.

It was also important to collect data on the advertising structure within the television industry. After the information was acquired, it was clear that peer-to-peer technology would not

be a driving force to changing the advertising revenue structure within the television industry. However, the data acquired did suggest that peer-to-peer streaming could give individuals options on how they would want to advertise. This is something that is seen in today's online streaming models through side advertising banners, and even pre roll advertisements that would play before the actual video being shown. It could be possible that although peer-to-peer technology would not be able to change the advertising structure of the television industry, the technology would be able to offer some variable solutions for advertising.

5.3 Outcomes and Personal Expectations

During the course of the research process, ideas were developed on the way the use of peer-to-peer streaming technology could be used within the television industry. The research and data acquired gives a strong indication that consumers will begin to adopt and use peer-to-peer streaming technology in the coming years. Time will tell if this is something that will be used within the television industry. However, this is a technology that people outside of the television industry will be able to find use for.

A key example of this will be the live sporting events that peer-to-peer streaming technology will be capable of streaming. The reason for this idea is because the knowledge of following live sporting events or foreign television channels for the consumer is growing. As time passes, individuals who don't get to watch what they want through cable television will turn to watching television on the internet. At that time, individuals will begin to experiment with what peer-to-peer has to offer, and become more comfortable with watching television on a nontraditional media platform.

This leads to how strongly the researcher felt about peer-to-peer technology becoming a vital part of the television industry. However, after the researching process, it is more likely that the television industry will not adopt the peer-to-peer technology any time soon. The reason for this thinking is because although the technology has much to offer individuals outside of the television industry, peer-to-peer technology has some key deficiencies that could cause the television industry more harm than benefit. Because of this, it is more likely that peer-to-peer technology will not be adopted by the television industry any time soon.

5.4 Recommendations for Future Research

Based on the results of the study, the researcher believes that there are several recommendations for future research. Many of the limitations found in this study can be used as recommendations for future research to better the results the individual will find. A big recommendation the researcher has is finding more individuals who are willing to talk about the peer to peer technology. By only having three individuals to talk to about the technology, the data acquired was scarce and therefore had to be complimented by survey results. Future researchers in this field may want to look into the idea of having enough individuals to talk to about this technology. By doing this, the information that is received may be enough to stand on its own.

Another recommendation for future researchers in this field of study would be to find a way to show the effect this technology will have on the television industry financially. The researcher believes that this will go a long way in helping future television managers understand the dollars and cents aspect of this technology. Individuals are beginning to understand what this technology can do in regards to streaming media content. However, in order to really get a

complete understanding of what the technology has to offer, the researcher believes that financials will need to find its way into the research.

5.5 Conclusion

There are three major conclusions that can be drawn from this study. The first conclusion that can be drawn from this study is the negativity that is associated with the peer-to-peer technology. The interviewees made it very clear that although there are benefits to using the technology, there are far more negatives from using this technology. The survey participants agreed with this as well as very few of the responses had individuals who shared or downloaded music or media files illegally with this technology. The researcher believes that if peer-to-peer technology was shown in a more positive manner, there could possibly be a better reception towards this technology.

The second conclusion that can be drawn from the research is that ISP's may play a possible role in the regulation of the technology and how it is used. When asked through the survey, many of the responses were split as some individuals didn't like the idea of ISP's policing the internet and blocking certain material. However, if peer-to-peer technology is to be used within the television industry in a positive manner, it is possible that the television industry will turn to the ISP's to find ways to uphold the law. This is very important considering as the upload capacity of the viewers is needed for the distribution through peer-to-peer streaming. This then raises the question of whether or not limiting or filtering of peer-to-peer internet through the ISP's could possibly render the technology of peer-to-peer streaming useless.

The last conclusion that can be determined through the research is that content will need to be created. Because of this, there will also be someone needed to consume this content,

whether it be through a traditional television viewing experience, or through a mobile device or even a personal computer. Regardless of what content and on what device the content is being watched, be it by air, or through peer-to-peer television networks, the consumer and the content creator will always be crucial in the television industry.

When all is said and done, the future of peer-to-peer streaming within the television industry is a very complex and uncertain matter. However, whatever the future brings, peer-to-peer television streaming can impose both positive and negative effects within the television industry.

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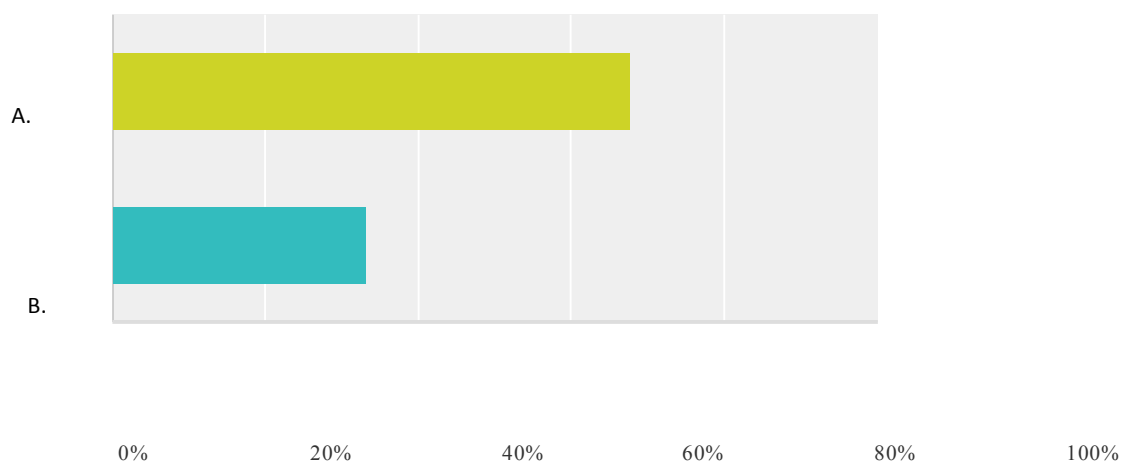
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Appendix A

Survey and Survey responses

Q1 Have you ever used the internet to download or share files?

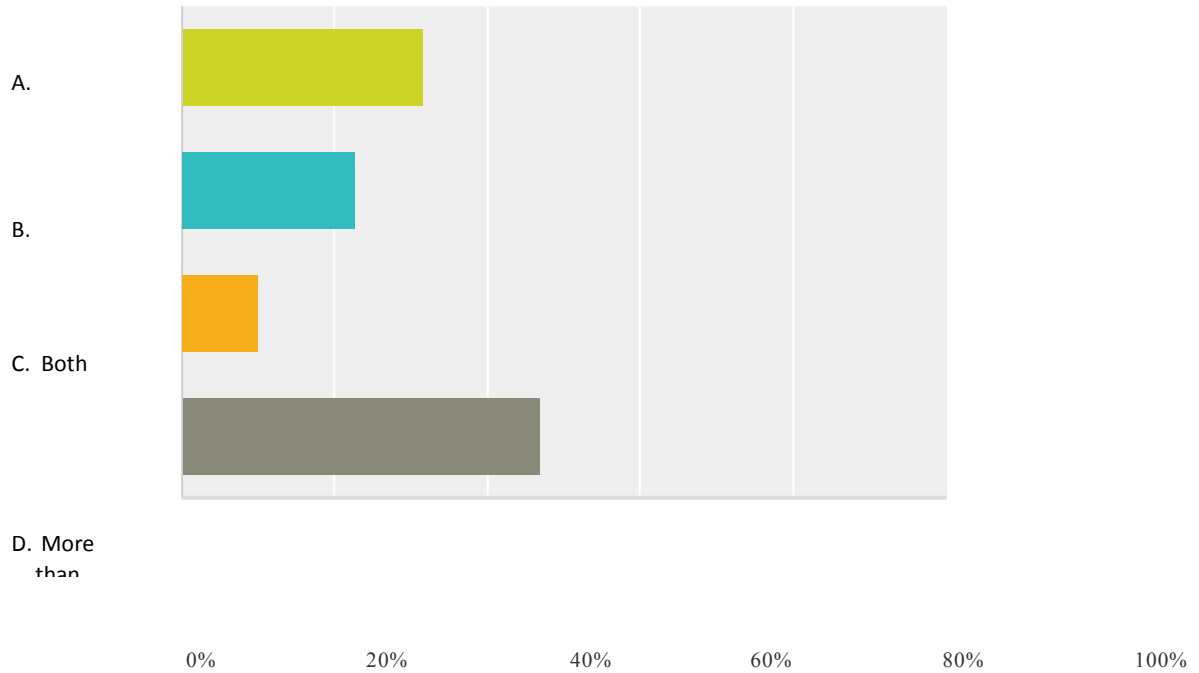
Answered: 151 Skipped: 1



Answer Choices	Responses	
A. Yes	67.55%	102
B. No	33.11%	50
Total Respondents: 151		

Q2 What programs do you use?

Answered: 79 Skipped: 73



Answer Choices	Responses
A. BitTorrent	31.65% 25
B. Limewire	22.78% 18
C. Both	10.13% 8
D. More than one service	46.84% 37
Total Respondents: 79	

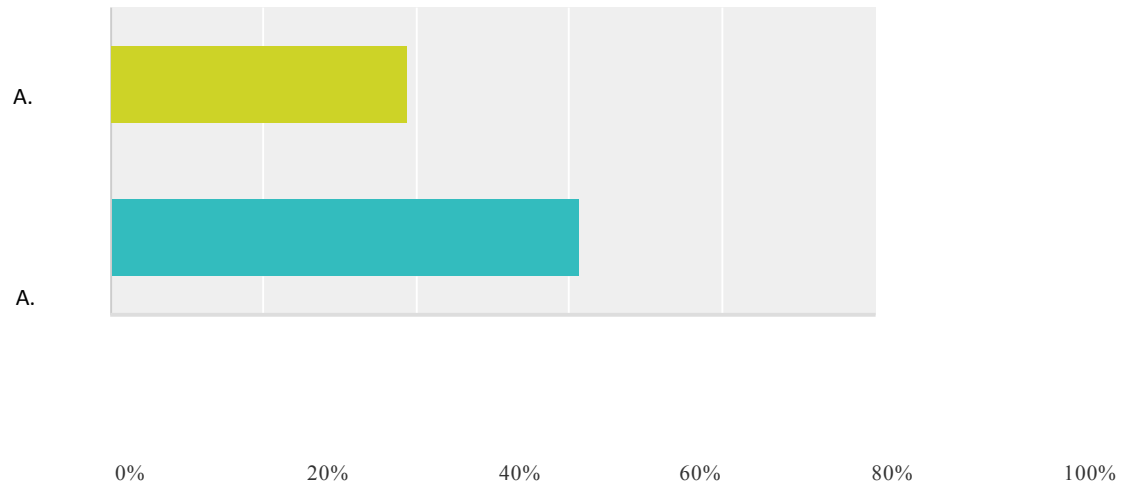
#	Other (please specify)	Date
1	windows	1/9/201 1:47 AM
2	bear share	1/8/2014 9:11 PM
3	na	1/8/2014 9:00 PM
4	Vuze	1/8/2014 8:55 PM
5	Drop box	1/8/2014 8:44 PM
6	Dropbox	1/8/2014 8:43 PM

7	Project Free TV	1/8/2014 8:32 PM
8	uTorrent	1/8/2014 8:21 PM
9	I have used it in the past.	1/8/2014 8:08 PM
10	DropBox	1/8/2014 7:57 PM
11	just browsers	1/8/2014 7:10 PM
12	None	1/8/2014 5:53 PM
13	na	1/8/2014 5:42 PM
14	Dropbox, Picassa	1/8/2014 5:20 PM
15	none	1/8/2014 5:13 PM
16	dropbox, Google drive	1/8/2014 5:00 PM
17	adobe reader/itunes	1/8/2014 4:41 PM
18	firefox	1/8/2014 3:57 PM
19	MICRO SOFT	1/8/2014 2:56 PM
20	NONE	1/8/2014 2:05 PM
21	not sure	1/8/2014 12:43 PM
22	Neither	1/8/2014 12:20 PM
23	none	1/8/2014 11:19 AM
24	uTorrent	1/8/2014 1:02 AM
25	Firefox (I download but don't share)	1/8/2014 12:59 AM
26	uTorrent	1/7/2014 8:53 PM
27	none	1/7/2014 8:47 PM
28	n/a	1/7/2014 8:18 PM
29	drop box and Google drive	1/7/2014 8:18 PM
30	None	1/7/2014 7:48 PM
31	Google	1/7/2014 7:22 PM
32	Use no service	1/7/2014 7:16 PM
33	Dropbox and other data room services	1/7/2014 7:09 PM
34	Dropbox	1/7/2014 7:08 PM
35	Rocket Software's service	1/7/2014 7:06 PM
36	Google, Dropbox	1/7/2014 7:03 PM
37	Dropbox	1/7/2014 6:57 PM
38	google docs	1/7/2014 6:55 PM
39	Firefox	1/7/2014 6:51 PM
40	Itunes	1/7/2014 6:49 PM

41	None	1/7/2014 6:44 PM
42	none	1/7/2014 6:44 PM
43	none of these	1/7/2014 6:40 PM
44	I use a MAC with its capabilities	1/7/2014 6:39 PM
45	Don't know	1/7/2014 6:36 PM
46	dont know	1/7/2014 6:30 PM
47	unknown	1/7/2014 6:27 PM
48	Google Drive	1/7/2014 6:27 PM
49	none	1/7/2014 6:27 PM
50	Google Drive	1/7/2014 6:22 PM
51	Not applicable	1/7/2014 6:18 PM
52	Dropbox	1/7/2014 6:06 PM

Q3 Have you ever downloaded music or movies from a file sharing service?

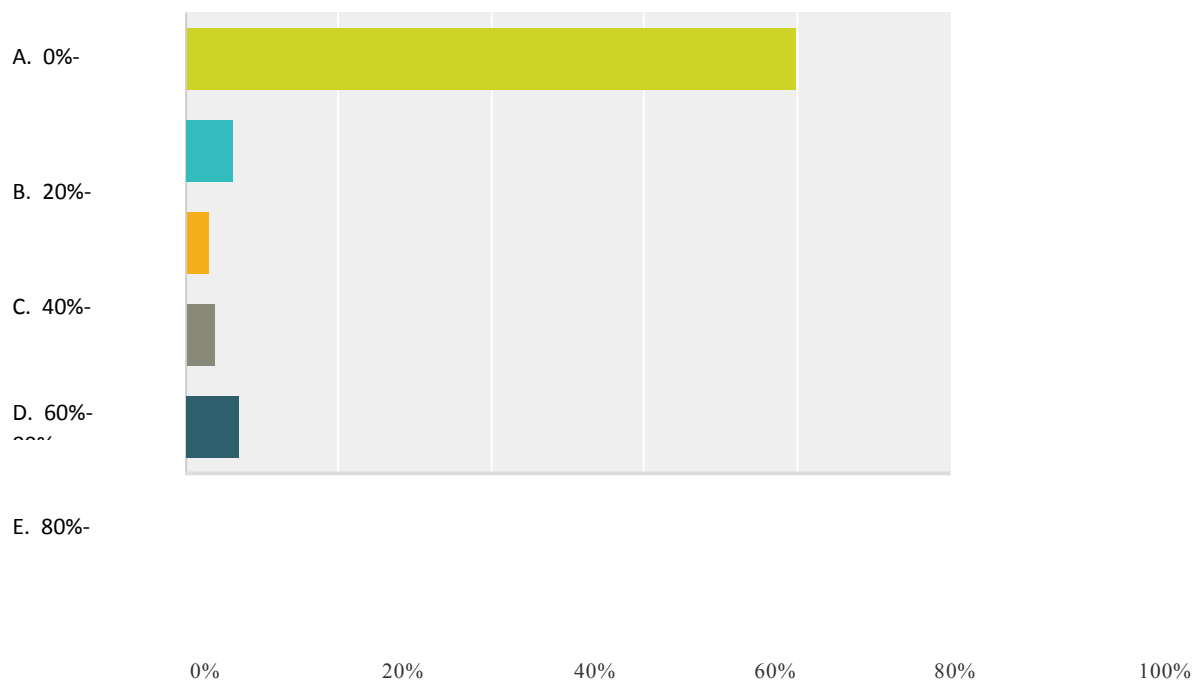
Answered: 152 Skipped: 0



Answer Choices	Responses
A. Yes	38.82% 59
B. No	61.18% 93
Total Respondents: 152	

Q4 How much of your movie or music library comes from downloading?
This question should only be responded to if you use a form of peer to peer technology. If you legally record and transfer movie or music content, then this question does not apply to you.

Answered: 128 Skipped: 24



Answer Choices	Responses
A. 0%-20%	79.69% 102
B. 20%-40%	6.25% 8
C. 40%-60%	3.13% 4
D. 60%-80%	3.91% 5
E. 80%-100%	7.03% 9
Total Respondents: 128	

Q5 Do you believe that ISP's (Internet Service Providers) should block access to sites that provide access to pirated copies of music and videos? Why or Why Not?

Answered: 140 Skipped: 12

#	Responses	Date
1	Don't know	1/9/2014 1:47 AM
2	No, because the Internet should not be limited by anyone.	1/9/2014 12:48 AM
3	No opinion	1/9/2014 12:24 AM
4	Yes. It's illegal	1/9/2014 12:16 AM
5	No	1/8/2014 10:24 PM
6	Yes. It is unfair to the artist.	1/8/2014 9:40 PM
7	I don't believe in using pirated copies	1/8/2014 9:12 PM
8	Yes. It hurts industry	1/8/2014 9:11 PM
9	NO, the artists who are the creators deserve the royalties they deserve.	1/8/2014 9:04 PM
10	No. I realize that the intention is to stop illegal downloading so that entertainers can rightfully profit from their work. But it is NOT the responsibility of the ISP to protect their pockets. Just to provide Internet service to the people that pay them...	1/8/2014 8:55 PM
11	Do not copy music or videos.	1/8/2014 8:53 PM
12	Yes illegal	1/8/2014 8:44 PM
13	No because some people cannot otherwise readily access or fund for music/videos.	1/8/2014 8:43 PM
14	No. The creators of music and videos are artists who should want their work to be shared. Payment should have nothing to do with it. See Girl Talk or Radiohead albums where they let fans pay what they wanted. They actually made more money this way.	1/8/2014 8:32 PM
15	No, because it's impossible. Most such sites simply provide access to torrent networks-- the websites themselves don't actually contain the pirated material.	1/8/2014 8:21 PM
16	No, because poor people cannot afford to buy some music, and I think certain people deserve equal opportunity to listen to the same music rich kids listen to.	1/8/2014 8:08 PM
17	Yes	1/8/2014 8:05 PM
18	Yes. Copyright holders should be protected.	1/8/2014 7:57 PM
19	No.	1/8/2014 7:43 PM
20	Why or Why Not	1/8/2014 7:25 PM
21	have mixed feelings on this	1/8/2014 7:10 PM
22	no. It's not up to them to police or judge or censor. Do they take down sites that have child pornography?	1/8/2014 7:09 PM
23	No. Each individual should take his or her chance.	1/8/2014 6:55 PM
24	No. I don't want any ISP blocking any traffic. I have also used torrent sites for legal freeware files.	1/8/2014 6:36 PM

25	No, because it's not the ISP's business to be policing traffic, only providing access. They are the utility workers, de-icers and pavement layers that keep the highways running. It's the local, regional, highway and state police that enforce policy.	1/8/2014 6:03 PM
26	No. Do not like the idea of giving ISP's censorship powers.	1/8/2014 5:53 PM
27	No	1/8/2014 5:48 PM
28	Not sure	1/8/2014 5:45 PM
29	it's illegal	1/8/2014 5:42 PM
30	Yes, it is stealing	1/8/2014 5:33 PM
31	Yes, Intellectual Property Protection	1/8/2014 5:29 PM
32	Yes because it's illegal	1/8/2014 5:26 PM
33	Yes - creative people need return on their investment of time and talent	1/8/2014 5:20 PM
34	yes, because pirating is stealing	1/8/2014 5:13 PM
35	Yes, it's stealing and the p2p providers have the technology to know what is legit and what is not.	1/8/2014 5:00 PM
36	Why rob a legitimate recording company from their legal profit?	1/8/2014 4:58 PM
37	I'm Ambivalent.	1/8/2014 4:52 PM
38	ISP's should block illegal activity.	1/8/2014 4:43 PM
39	yes because it is stealing	1/8/2014 4:41 PM
40	No. It is not their job to police the net. That should be illegal if they tried.	1/8/2014 4:32 PM
41	No, how would it actually be implemented? Big Brother should not be watching.	1/8/2014 4:22 PM
42	Not, because every one wants to enjoy, if you block those sites he needs to pay extra for enjoyment.	1/8/2014 4:18 PM
43	Pirated? Yes. Fair Use, NO!	1/8/2014 3:57 PM
44	No, don't block anything, everything will always be available for free somewhere online, can't stop it, besides videos/music make enough \$ legally anyway	1/8/2014 3:53 PM
45	I honestly think they should not block them. I have never used them nor do I believe I ever would but that should be my choice not theirs.	1/8/2014 2:56 PM
46	Yes, pirated copies. If the owner bought the original copy through legitimate sources at full price, they should be able to share a limited amount of copies or a copy with a time limit just as you would loan or give a book or CD.	1/8/2014 2:50 PM
47	Yes, the only way to control illegal use	1/8/2014 2:47 PM
48	yes, illegal	1/8/2014 2:39 PM
49	YES. It is illegal and bypasses copyright fees that might be needed by the artist.	1/8/2014 2:05 PM
50	No, it should not be the responsibility of an ISP to police browser activity.	1/8/2014 1:58 PM
51	No	1/8/2014 1:52 PM
52	Yes...it is stealing otherwise.	1/8/2014 1:31 PM
53	Yes, it's illegal	1/8/2014 1:17 PM
54	No. It would give them too much control.	1/8/2014 1:04 PM
55	Yes - not fair to the creators of the music	1/8/2014 12:49 PM

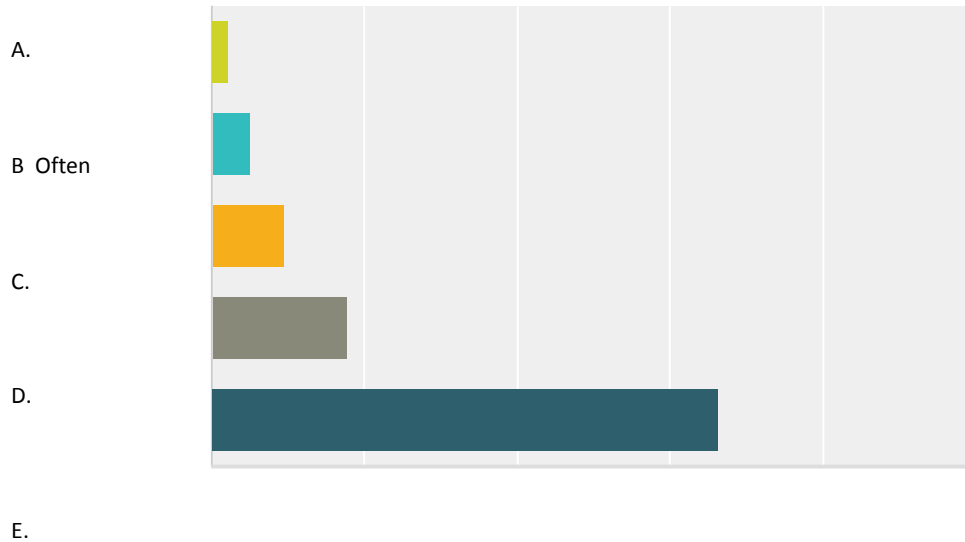
56	No. They are not the police. There should be a separate entity for this detail, so they can prosecute.	1/8/2014 12:43 PM
57	I am a bit split on this. Yes, I believe that piracy is wrong in regards to this, but how are people that don't have money, or value money differently for wants rather than needs, expected to be able to enjoy these things. They say that we are "stealing money" from them, but don't they make enough?	1/8/2014 12:31 PM
58	Yes	1/8/2014 12:20 PM
59	Yes, for obvious reasons.	1/8/2014 12:01 PM
60	People will always find a way to go to those sites.	1/8/2014 11:55 AM
61	No! Piracy laws are too broad and vague!	1/8/2014 11:19 AM
62	Yes. Copyright laws protect intellectual property.	1/8/2014 11:19 AM
63	No, once it's out there it should be free	1/8/2014 10:08 AM
64	No, that would be a form of censorship. Illegal copies of copy righted material is a legal issue. ISP's are not judge jury and executioner.	1/8/2014 1:02 AM
65	no. realistically, that would place too high a burden on the ISP's and the cost of internet access would have to go up to cover the added labor and technology that would be needed to even attempt blocking access to all such sites.	1/8/2014 12:59 AM
66	No, it is not my Internet Providers responsibility to snoop on what I do on the Internet and censor me from specific websites. They should simply provide me with the Internet that I pay for.	1/8/2014 12:08 AM
67	no, the age marketing for music at least is not about record sales its supporting the artists if they deserve it or not, concert revenue and respect for that artist. allowing people access to your music gives them publicity to what type of artist they are and if we like them we will gladly buy a cd for support but more so spread their name, listen to it with friends, and see their shows.	1/7/2014 11:48 PM
68	I don't care.	1/7/2014 11:47 PM
69	N/C	1/7/2014 10:59 PM
70	No; I don't believe they could ever keep up with the sheer amount of new websites that could constantly be created with new pirated or unpirated material.	1/7/2014 10:22 PM
71	Yes, it's intellectual property.	1/7/2014 9:08 PM
72	No, the internet should not be regulated.	1/7/2014 9:00 PM
73	No, because the internet should not be censored. And it wouldn't stop at that	1/7/2014 8:53 PM
74	Yes	1/7/2014 8:47 PM
75	Yes its illegal	1/7/2014 8:42 PM
76	No, it shouldn't be up to them to be gate keepers of the Internet.	1/7/2014 8:34 PM
77	No, it's not their function. They are there to provide a service, not as law enforcement officers.	1/7/2014 8:33 PM
78	Yes	1/7/2014 8:18 PM
79	Yes, it's illegal.	1/7/2014 8:18 PM
80	Yes, safety	1/7/2014 7:51 PM
81	No because it's not their responsibility.	1/7/2014 7:48 PM
82	yes, it is illegal	1/7/2014 7:41 PM
83	No opinion	1/7/2014 7:22 PM

84	Could care less	1/7/2014 7:20 PM
85	Should Block. Pirating is illegal. It hurts the ecomy and could possibly pave the way for other pirated services.	1/7/2014 7:16 PM
86	yes it is not right to pirate movies or music.	1/7/2014 7:15 PM
87	ok, if they are clearly pirated. On the other hand often people just want to sample, not really to own, and there is no altemative.	1/7/2014 7:12 PM
88	I don't know	1/7/2014 7:10 PM
89	no becæ I do not believe it is their place to censor.	1/7/2014 7:10 PM
90	Yes	1/7/2014 7:09 PM
91	Yes, pirated files are not reliable and the owners of the actual files should benefit from selling them	1/7/2014 7:09 PM
92	Yes. Artist deserve to make money. Stealing it or pirating just isn't right.	1/7/2014 7:08 PM
93	I don't know enough about it to make a judgement	1/7/2014 7:08 PM
94	Yes. Artists should be compensated for their work.	1/7/2014 7:07 PM
95	Yes	1/7/2014 7:06 PM
96	Yes; I think pirating is a form of stealing, and ergo not legal.	1/7/2014 7:06 PM
97	No because I think it would cause other problems in trying to reach websites.	1/7/2014 7:04 PM
98	No, that would be limiting freedoms	1/7/2014 7:03 PM
99	No	1/7/2014 6:58 PM
100	Absolutely, one of the only things the USA has going for it is the prevention of piracy.	1/7/2014 6:57 PM
101	I think that when there is a law, all persons in the supply or process are responsible for upholding it.	1/7/2014 6:57 PM
102	Ddd	1/7/2014 6:56 PM
103	No. I think the pirates would just find another way to get the files. It would be a lot of effort for the ISP's with no return on investment.	1/7/2014 6:55 PM
104	Yes, not legal.	1/7/2014 6:51 PM
105	Yes, as the copy right holders should be paid.	1/7/2014 6:51 PM
106	Yes. Piracy robs the artists.	1/7/2014 6:50 PM
107	Maybe	1/7/2014 6:49 PM
108	Yes, legal distributors should be compensated	1/7/2014 6:48 PM
109	yes - artists should be paid for music downloads	1/7/2014 6:45 PM
110	NO, IT'S A VIABLE OPTION FOR SOME.	1/7/2014 6:44 PM
111	no, I do not.	1/7/2014 6:44 PM
112	No. I don't care.	1/7/2014 6:44 PM
113	Yes	1/7/2014 6:44 PM
114	yes, the people who make the music and videos deserve to be paid for their work	1/7/2014 6:44 PM
115	NO, CAUSE THAT'S LAME	1/7/2014 6:43 PM
116	Yes	1/7/2014 6:42 PM

117	No bc ppl run the risk on their own and there are more risks than just breaking the law.	1/7/2014 6:40 PM
118	yes, because pirating hurts legitimate customers and sites as well as artists, producers, etc. Plus it's illegal	1/7/2014 6:40 PM
119	Yes, because it allows people to steal the files and sell the products hurting the product sales.	1/7/2014 6:39 PM
120	I don't believe policing is their business.	1/7/2014 6:39 PM
121	yes, if it is illegal then and they are able to stop it they should	1/7/2014 6:38 PM
122	Yes	1/7/2014 6:36 PM
123	no, it should be the sites responsibility to block downloads	1/7/2014 6:30 PM
124	No, this should be up to the individual. Blocking is infringing.	1/7/2014 6:28 PM
125	No, it is not their job to police the internet	1/7/2014 6:27 PM
126	No, they don't have to spend their time and money chasing pirates. The record companies, since they're so worried about it, should search the internet like anyone else to find illegal sites.	1/7/2014 6:27 PM
127	Not sure who's story to believe	1/7/2014 6:27 PM
128	Yes. It is illegal. If this music and/or videos were my creation, I would not want them copied.	1/7/2014 6:22 PM
129	I'm not sure.	1/7/2014 6:20 PM
130	Yes, because it's stealing, which is illegal.	1/7/2014 6:18 PM
131	no because the artists aren't gonna go poor.	1/7/2014 6:17 PM
132	Idk	1/7/2014 6:17 PM
133	virus control	1/7/2014 6:13 PM
134	Yes. It is basically stealing.	1/7/2014 6:13 PM
135	Pirating copies of music and videos is illegal. ISPs should shut sites down that are promoting illegal activities.	1/7/2014 6:13 PM
136	Yes - because they are pirated.	1/7/2014 6:10 PM
137	No. Too much room for overstepping net freedom	1/7/2014 6:10 PM
138	Yes because pirated music and videos are illegal.	1/7/2014 6:09 PM
139	yes they should block because anything pirated is illegal and costs more for people that are using it legitimately	1/7/2014 6:07 PM
140	Yes, it's illegal	1/7/2014 6:06 PM

Q6 If you use peer to peer technology to download music and video, how often do you share your files with your family and friends?

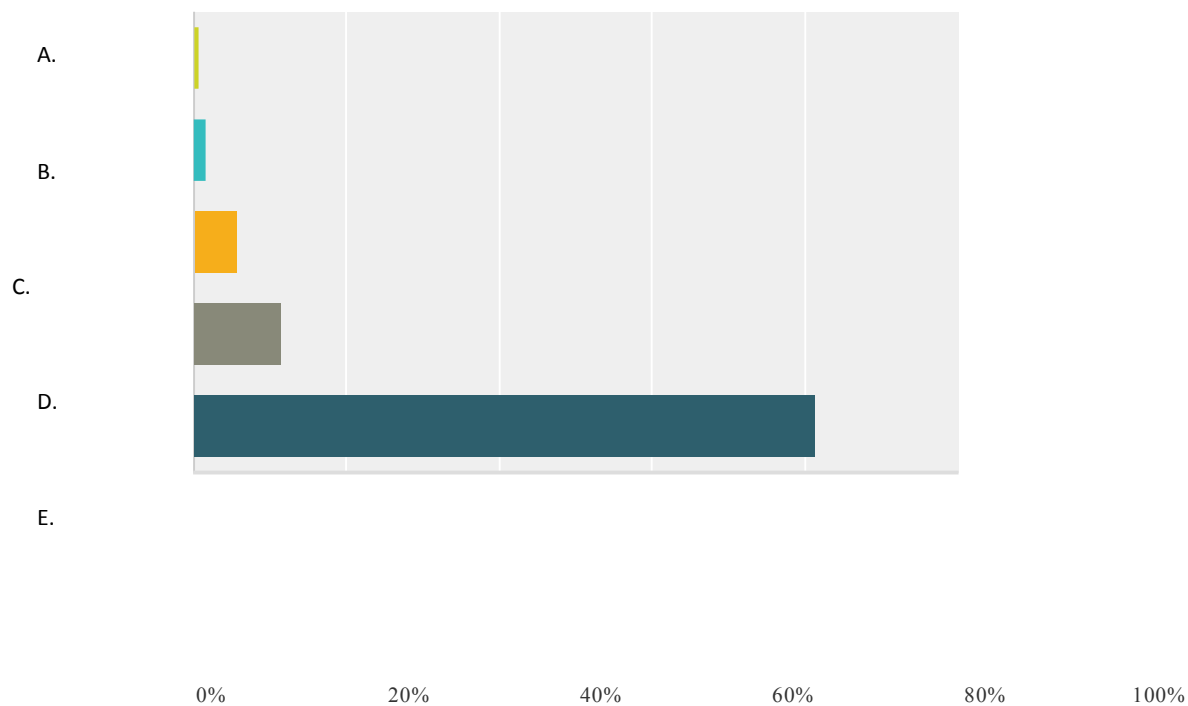
Answered: 136 Skipped: 16



Answer Choices	Responses
A. Always	2.21% 3
B. Often	5.15% 7
C. Sometimes	9.56% 13
D. Rarely	17.65% 24
E. Never	66.18% 90
Total Respondents: 136	

Q7 If you use peer to peer technology, how often do you upload these files to websites where people can download them?

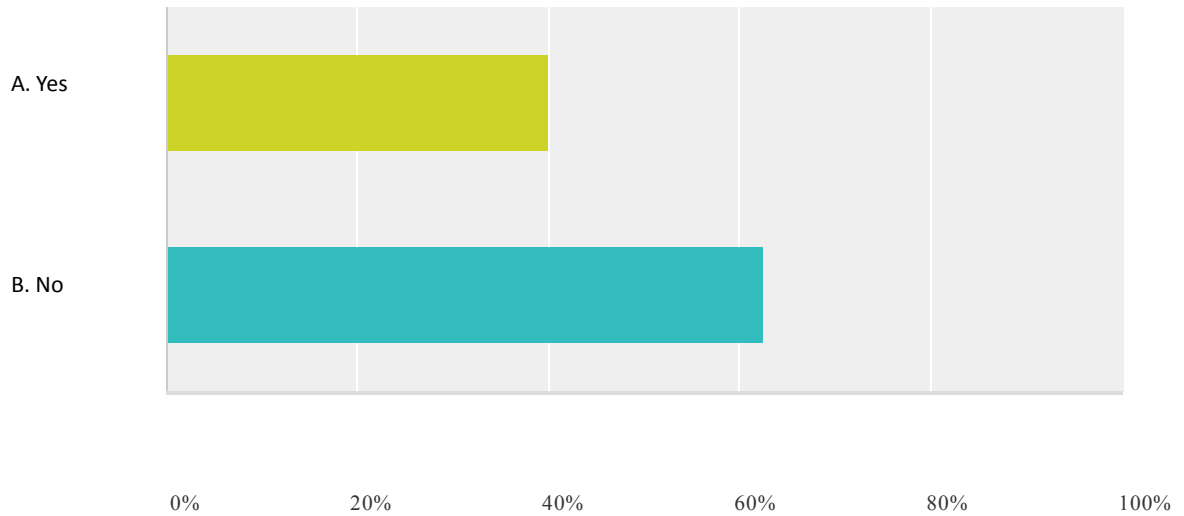
Answered: 138 Skipped: 14



Answer Choices	Responses
A. Always	0.72% 1
B. Often	1.45% 2
C. Sometimes	5.80% 8
D. Rarely	11.59% 16
E. Never	81.16% 112
Total Respondents: 138	

Q8 Have you ever downloaded music files of tv files for free?

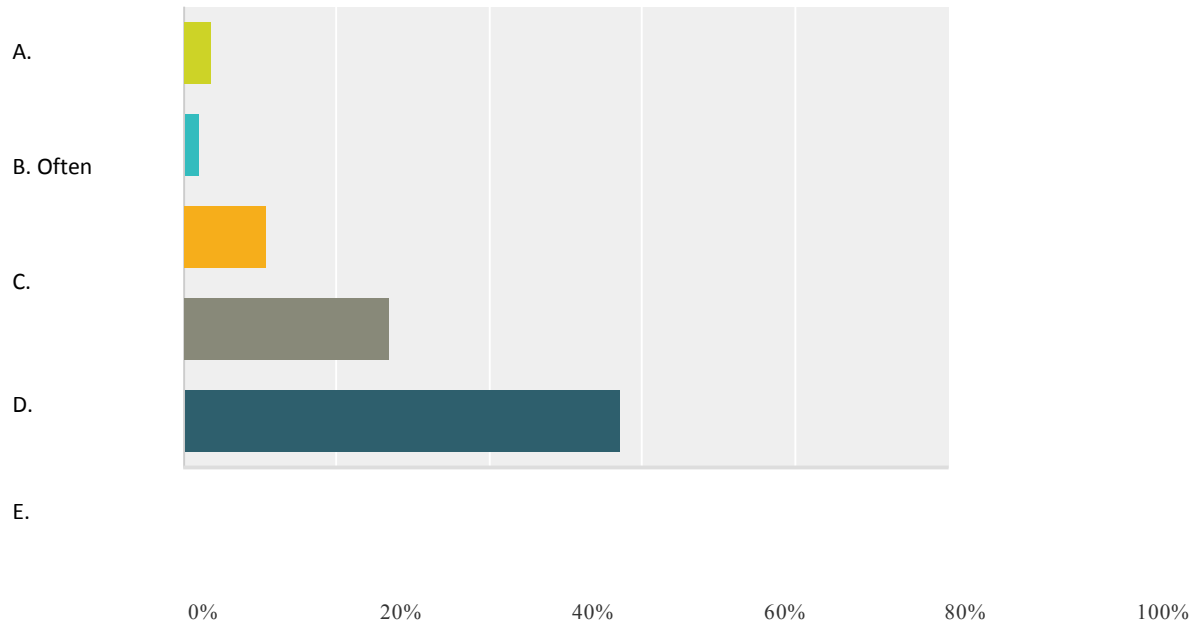
Answered: 149 Skipped: 3



Answer Choices	Responses
A. Yes	39.60% 59
B. No	62.42% 93
Total Respondents: 149	

Q9 If so, how often do you download music or tv files for free?

Answered: 137 Skipped: 15



Answer Choices	Responses
A. Always	3.65% 5
B. Often	2.19% 3
C. Sometimes	10.95% 15
D. Rarely	27.01% 37
E. Never	56.93% 78
Total Respondents: 137	

Q10 Do you believe that search engines should be required to block links to pirated music and videos online? Why or Why Not?

Answered: 152 Skipped: 0

#	Responses	Date
1	No	1/9/2014 1:57 AM
2	don't know	1/9/2014 1:47 AM
3	No, because the Internet should not be arbitrarily limited.	1/9/2014 12:48 AM
4	No opinion	1/9/2014 12:24 AM
5	Yes, It's illegal and the artist's lose out on eaming potential.	1/9/2014 12:16 AM
6	No	1/8/2014 10:24 PM
7	To protect the property of the music/video creator.	1/8/2014 9:40 PM
8	Yes	1/8/2014 9:12 PM
9	Yes. To stop piracy.	1/8/2014 9:11 PM
10	I don't know enough about the topic or problems.	1/8/2014 9:04 PM
11	n/a	1/8/2014 9:00 PM
12	No. Same answer. It's not their responsibility.	1/8/2014 8:55 PM
13	No comment	1/8/2014 8:53 PM
14	Yes illegal	1/8/2014 8:44 PM
15	No, for the same reason as above. They're called search engines for a reason.	1/8/2014 8:43 PM
16	No. Search engines are not responsible.	1/8/2014 8:32 PM
17	Not all peer-to-peer file transmission is pirated material. If search engines block them, they'll also block the legal transmission of materials.	1/8/2014 8:21 PM
18	Yes and no. Yes because people deserve to make money for their work. No, because poor people deserve this access too.	1/8/2014 8:08 PM
19	Yes	1/8/2014 8:05 PM
20	Yes. See #5 above.	1/8/2014 7:57 PM
21	No	1/8/2014 7:43 PM
22	Why or Why Not	1/8/2014 7:25 PM
23	have mixed feelings on this	1/8/2014 7:10 PM
24	No! Let them block links to child pomography and rape sites first!	1/8/2014 7:09 PM
25	no. I think it's the choice of the people.	1/8/2014 7:00 PM
26	No. Each person should weigh this risk for themselves	1/8/2014 6:55 PM

27	No. I don't like censorship.	1/8/2014 6:36 PM
28	No, I don't. Search engines are just that and only that, engines for searching (in case that wasn't clear to some people) and any inorganically derived bias implemented to favor particular results over others goes against the very idea of a search engine.	1/8/2014 6:03 PM
29	No censorship	1/8/2014 5:53 PM
30	No	1/8/2014 5:48 PM
31	Not sure	1/8/2014 5:45 PM
32	Illegal	1/8/2014 5:42 PM
33	Yes, it is stealing	1/8/2014 5:33 PM
34	Yes, Intellectual Property Protection	1/8/2014 5:29 PM
35	Yes because its illegal.	1/8/2014 5:26 PM
36	Pirated and illegal to bypass copyright	1/8/2014 5:20 PM
37	yes, stealing is illegal	1/8/2014 5:13 PM
38	Only if the filters were exceptionally good so that no legal info was blocked. It's not googles job to lock down your copy writes content. Its your job. If you can't keep it from being stolen you will have to find another way to fund it.	1/8/2014 5:00 PM
39	Is this not stealing?	1/8/2014 4:58 PM
40	I think it is a slippery slope to who decided what can be blocked.	1/8/2014 4:52 PM
41	Yes, if it is illegal.	1/8/2014 4:43 PM
42	yes, It is stealing	1/8/2014 4:41 PM
43	It is not their job to police the net so no. They'd have to do this for everything online if they did because you can't single out one thing.	1/8/2014 4:32 PM
44	n/a	1/8/2014 4:26 PM
45	No, how would it actually be implemented? Big Brother should not be watching.	1/8/2014 4:22 PM
46	Not, I already mentioned.	1/8/2014 4:18 PM
47	No, Let people decide. Keep the Internet Free and Open.	1/8/2014 3:57 PM
48	see answer to 5.	1/8/2014 3:53 PM
49	I honestly think they should not block them. I have never used them nor do I believe I ever would but that should be my choice not theirs.	1/8/2014 2:56 PM
50	Yes, pirated material does not have copyright paid.	1/8/2014 2:50 PM
51	Yes, the only way to control illegal use	1/8/2014 2:47 PM
52	Yes because by looking at or downloading pirated music, we are denying the artist fair compensation.	1/8/2014 2:41 PM
53	yes, illegal	1/8/2014 2:39 PM
54	yes - see question - #5	1/8/2014 2:05 PM
55	No, again it is an individual's responsibility to follow the law.	1/8/2014 1:58 PM
56	no reason	1/8/2014 1:52 PM

57	yes..otherwise it is stealing.	1/8/2014 1:31 PM
58	If feasible	1/8/2014 1:17 PM
59	No. Censorship issue.	1/8/2014 1:04 PM
60	Yes - they should be paid for their work	1/8/2014 12:49 PM
61	No. if people want to commit crimes, let them. Perhaps there should be a warning about the attempted piracy, just in case they are ignorant.	1/8/2014 12:43 PM
62	No.	1/8/2014 12:31 PM
63	Yes	1/8/2014 12:20 PM
64	Yes, of course.	1/8/2014 12:01 PM
65	Again, many people will find their way around the blocking.	1/8/2014 11:55 AM
66	No, not without a court order.	1/8/2014 11:19 AM
67	No. Not their responsibility.	1/8/2014 11:19 AM
68	no	1/8/2014 10:08 AM
69	No, that would be a form of censorship. Illegal copies of copy righted material is a legal issue. Search engines are not judge jury and executioner.	1/8/2014 1:02 AM
70	No. Same reason as #5	1/8/2014 12:59 AM
71	No, because I believe search engines purpose is to allow its users to find whatever information they seek without any restrictions or censorship. They are not responsible for what their users search for only to provide that service.	1/8/2014 12:08 AM
72	No, if we like the music or the movie we will pay to see it or purchase merchandise. I explained my viewpoint about the music side of this in an earlier question, I feel the internet is freedom of speech and a free market. It is up to the public to decide what is good or bad.	1/7/2014 11:48 PM
73	I don't care.	1/7/2014 11:47 PM
74	N/C	1/7/2014 10:59 PM
75	They won't be able to keep up with constant adjustments and new websites and links.	1/7/2014 10:22 PM
76	No. If it's going to be done, why have a middle man?	1/7/2014 9:08 PM
77	No because they might abuse that kind of power.	1/7/2014 9:00 PM
78	No, because the internet should not be censored. And it wouldn't stop at that	1/7/2014 8:53 PM
79	yes - copyright ought to be enforced	1/7/2014 8:47 PM
80	Yes its illegal	1/7/2014 8:42 PM
81	No, it shouldn't be up to them.	1/7/2014 8:34 PM
82	No, it's not their function. They are there to provide a service, not as law enforcement officers	1/7/2014 8:33 PM
83	yes	1/7/2014 8:18 PM
84	Yes, it's illegal.	1/7/2014 8:18 PM
85	Yes safety	1/7/2014 7:51 PM
86	Not their responsibility.	1/7/2014 7:48 PM
87	yes, it is illegal	1/7/2014 7:41 PM

88	don't care	1/7/2014 7:22 PM
89	The world has bigger problems	1/7/2014 7:20 PM
90	Should Block. It remains illegal.	1/7/2014 7:16 PM
91	yes it is only fair	1/7/2014 7:15 PM
92	no, I don't think they should be required to police the internet	1/7/2014 7:12 PM
93	I don't know	1/7/2014 7:10 PM
94	no, the internet should be uncensored	1/7/2014 7:10 PM
95	Yes, if it is illegal then block it.	1/7/2014 7:09 PM
96	Yes to protect the owners	1/7/2014 7:09 PM
97	Yes. Paying for things is a part of life. If we allow this we may kill these industries in the long run. A	1/7/2014 7:08 PM
98	No idea	1/7/2014 7:08 PM
99	Yes. Artists should be compensated for their work.	1/7/2014 7:07 PM
100	Yes	1/7/2014 7:06 PM
101	Yes, I don't think search engines should encourage stealing. You've probably figured out that I'm a law and order type of person, fueled by a long history as an ethical banker.	1/7/2014 7:06 PM
102	No because there is no law against it.	1/7/2014 7:04 PM
103	no, forcing a site to do that limits resources for the user	1/7/2014 7:03 PM
104	no	1/7/2014 6:58 PM
105	Again, we should do everything we can to prevent piracy.	1/7/2014 6:57 PM
106	Yes. Same reason as above.	1/7/2014 6:57 PM
107	Ddd	1/7/2014 6:56 PM
108	unsure.	1/7/2014 6:56 PM
109	no	1/7/2014 6:55 PM
110	No. Zero Return on Investment for the search engines	1/7/2014 6:55 PM
111	Yes, it's not legal.	1/7/2014 6:51 PM
112	Yes. The copyright holder should be paid.	1/7/2014 6:51 PM
113	Yes. Same reason as before.	1/7/2014 6:50 PM
114	Maybe	1/7/2014 6:49 PM
115	Yes. It's wrong.	1/7/2014 6:48 PM
116	Yes, legal distributors should be compensated	1/7/2014 6:48 PM
117	no - not sure - guess I just don't think I should be monitored	1/7/2014 6:47 PM
118	Yes	1/7/2014 6:47 PM
119	no	1/7/2014 6:46 PM
120	yes	1/7/2014 6:45 PM
121	Yes, if they are uploaded illegally.	1/7/2014 6:44 PM

122	No	1/7/2014 6:44 PM
123	No. I don't believe in censorship.	1/7/2014 6:44 PM
124	no	1/7/2014 6:44 PM
125	yes	1/7/2014 6:44 PM
126	NO!	1/7/2014 6:43 PM
127	yes it hurts the industry	1/7/2014 6:42 PM
128	No bc ppl run the risk on their own and there are more risks than just breaking the law.	1/7/2014 6:40 PM
129	yes they should block pirating sites because pirating is illegal	1/7/2014 6:40 PM
130	Yes because they allow the access.	1/7/2014 6:39 PM
131	It is not their business to police the internet.	1/7/2014 6:39 PM
132	it is clearly illegal and should be blocked	1/7/2014 6:38 PM
133	yes	1/7/2014 6:36 PM
134	again, it should be the site where the files are responsibility to block downloading	1/7/2014 6:30 PM
135	Not sure. Prefer the freedom to choose.	1/7/2014 6:28 PM
136	No	1/7/2014 6:27 PM
137	No. It's not their responsibility. Keeping track of those sites costs money in terms of labor or new software. There is no reason why they should be the ones to pay.	1/7/2014 6:27 PM
138	again not sure	1/7/2014 6:27 PM
139	No	1/7/2014 6:25 PM
140	Yes - ILLEGAL	1/7/2014 6:22 PM
141	No, because users are not paying to use the search engine so the search engine doesn't have reason to restrict the content that their users can see.	1/7/2014 6:20 PM
142	Yes, again because it is illegal.	1/7/2014 6:18 PM
143	no same as above	1/7/2014 6:17 PM
144	Idk	1/7/2014 6:17 PM
145	virus control	1/7/2014 6:13 PM
146	Yes, again it is stealing.	1/7/2014 6:13 PM
147	If search engines find illegal sites, then they should be taken down or blocked.	1/7/2014 6:13 PM
148	Yes because they are pirated	1/7/2014 6:10 PM
149	No. Same as above	1/7/2014 6:10 PM
150	Yes because pirated music and videos are illegal.	1/7/2014 6:09 PM
151	yes because it is illegal and costs more for people that use it the right way	1/7/2014 6:07 PM
152	Yes, it's illegal	1/7/2014 6:06 PM

Q11 Would you support blocking links to, and uploads of illegal content if some legal content were also blocked? Why or Why Not?

Answered: 152 Skipped: 0

#	Responses	Date
1	No	1/9/2014 1:57 AM
2	don't know	1/9/2014 1:47 AM
3	No, because the Internet should not be arbitrarily limited, for any reason.	1/9/2014 12:48 AM
4	No	1/9/2014 12:24 AM
5	No. The technology should be better at what it blocks.	1/9/2014 12:16 AM
6	No	1/8/2014 10:24 PM
7	same as above	1/8/2014 9:40 PM
8	yes	1/8/2014 9:12 PM
9	Yes	1/8/2014 9:11 PM
10	Not sure	1/8/2014 9:04 PM
11	n/a	1/8/2014 9:00 PM
12	No because then everything is blocked	1/8/2014 8:55 PM
13	No comment	1/8/2014 8:53 PM
14	Don know	1/8/2014 8:44 PM
15	I would only support blocking links to illegal content.	1/8/2014 8:43 PM
16	No. This diminishes creativity.	1/8/2014 8:32 PM
17	I think the ability to rapidly share information is more important than the protection of copyrights.	1/8/2014 8:21 PM
18	Yes and no for the reasons mentioned above.	1/8/2014 8:08 PM
19	Yes	1/8/2014 8:05 PM
20	No. I would need to know an example of a site that offers both legal and pirated content at the same time; sounds unrealistic.	1/8/2014 7:57 PM
21	No	1/8/2014 7:43 PM
22	Why or Why Not	1/8/2014 7:25 PM
23	no; legal content should not be interfered with	1/8/2014 7:10 PM
24	No. The country I live in I'm free to make my own choices.	1/8/2014 7:09 PM
25	No. I think people need to use discretion.	1/8/2014 7:00 PM
26	If it is the law it's the law. I don't download illegal content	1/8/2014 6:55 PM
27	No. That would be like arresting a family because an uncle drove drunk	1/8/2014 6:36 PM
28	No.	1/8/2014 6:03 PM

29	no	1/8/2014 5:53 PM
30	No	1/8/2014 5:48 PM
31	No	1/8/2014 5:45 PM
32	not illegal	1/8/2014 5:42 PM
33	Yes, it is stealing	1/8/2014 5:33 PM
34	Yes, Intellectual Property Protection	1/8/2014 5:29 PM
35	yes	1/8/2014 5:26 PM
36	No - throwing out the baby with the bathwater. Legal content should be on legal sites, with no illegal.	1/8/2014 5:20 PM
37	No. What's the purpose?	1/8/2014 5:13 PM
38	No, too great a risk to information.	1/8/2014 5:00 PM
39	It's not the content that matters. It's the act of theft.	1/8/2014 4:58 PM
40	No	1/8/2014 4:52 PM
41	No, legal content should not be blocked.	1/8/2014 4:43 PM
42	Yes, it is stealing	1/8/2014 4:41 PM
43	No.	1/8/2014 4:32 PM
44	n/a	1/8/2014 4:26 PM
45	No, keep your dirty, stinking paws off my internet.	1/8/2014 4:22 PM
46	I don't know	1/8/2014 4:18 PM
47	No, Let people decide. Keep the Internet Free and Open.	1/8/2014 3:57 PM
48	No	1/8/2014 3:53 PM
49	I dont think any sites should be blocked unless there is a poss virus	1/8/2014 2:56 PM
50	Legal content should not be blocked.	1/8/2014 2:50 PM
51	Maybe	1/8/2014 2:47 PM
52	Yes, see 10 above.	1/8/2014 2:41 PM
53	yes,	1/8/2014 2:39 PM
54	no - see #5	1/8/2014 2:05 PM
55	No, personal responsibility should be what matters.	1/8/2014 1:58 PM
56	no	1/8/2014 1:52 PM
57	yes...otherwise it is stealing.	1/8/2014 1:31 PM
58	Depends on the amount of restriction met	1/8/2014 1:17 PM
59	No. See above.	1/8/2014 1:04 PM
60	yes	1/8/2014 12:49 PM
61	No. Blocking information should be an individual's choice.	1/8/2014 12:43 PM
62	No.	1/8/2014 12:31 PM

63	Yes	1/8/2014 12:20 PM
64	Undecided.	1/8/2014 12:01 PM
65	No, waste of time.	1/8/2014 11:55 AM
66	No	1/8/2014 11:19 AM
67	Would depend on means of blocking.	1/8/2014 11:19 AM
68	no	1/8/2014 10:08 AM
69	No, that would be a form of censorship. Illegal copies of copy righted material is a legal issue.	1/8/2014 1:02 AM
70	yes, if this blocking is a choice and not as the result of laws.	1/8/2014 12:59 AM
71	No, I very much disagree with censorship and the blocking of information. I feel the Internet should be a free and open space for everyone.	1/8/2014 12:08 AM
72	no, legal content should never be blocked.	1/7/2014 11:48 PM
73	I don't care.	1/7/2014 11:47 PM
74	N/C	1/7/2014 10:59 PM
75	I would only support it if I knew that those entities doing the blocking were only blocking 'illegal' content, and not just content that they don't want others to see. There may be a thin line there.	1/7/2014 10:22 PM
76	No. Legal shouldn't pay price to stop illegal.	1/7/2014 9:08 PM
77	NO.	1/7/2014 9:00 PM
78	No, because the internet should not be censored. And it wouldn't stop at that	1/7/2014 8:53 PM
79	no	1/7/2014 8:47 PM
80	Yes	1/7/2014 8:42 PM
81	No, because that would defeat the purpose. Internet should be open/.	1/7/2014 8:34 PM
82	No, it's not their function. They are there to provide a service, not as law enforcement officers.	1/7/2014 8:33 PM
83	no	1/7/2014 8:18 PM
84	No, lethal content should not be blocked.	1/7/2014 8:18 PM
85	Yes safety	1/7/2014 7:51 PM
86	No, I would still like the choice.	1/7/2014 7:48 PM
87	no, do not block legal content	1/7/2014 7:41 PM
88	probably not	1/7/2014 7:22 PM
89	I don't support anything	1/7/2014 7:20 PM
90	Yes. Pirating remains illegal. There are laws. Pirating hurts the Movie Industry I believe.	1/7/2014 7:16 PM
91	yes	1/7/2014 7:15 PM
92	no--I believe in open source. Better to find some minimal revenue stream from it.	1/7/2014 7:12 PM
93	I guess	1/7/2014 7:10 PM
94	no, the internet should not be censored	1/7/2014 7:10 PM
95	Yes	1/7/2014 7:09 PM

96	No just block pirated	1/7/2014 7:09 PM
97	Oh this is a bit more difficult.	1/7/2014 7:08 PM
98	No idea	1/7/2014 7:08 PM
99	No. Legal content should be allowed.	1/7/2014 7:07 PM
100	Yes	1/7/2014 7:06 PM
101	Erring on the side of caution, I guess so, but this is a bit more of a dilemma for me.	1/7/2014 7:06 PM
102	No	1/7/2014 7:04 PM
103	no, why on earth would I?	1/7/2014 7:03 PM
104	no	1/7/2014 6:58 PM
105	Yes, do anything we can to prevent pirate	1/7/2014 6:57 PM
106	No. What is the logic of that tit for tat ? It's insane.	1/7/2014 6:57 PM
107	Ddd	1/7/2014 6:56 PM
108	yes	1/7/2014 6:56 PM
109	no	1/7/2014 6:55 PM
110	No. No legal content should be blocked.	1/7/2014 6:55 PM
111	Yes, sounds good.	1/7/2014 6:51 PM
112	No. There should be separation of legal and non-legal content.	1/7/2014 6:51 PM
113	Not sure.	1/7/2014 6:50 PM
114	Maybe	1/7/2014 6:49 PM
115	Yes. It's wrong.	1/7/2014 6:48 PM
116	Yes, same as above	1/7/2014 6:48 PM
117	no - don't believe in being monitored	1/7/2014 6:47 PM
118	Yes	1/7/2014 6:47 PM
119	yes	1/7/2014 6:46 PM
120	yes	1/7/2014 6:45 PM
121	No, there should be a way to differentiate between the two.	1/7/2014 6:44 PM
122	No, the internet should remain free and as open an environment as possible.	1/7/2014 6:44 PM
123	No. See answer above.	1/7/2014 6:44 PM
124	no	1/7/2014 6:44 PM
125	no	1/7/2014 6:44 PM
126	FUCK NO!	1/7/2014 6:43 PM
127	it's wrong	1/7/2014 6:42 PM
128	No bc ppl run the risk on their own and there are more risks than just breaking the law.	1/7/2014 6:40 PM
129	yes, because I believe in obeying the law and stopping those who don't	1/7/2014 6:40 PM
130	Yes because it's illegal	1/7/2014 6:39 PM

131	No. As I said, it's not their job!	1/7/2014 6:39 PM
132	I am not sure	1/7/2014 6:38 PM
133	Yes	1/7/2014 6:36 PM
134	?	1/7/2014 6:30 PM
135	No, it's still censoring.	1/7/2014 6:28 PM
136	Blocking or censorship gets into legal issues they should not be involved in	1/7/2014 6:27 PM
137	That's absolutely wrong. The owner of the legal content has a right to be treated like any other legal site. It could hurt or destroy businesses if legal content were blocked.	1/7/2014 6:27 PM
138	again not sure	1/7/2014 6:27 PM
139	No	1/7/2014 6:25 PM
140	No, I want to have access to legal content	1/7/2014 6:22 PM
141	No, legal content should never be blocked.	1/7/2014 6:20 PM
142	Yes, because it is illegal.	1/7/2014 6:18 PM
143	no same as above	1/7/2014 6:17 PM
144	Idk	1/7/2014 6:17 PM
145	virus control	1/7/2014 6:13 PM
146	Yes	1/7/2014 6:13 PM
147	I would not support anything with legal content being blocked. People should have access to anything legal on the internet.	1/7/2014 6:13 PM
148	Do not want legal content blocked	1/7/2014 6:10 PM
149	No. Same as above	1/7/2014 6:10 PM
150	Yes I would	1/7/2014 6:09 PM
151	yes. any illegal content what so ever should not be able to be used	1/7/2014 6:07 PM
152	No	1/7/2014 6:06 PM

Q12 How should your internet use be monitored in order to prevent copyright infringement?

Answered: 129 Skipped: 23

#	Responses	Date
1	fine those who put the pirated music on line.	1/9/2014 1:47 AM
2	NOT AT ALL.	1/9/2014 12:48 AM
3	It shouldn't	1/9/2014 12:24 AM
4	Not sure. I'm not a technical person.	1/9/2014 12:16 AM
5	It should not. The block should be on the material.	1/8/2014 9:40 PM
6	not sure	1/8/2014 9:12 PM
7	Sad to say there are few persons of integrity re this topic, however, the whole should not be monitored for the "sins" of the few.	1/8/2014 9:04 PM
8	n\a	1/8/2014 9:00 PM
9	It shouldn't. The actual material should be edited. Example: CDS that cannot be copied onto hard drives. You need to buy or borrow the cd, or buy it online. But it must be paid for.	1/8/2014 8:55 PM
10	Don't know	1/8/2014 8:44 PM
11	There's no need for it to be monitored since I don't partake in infringement. I feel like being monitored is basically an invasion of privacy.	1/8/2014 8:43 PM
12	It should not.	1/8/2014 8:32 PM
13	It shouldn't. The onus is upon me to monitor myself.	1/8/2014 8:21 PM
14	I would just buy the best antivirus protection there is.	1/8/2014 8:08 PM
15	?	1/8/2014 8:05 PM
16	Not all. I do not pirate copyrighted material.	1/8/2014 7:57 PM
17	Stop it.	1/8/2014 7:43 PM
18	Why or Why Not	1/8/2014 7:25 PM
19	don't know	1/8/2014 7:10 PM
20	I don't know.	1/8/2014 7:09 PM
21	More access to legal entertainment.	1/8/2014 7:00 PM
22	It shouldn't	1/8/2014 6:55 PM
23	No.	1/8/2014 6:36 PM

24	Copyright infringement occurs all the time, in minute forms that are never noticed or enforced simply because copyright law has strange caveats and exceptions that ultimately don't matter. As well, sharing content privately with peer-to-peer networks is no different than making photocopies of books for classmates, taking pictures of art for friends or other such duplication. The primary issue is when other duplicate the original content and resell it while the original creator gets nothing and loses sales from otherwise paying customers. Financial transactions in tandem with peer-to-peer file sharing should be the main focus of internet monitoring efforts.	1/8/2014 6:03 PM
25	don't know	1/8/2014 5:42 PM
26	It shouldn't	1/8/2014 5:33 PM
27	I don't know	1/8/2014 5:29 PM
28	Don't care - no illegal content	1/8/2014 5:20 PM
29	There should be restrictions on illegal or immoral activity.	1/8/2014 5:13 PM
30	It should be used under adult supervision.	1/8/2014 4:58 PM
31	?	1/8/2014 4:52 PM
32	Don't know this is a slippery slope!	1/8/2014 4:41 PM
33	It should not. That's privacy and no one has any legal right or business to spy on people's use.	1/8/2014 4:32 PM
34	Not by the government or the ISPs. It should be up to the bozo attempting to enforce his copyright claim.	1/8/2014 4:22 PM
35	I don't know	1/8/2014 4:18 PM
36	I shouldn't be. Keep the Internet Free and Open.	1/8/2014 3:57 PM
37	copyright infringement can't be prevented as long as internet exists, so just go with it. artists/producers will just have to try to make as much money as they can through legal channels and deal with the losses from copyright infringement	1/8/2014 3:53 PM
38	Only for viruses	1/8/2014 2:56 PM
39	Monitor the file sharing site not the user.	1/8/2014 2:50 PM
40	Don't know	1/8/2014 2:47 PM
41	Legal content should never be blocked.	1/8/2014 2:41 PM
42	should not	1/8/2014 2:39 PM
43	The copyright holder should be responsible for protecting their property. They should monitor their copyrights in the wild.	1/8/2014 1:58 PM
44	do not know	1/8/2014 1:52 PM
45	blocks.	1/8/2014 1:31 PM
46	very limited	1/8/2014 1:17 PM
47	It shouldn't	1/8/2014 1:04 PM
48	Hmm -that is a tough one - I guess all those sites should get wiped out and that way no one has to get into our personal space	1/8/2014 12:49 PM
49	according to the links chosen.	1/8/2014 12:43 PM
50	Don't we have enough people monitoring what we do as it is?	1/8/2014 12:31 PM
51	Monitor it	1/8/2014 12:20 PM

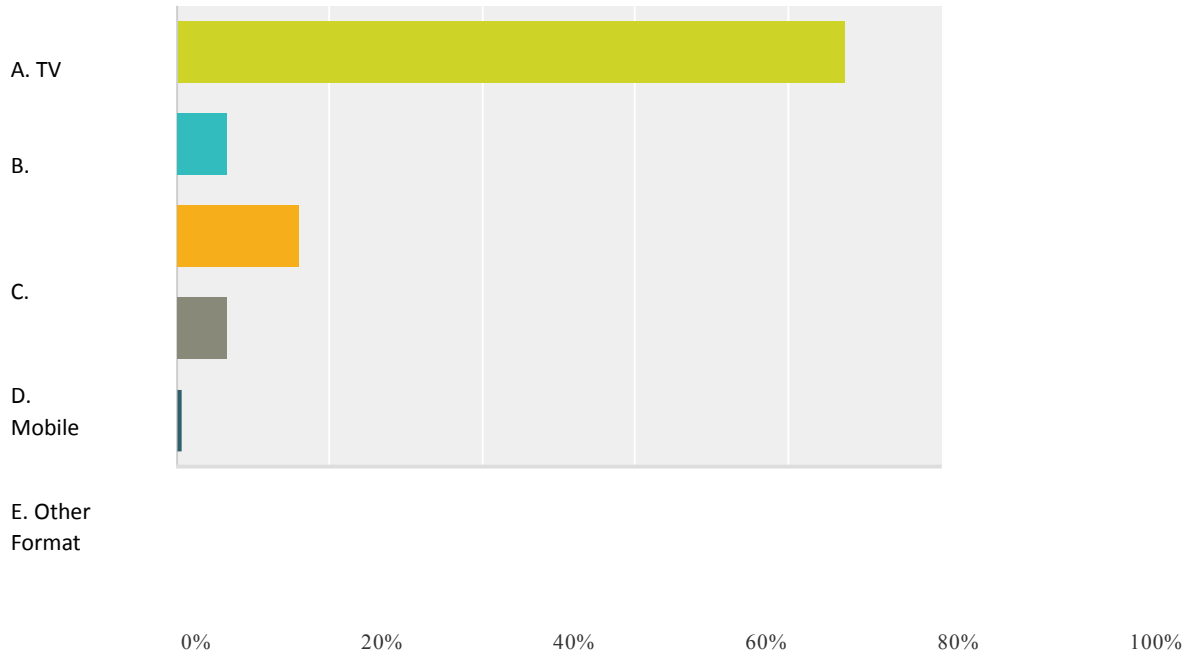
52	No monitoring.	1/8/2014 12:01 PM
53	No need to block, I do not copy things.	1/8/2014 11:55 AM
54	NO, we don't need anymore nannies! The gov't now is an overreaching nanny!!!!	1/8/2014 11:19 AM
55	Hmmm...don't know.	1/8/2014 11:19 AM
56	It shouldn't	1/8/2014 10:08 AM
57	My internet use should not be monitored.	1/8/2014 1:02 AM
58	Mine does not need to be monitored.	1/8/2014 12:59 AM
59	It should not be monitored.	1/8/2014 12:08 AM
60	It shouldn't	1/7/2014 11:48 PM
61	I don't care	1/7/2014 11:47 PM
62	N/C	1/7/2014 10:59 PM
63	I'm not sure.	1/7/2014 10:22 PM
64	I have not clue...I'm no techy.	1/7/2014 9:08 PM
65	Hell no.	1/7/2014 9:00 PM
66	It should not, the people and companies being harmed by these activities should seek action against the people uploading copyrighted material.	1/7/2014 8:53 PM
67	it should NOT be monitored	1/7/2014 8:47 PM
68	???	1/7/2014 8:42 PM
69	It shouldn't.	1/7/2014 8:34 PM
70	Never	1/7/2014 8:33 PM
71	Target the pirating sites not users.	1/7/2014 8:18 PM
72	N/a	1/7/2014 7:51 PM
73	It should NOT be monitored.	1/7/2014 7:48 PM
74	no	1/7/2014 7:41 PM
75	not at all	1/7/2014 7:22 PM
76	Keep your nosy fucking face out of my private life	1/7/2014 7:20 PM
77	This is cannot answer as I do not have a clue about how the internet is run.	1/7/2014 7:16 PM
78	go by the rules	1/7/2014 7:15 PM
79	not at all--revenue models should be found that balance between profit and consumer use	1/7/2014 7:12 PM
80	Good question	1/7/2014 7:10 PM
81	it shouldn't	1/7/2014 7:10 PM
82	It shouldn't be monitored.	1/7/2014 7:09 PM
83	When on file sharing sites monitor use	1/7/2014 7:09 PM
84	Not that technical.	1/7/2014 7:08 PM

85	Not sure. It would be difficult, I think, to monitor someone's internet usage without invading personal privacy on some level.	1/7/2014 7:07 PM
86	It should not	1/7/2014 7:06 PM
87	Do not have a suggestion to this one...	1/7/2014 7:06 PM
88	There should be no "monitoring" only stricter punishments for those who commit the crime.	1/7/2014 7:04 PM
89	maybe something is wrong with the whole copyright system	1/7/2014 7:03 PM
90	shouldn't	1/7/2014 6:58 PM
91	I really don't know. I don't want routine invasion of privacy.	1/7/2014 6:57 PM
92	Ddd	1/7/2014 6:56 PM
93	yes	1/7/2014 6:55 PM
94	No one should monitor the use of internet by private citizens	1/7/2014 6:55 PM
95	Blocking	1/7/2014 6:51 PM
96	I don't know.	1/7/2014 6:51 PM
97	Not sure.	1/7/2014 6:50 PM
98	Shouldn't be sg Gould be private	1/7/2014 6:49 PM
99	Automatic blocking	1/7/2014 6:48 PM
100	I don't know	1/7/2014 6:45 PM
101	It shouldn't.	1/7/2014 6:44 PM
102	They should accommodate copyright protections in other ways.	1/7/2014 6:44 PM
103	It shouldn't.	1/7/2014 6:44 PM
104	?	1/7/2014 6:44 PM
105	don't know	1/7/2014 6:44 PM
106	IT SHOULDN'T	1/7/2014 6:43 PM
107	blocking	1/7/2014 6:42 PM
108	Based on amount of illegal downloads per person	1/7/2014 6:40 PM
109	all software used to pirate or hack copyrighted content should be "red flagged" and automatically monitored upon initialization. Most people don't do this or use this software or even have the knowledge for such things, and they don't need monitoring. Anyone with the education to develop such things should be monitored.	1/7/2014 6:40 PM
110	Block access to the sites	1/7/2014 6:39 PM
111	No! No! No! Are you the Internet Gestapo?	1/7/2014 6:39 PM
112	I am not sure	1/7/2014 6:38 PM
113	Don't know	1/7/2014 6:36 PM
114	it should not	1/7/2014 6:30 PM
115	It should not.	1/7/2014 6:28 PM
116	People need to monitor their own copyrights, not up to anybody else	1/7/2014 6:27 PM

117	MY internet use shouldn't be monitored. The parties who own the pirated material could cut sharing drastically just by searching for sites and getting them shut down. They can also reduce it with technology. As an individual using the internet, I have an expectation of and right to privacy.	1/7/2014 6:27 PM
118	already too much monitoring	1/7/2014 6:27 PM
119	Not knowledgeable on this	1/7/2014 6:22 PM
120	I'm not sure	1/7/2014 6:20 PM
121	I don't know	1/7/2014 6:18 PM
122	I dont care	1/7/2014 6:17 PM
123	Idk	1/7/2014 6:17 PM
124	don't know	1/7/2014 6:13 PM
125	Not sure	1/7/2014 6:13 PM
126	That's really hard to answer. I do not promote the invasion of privacy. The internet should not be able to go into private or locked sites and shut it down if there is illegal content. However, if someone is caught pirating illegal copies of music/videos, that person should be charged accordingly.	1/7/2014 6:13 PM
127	I don't have an informed answer	1/7/2014 6:10 PM
128	Sites should be taken down on a case by case basis	1/7/2014 6:10 PM
129	I have no idea but would they not be out there already?	1/7/2014 6:07 PM

Q13 How do you prefer to watch television programs?

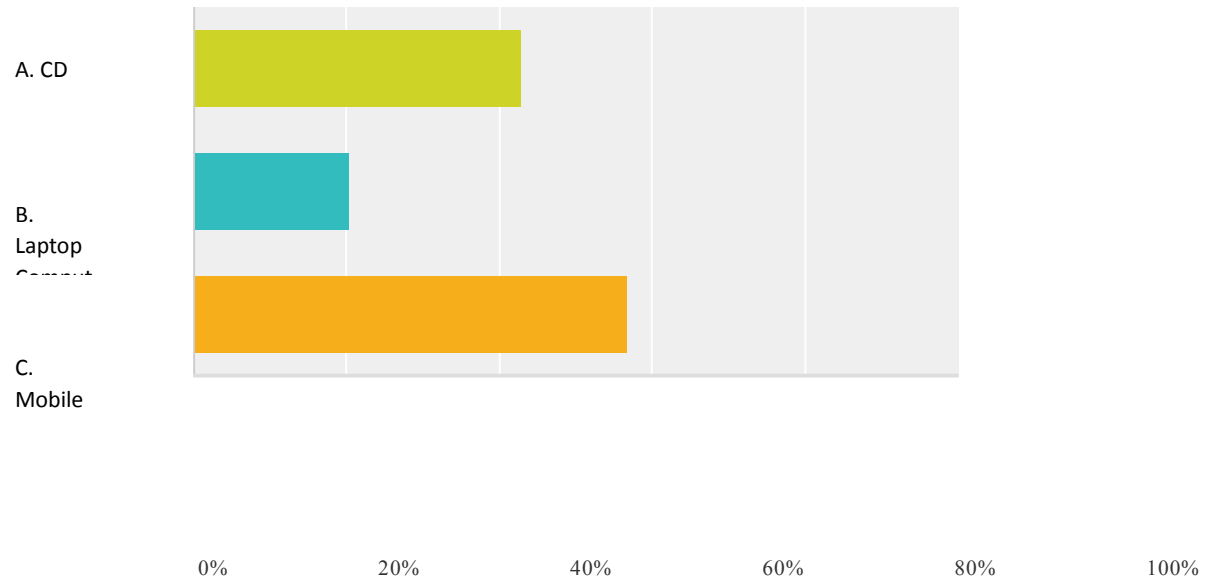
Answered: 149 Skipped: 3



Answer Choices	Responses
A. TV set	87.25% 130
B. Desktop	6.71% 10
C. Laptop	16.11% 24
D. Mobile Device	6.71% 10
E. Other Format	0.67% 1
Total Respondents: 149	

14 How do you prefer to listen to music?

Answered: 138 Skipped: 14



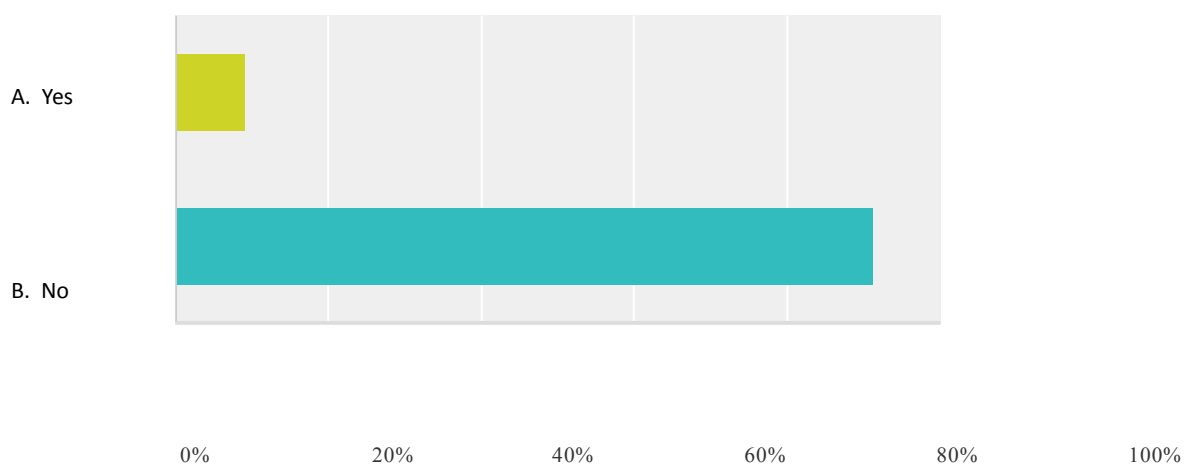
Answer Choices	Responses
A. CD	42.75% 59
B. Laptop Computer	20.29% 28
C. Mobile Device	56.52% 78
Total Respondents: 138	

#	Other (please specify)	Date
1	radio	1/9/2014 1:47 AM
2	radio...what a concept!!!	1/8/2014 9:04 PM
3	Radio	1/8/2014 8:53 PM
4	car stereo	1/8/2014 7:09 PM
5	Car radio	1/8/2014 5:33 PM
6	Radio or record player, concerts	1/8/2014 5:13 PM
7	Streaming music box (squeeze box).	1/8/2014 4:22 PM

8	Radio	1/8/2014 2:56 PM
9	on-line programming	1/8/2014 1:17 PM
10	Stream to TV	1/8/2014 12:01 PM
11	Radio	1/8/2014 10:08 AM
12	tabletop radio	1/7/2014 8:47 PM
13	radio	1/7/2014 7:41 PM
14	I'm deaf	1/7/2014 7:22 PM
15	Ipad	1/7/2014 7:10 PM
16	Radio	1/7/2014 7:08 PM
17	iPod	1/7/2014 7:06 PM
18	ipod	1/7/2014 6:45 PM
19	I phone	1/7/2014 6:44 PM
20	Car radio.	1/7/2014 6:39 PM
21	FM radio	1/7/2014 6:27 PM
22	Radio	1/7/2014 6:22 PM
23	Desktop pc	1/7/2014 6:10 PM

Q15 If you use a peer to peer streaming technology, have you ever uploaded or seeded media files for other users? (Check all that apply)

Answered: 133 Skipped: 19

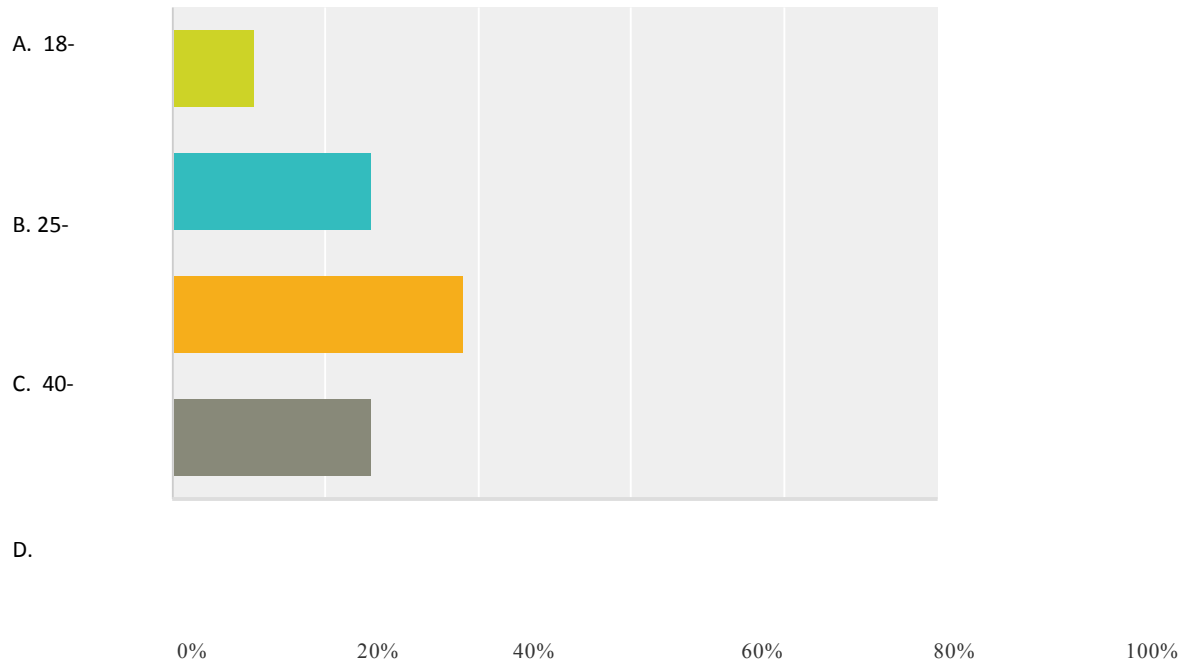


Answer Choices	Responses
A. Yes	9.02% 12
B. No	90.98% 121
Total Respondents: 133	

#	Other (please specify)	Date
1	Only once or twice; I actually rarely torrent, I find it too dangerous and slow and unreliable.	1/9/2014 12:48 AM
2	about 13 years ago shared illegal music and videos. now I troll for indi artist who put stuff out for free.	1/8/2014 5:00 PM
3	na	1/7/2014 6:44 PM
4	N/A	1/7/2014 6:18 PM

Q16 What age category do you fall into?

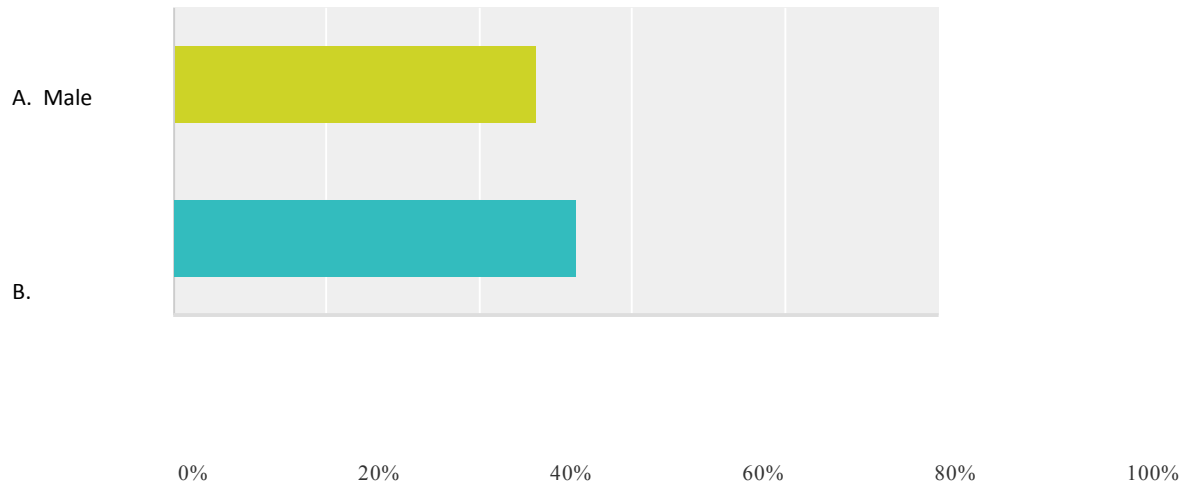
Answered: 150 Skipped: 2



Answer Choices	Responses	
A. 18-25	10.67%	16
B. 25-40	26%	39
C. 40-60	38%	57
D. Other	26%	39
Total Respondents: 150		

Q17 Are you male or female

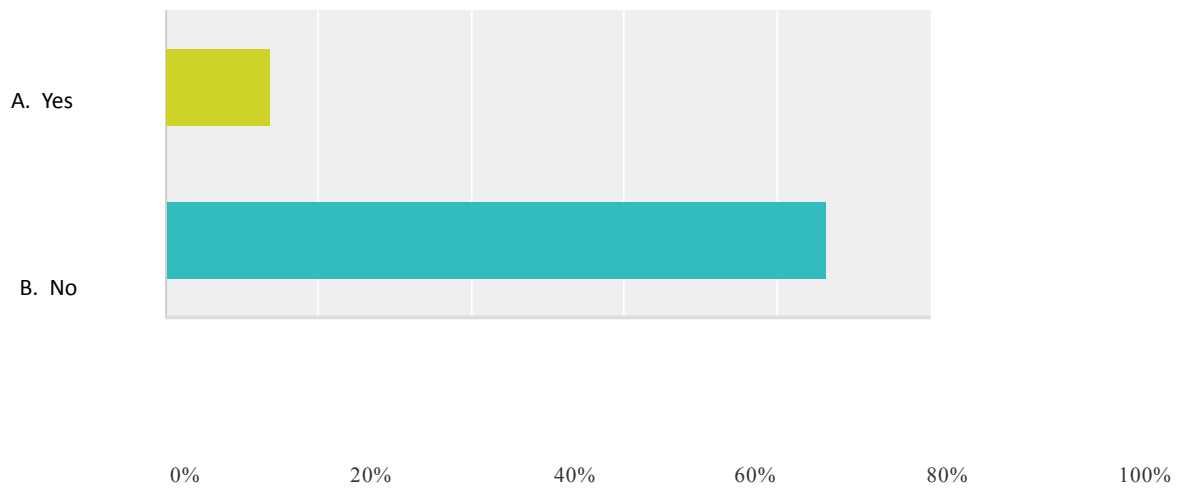
Answered: 150 Skipped: 2



Answer Choices	Responses
A. Male	47.33% 71
B. Female	52.67% 79
Total Respondents: 150	

Q18 Are you pursuing a college degree as you are taking this survey?

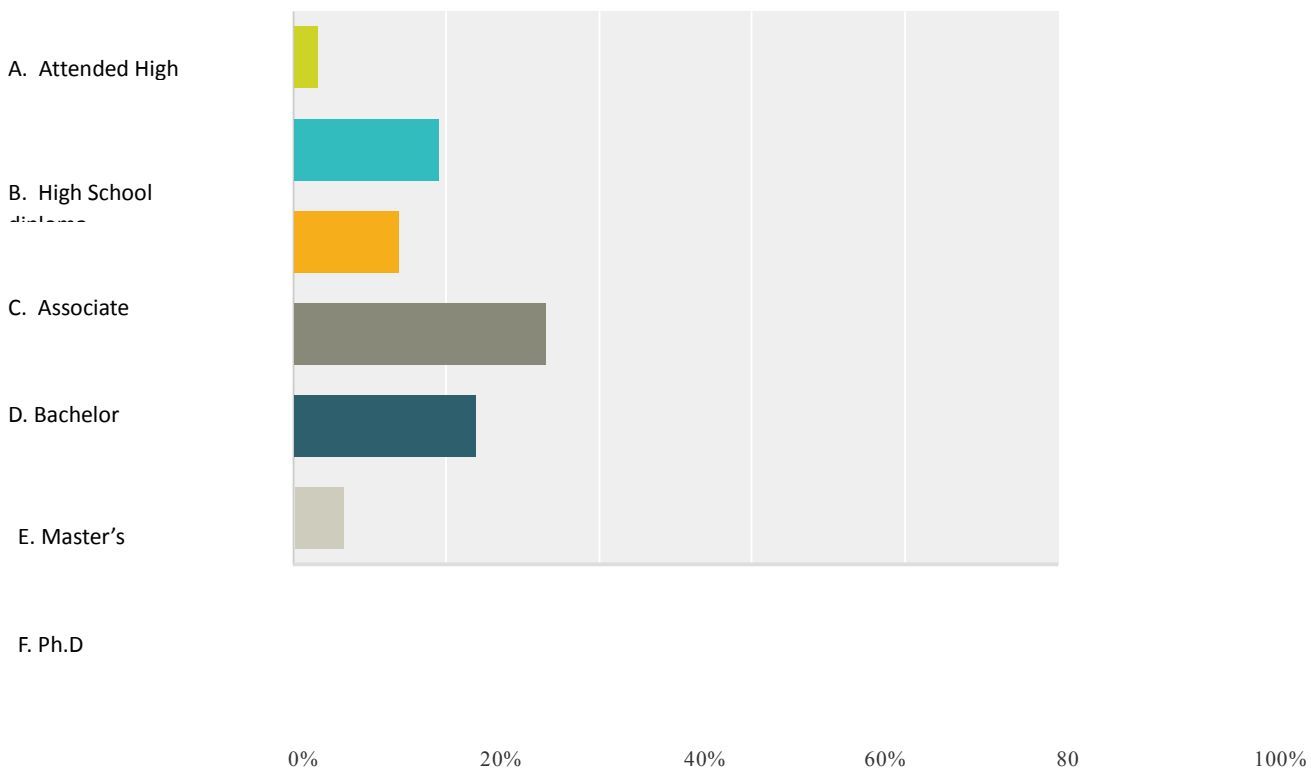
Answered: 146 Skipped: 6



Answer Choices	Responses
A. Yes	13.70% 20
B.No	86.30% 126
Total Respondents: 146	

Q19 What is the highest form of education you currently hold?

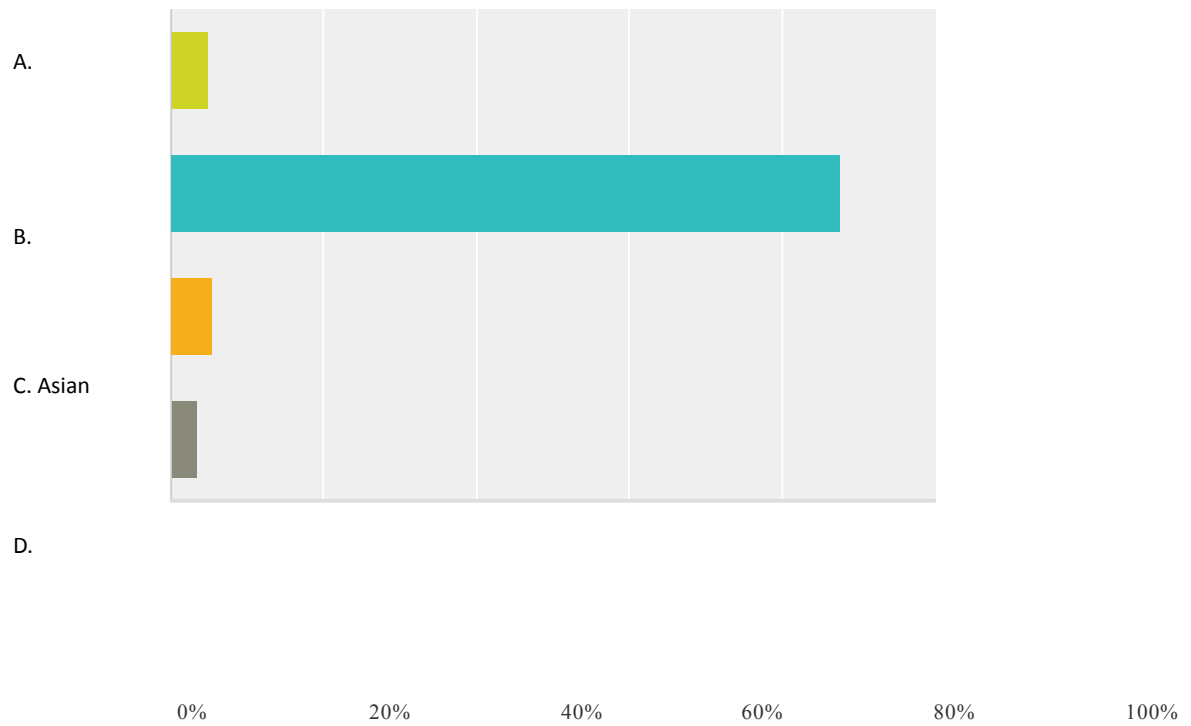
Answered: 151 Skipped: 1



Answer Choices	Responses
A. Attended High School	3.31% 5
B. High school diploma	19.21% 29
C. Associate's degree	13.91% 21
D. Bachelor's degree	33.11% 50
E. Master's degree	23.84% 36
F. Ph.D	6.62% 10
Total Respondents: 151	

Q20 What is your ethnicity?

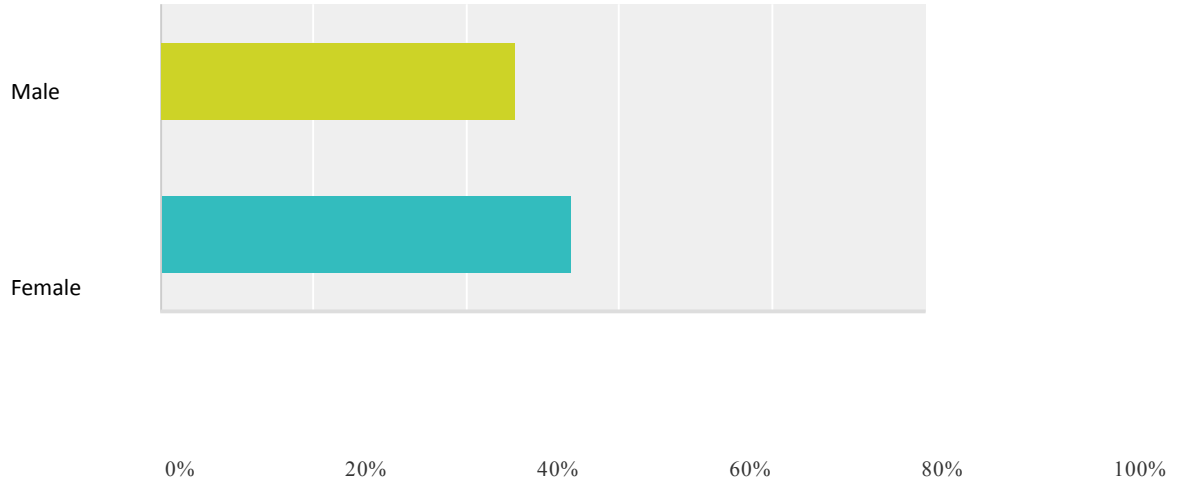
Answered: 144 Skipped: 8



Answer Choices		Responses
A. Black		4.86% 7
B. White		87.50% 126
C. Asian		5.56% 8
D. Hispanic		3.47% 5
Total Respondents: 144		
#	Other (please specify)	Date
1	WHY DOES THAT MATTER	1/8/2014 8:55 PM
2	Do not want to answer	1/8/2014 8:53 PM
3	Caucasian	1/8/2014 6:03 PM
4	Native American	1/7/2014 7:20 PM
5	Native American	1/7/2014 6:44 PM

Q21 Gender

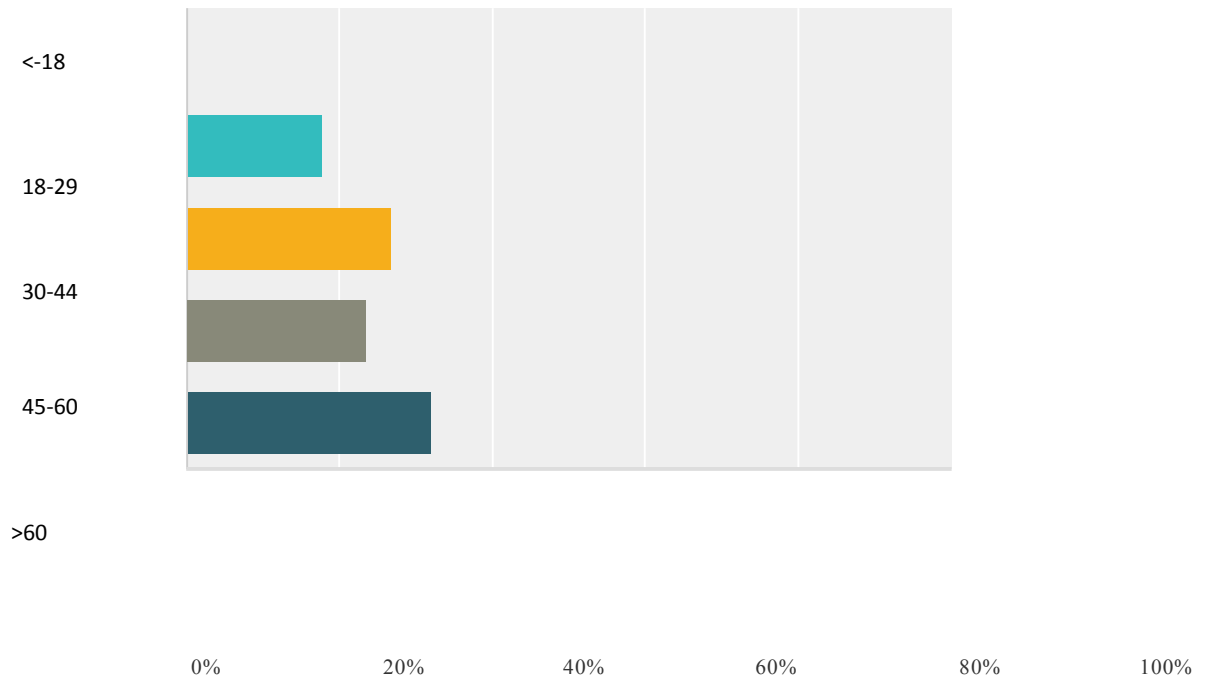
Answered: 153 Skipped: -1



Answer Choices	Responses
Male	46.41% 71
Female	53.59% 82
Total	153

Q22 Age

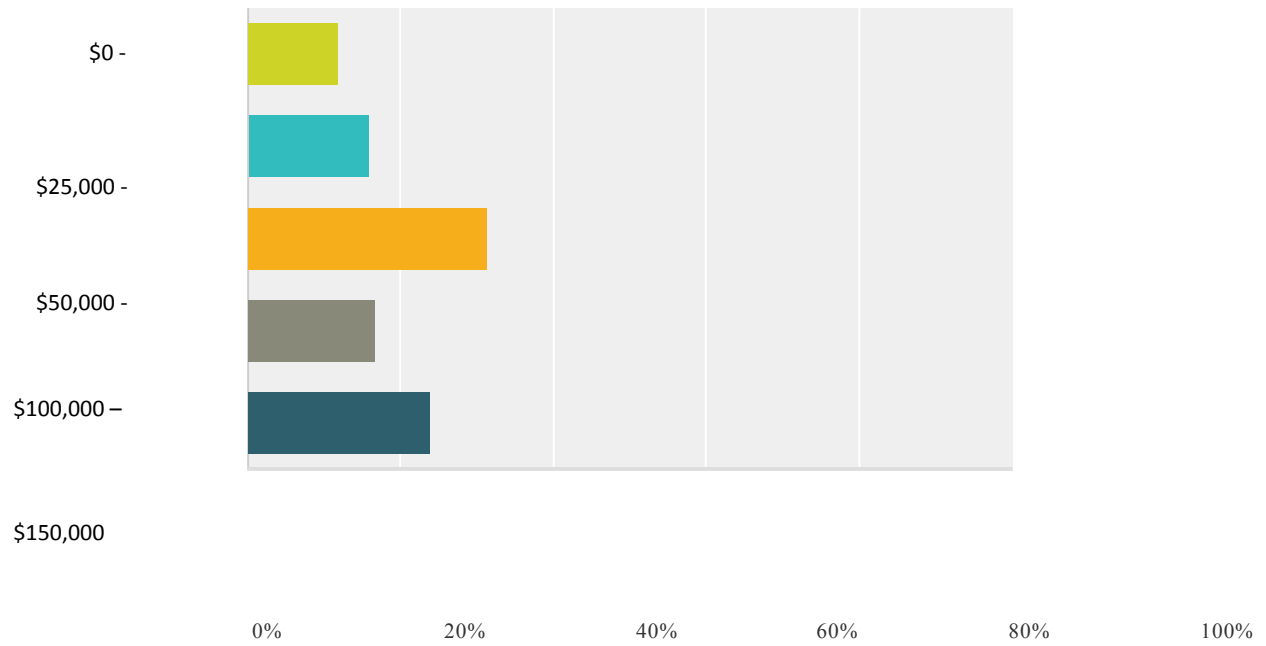
Answered: 153 Skipped: -1



Answer Choices	Responses
< 18	0% 0
18-29	17.65% 27
30-44	26.80% 41
45-60	23.53% 36
> 60	32.03% 49
Total	153

Q23 Household Income

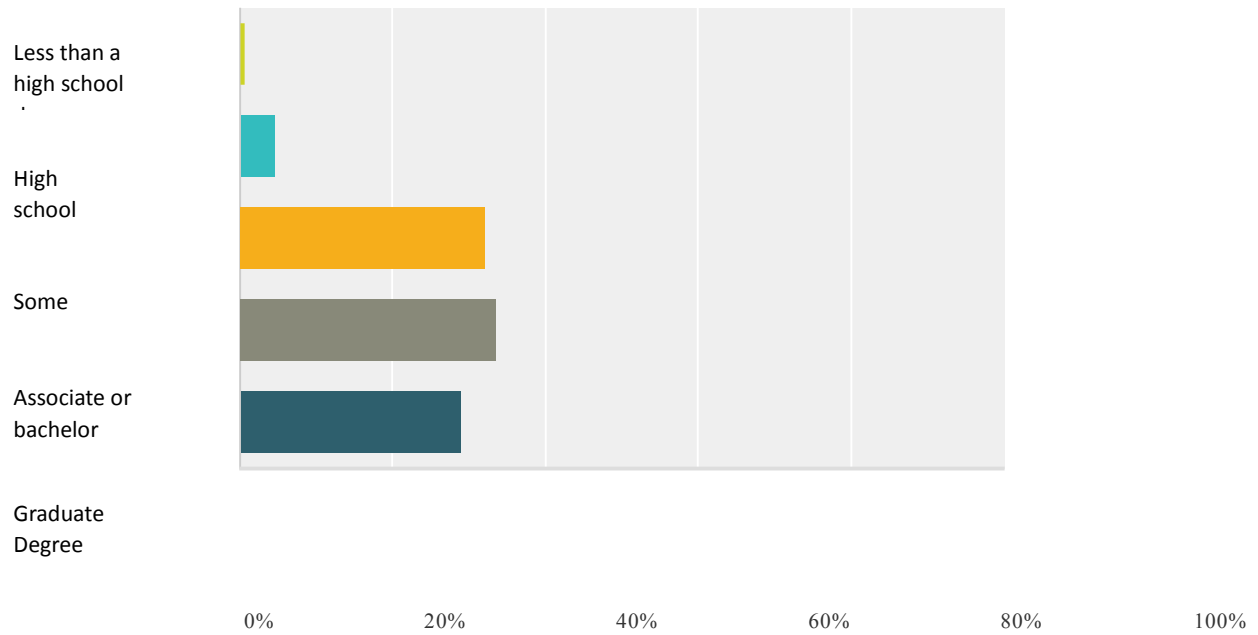
Answered: 150 Skipped: 2



Answer Choices	Responses
\$0 - \$24,999	12% 18
\$25,000 - \$49,999	16% 24
\$50,000 - \$99,999	31.33% 47
\$100,000 - \$149,999	16.67% 25
\$150,000+	24% 36
Total	150

Q24 Education

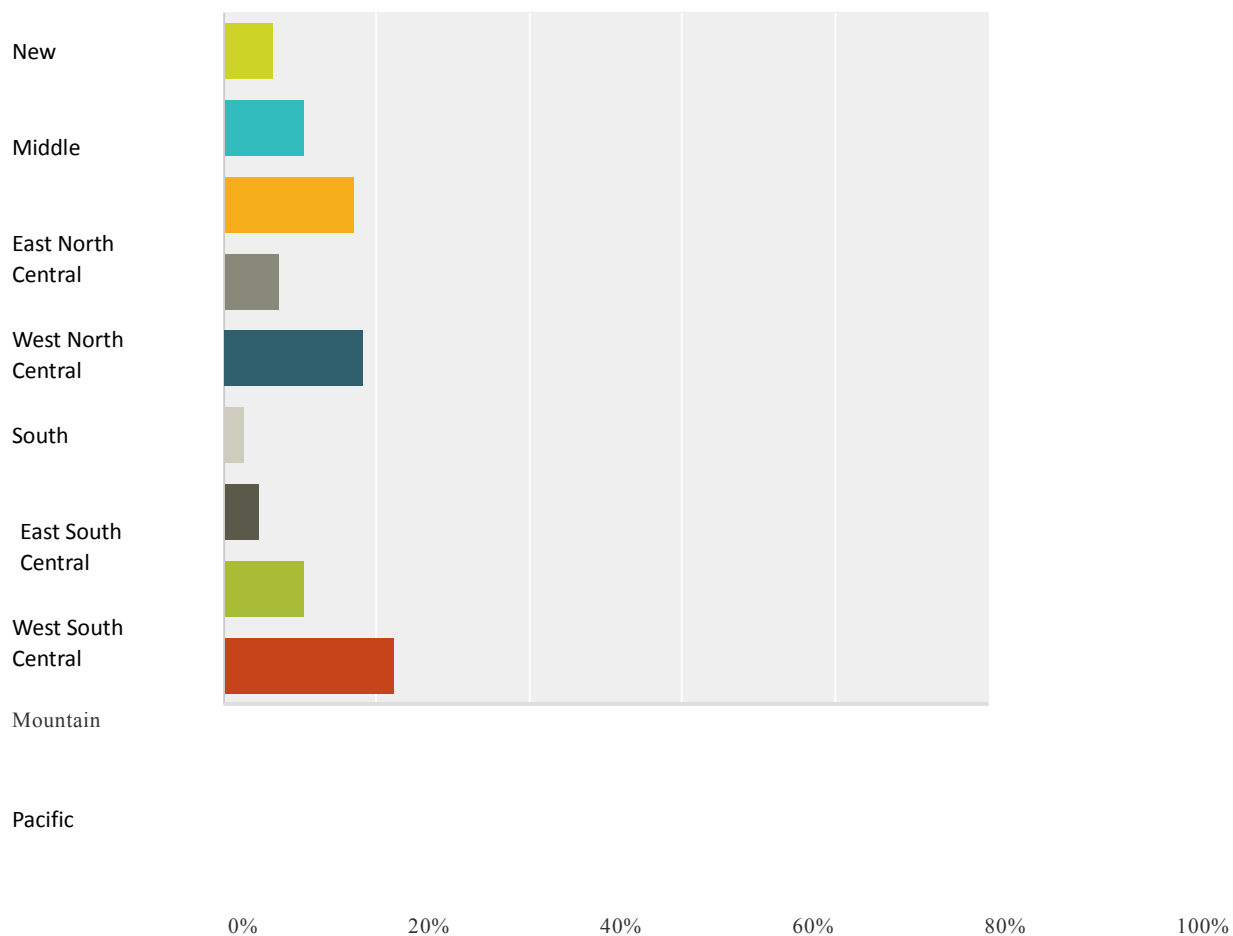
Answered: 152 Skipped: 0



Answer Choices	Responses
Less than high school degree	0.66% 1
High school degree	4.61% 7
Some college	32.24% 49
Associate or bachelor degree	33.55% 51
Graduate degree	28.95% 44
Total	152

Q25 Location (Census Region)

Answered: 152 Skipped: 0



Answer Choices	Responses
New England	6.58% 10
Middle Atlantic	10.53% 16
East North Central	17.11% 26
West North Central	7.24% 11
South Atlantic	18.42% 28
East South Central	2.63% 4
West South Central	4.61% 7
Mountain	10.53% 16
Pacific	22.37% 34
Total	152

Appendix B

Transcribed Interviews

Marty Lafferty

Distributed Computing Industry Association

Marty Lafferty: Marty Lafferty.

James Todd: Hey, Marty this is James, how are you?

Marty Lafferty: Very well, how are you?

James Todd: I'm doing all right. I was hoping that we would still be able to talk for a brief moment about the thesis questions if that was okay.

Marty Lafferty: Sure, let me put you on speaker and we'll go ahead.

James Todd: Thank you so much. I really appreciate it.

Marty Lafferty: All right.

James Todd: All right. As I explained before, I'm doing a thesis on peer-to-peer television, well internet television actually, just trying to see if somebody could actually harness this technology to see if it could infiltrate the traditional broadcast television experience. I guess the question I would start out with is could you actually see, because I know with the Summer Olympics, they were streamed, not only on obviously TV, but they were also streamed on the Internet, through YouTube and other various streaming websites, do you think technology such as peer-to-peer could possibly one day stream a big event such as that?

Marty Lafferty: Just repeat the last part again.

James Todd: Oh, I'm sorry. Do you feel that peer-to-peer technology could one day be able to stream a large event such as the Olympics or possibly the Super Bowl?

Marty Lafferty: Definitely. Those large events, those large burst events lend themselves better to P2P distribution than [00:02:00] linear feeds. The more popular the event, the better P2P is in terms of an efficient distribution technology, because obviously you know how it works?

James Todd: Yeah.

Marty Lafferty: Essentially the different users, on their connections and their bandwidth and their storage are used to create the ad-hoc network that distributes the content. The more users, the more popular the event, the better it works. You combine that aspect of the way P2P technology works so that what's

been needed is adding a very efficient live streaming approach to it. The traditional P2P is more restored content. BitTorrent recently announced really the first major live streaming protocol in P2P.

James Todd: Okay.

Marty Lafferty: It hasn't been used yet for the Super Bowl or the Olympics, but it's been getting some good tests with smaller events.

James Todd: Okay, well then actually, since we're talking about that in terms of streaming large events, let me bring it down to say maybe for the example of a production of a movie, say M. Night Shyamalan wanted to produce his next movie or whatever, well okay maybe not that, but streaming through peer-to-peer, do you think we'd actually be able to see a movie or even a television sitcom used through peer-to-peer technology in terms of somebody using that technology to actually make it and harness it?

Marty Lafferty: Absolutely.

James Todd: Okay.

Marty Lafferty: I mean people do it all the time. It's just the issue has been that there wasn't a very advanced licensing model for P2P. It took the record industry by surprise.

James Todd: Gotcha.

Marty Lafferty: Going back to [00:04:00] the original Napster and all the way till present day, the issue has been that it's a real challenge to secure the content in a way that makes the right holders comfortable with it, that there's a way to monetize that content, other than through ad support. By using encryption and keys and requiring that users have the right-

James Todd: Oh, hello ... what the ... ? Yeah, but could you just repeat what you were stating about the possibilities of a movie or possibly a television show being used through to peer-to-peer again? I'm sorry about that.

Marty Lafferty: There's tremendous distribution of those types of entertainment products already on P2P, which is why the argument of the issue has really been, not that it works. Arguably it works so well that it's been a tool for copyright infringement on a massive scale. The issue really is then how do the rights holders either come up with a business model, like a broadcast-like business model that's ad-supported, where you don't get the users to pay and be authorized, or come up with a way to encrypt the content and

have a payment mechanism you know the way they do on more traditional video on-demand client-server models.

James Todd: Okay.

Marty Lafferty: You can do both. There's always going to be, when you go to digital distribution what's called an analog hole, where somebody who is motivated can point a video camera at the screen and create a new file in the clear, and put that back seed it back [00:06:00] onto distribution on whatever technology, violate the rights. With watermarking and forensic technologies, you can't track back to where that happened and how that took place, and there can't be a way to discourage it and prosecute people who insist on violating.

It's really coming up with a model where to pay the subscription fee or the per viewing fee is so attractive that the pirates, copyright infringers, aren't motivated anymore. It's been more of a business issue than a technology issue that's P2P to be protected. It saves the rights holders a tremendous amount of money vs. if they have to pay the CDN and pay for all the bandwidth to deliver the content to the end user, then that's really a tougher proposition for them because in broadcast television, for example, the more viewers you have just the better it is. Your cost per viewing does not increase when it's just over broadcast or even over cable.

James Todd: Okay.

Marty Lafferty: For the right's holder, but when you go to IPTV that's not the case, but with P2P that's mitigated because the end-users are contributing the bandwidth and the storage and even some of the marketing for it.

James Todd: Okay. With that being said, it's safe to say that peer-to-peer technology, if used right, it definitely has a lot of benefits, and it's a lot of pros. You actually brought up an interesting point with BitTorrent, sharing of music and video, it brings about a lot of copyright infringement and pirates. If this technology was to actually infiltrate the traditional television structure and catch on, what are some of the risks that you could see [00:08:00] with using this technology in the mainstream structure?

Marty Lafferty: For rights holders the key is going to be, what's your business model? If you're requiring the end-users to contribute a license fee, a subscription or per use video on-demand fee then you need to make sure the encryption technology you use is secure and robust and updated often, much the same as with a client-server technology. Then if you can do all that, then you

have arguably a more efficient distribution system than if you were not using P2P.

James Todd: Okay.

Marty Lafferty: I think what you probably will find, an ideal system, once those aspects get worked out to the satisfaction of the ultimate rights holders and distributors is probably a hybrid system where there would be part cloud computing, where content is in data centers and then CDN helps move the content closer to the network, closer to the users, so the quality and the response is there. Then in the last mile, there will be the secure P2P piece of it that makes it as absolutely efficient as possible and much faster, instead of waiting for parts of the content to download from a remote data center, parts of that content could download from other people on the network who already have that content on their device.

James Todd: Okay, and then-

Marty Lafferty: When you get to things like TV Everywhere and mobile, then you're using smart phones as display devices and tablets and iPads and stuff like that, the [00:10:00] advantages are even more discreet in terms of state, because then you're talking about relatively narrow bandwidth on the part of the carriers or the WiFi operators, broadband networks. The ability to use P2P to enhance that distribution and save bandwidth is even more pronounced. You look at mobile, mobile content like TV Everywhere is a favorite these days; P2P could be a huge advantage there.

James Todd: Okay, and then my last question is pretty much just talking about the advertising structure. Could you see peer-to-peer television possibly changing the landscape for advertising revenue?

Marty Lafferty: That's the easiest way to deploy it because then you presumably don't have to invest a lot in trying to protect the content and prevent the people from being able to play it back, you actually want them to, so then you have a business model where it's much closer to broadcast television, where it's all about driving viewership, or listenership in the case of music tracks, which you just want the more people the better. Because the more people do the advertising and the higher you get in terms of delivery and costs per thousands model to the sponsor, you can obviously make more money. Again, because you're not paying for that extra distribution, the network participants are, it becomes a very attractive model. You could argue that ad-supported will in some way drive the proliferation of P2P technologies for high value entertainment content.

James Todd: Okay, okay. Well this has been really good. [00:12:00] I got a lot of good data, a lot of stuff that I feel will help me analyze and come to a conclusion. Now I just want to get your permission, because I did want to use this interview and some of your points in my thesis. I definitely will quote you. If you wanted to remain nameless or anything, that's fine as well, but I just want to get your permission before ... you know ...

Marty Lafferty: Sure. Sure, if you want to attribute direct quotes, let me look at it first to make sure I don't ... we talked pretty quickly here ...

James Todd: Yeah, absolutely, I'll definitely send a review copy.

Marty Lafferty: Normally I just say interviews, meet at the DCIA, and then in general, that's fine. I'd be happy to look at it, edit it and help you edit it anyway.

James Todd: Okay.

Marty Lafferty: If you need to talk to any of the companies, we have good relations with, and some of them are member companies of DCIA, I could help you talk to the principal or somebody of the company, can give you more color, more detail.

James Todd: Actually, if you could make that happen, that would be perfect, because the more data and the more individuals that I am able to talk to, the better, the more clear that this information will become, so that actually will be perfect.

Marty Lafferty: When you send me the outline or draft, just put a list of the companies you want to talk to and then if we can, I'll do e-mail intros and help with somebody that can have a quick interview with you and help with some more details.

James Todd: Absolutely, I really appreciate it. Definitely I will send you an outline. I will send you a review copy when everything is put together, because I have to transcribe it and then place it in, but thank you so much. I really do appreciate it. I [00:14:00] really do.

Marty Lafferty: Good luck with it.

James Todd: Thank you, you have a great day.

Marty Lafferty: You too. Take care.

James Todd: All right.

Fabian Gordon

Ignite Technologies

Fabian: Fabian Gordon.

Fabian: This is Fabian.

Fabian: Are you there?

James Todd: Yes.

Fabian: [inaudible 00:00:51].

James Todd: Hello?

Fabian: [inaudible 00:00:52].

James Todd: Okay. Can you hear me?

Fabian: No.

James Todd: Hey, Fabian. Okay. Can you hear me now? I just want to make sure everything is clear.

Fabian: Yeah. You could hear me, but I couldn't hear you. Is that what was going on?

James Todd: Yeah. Sorry about that. Sorry about the technical difficulties.

Fabian: No.

James Todd: I guess I'll just go ahead and get started. I only have about six questions; I have to keep it brief because I know you probably have a lot of stuff going on.

Fabian: Sure.

James Todd: Pretty much, my thesis revolves around ... it's a peer-to-peer streaming and kind of like Internet television and what I'm looking at, pretty much I'm looking at to see if this is a technology that can infiltrate the traditional broadcast television structure. I know at Ignite technologies, I know you guys use the technology. I just don't know how much you guys use peer-to-peer [00:02:00]. Is that like a main staple of your company?

Fabian: Well, Yeah. It focuses really on solving the content delivery problems inside corporate networks which are very, very different than the Internet, right? Having said that, video is also ... we talked about that this is an easy target. Video is

always a large, difficult, deliver piece of content. We do more than just video, we really deliver anything, but videos were most people feel the pain.

We have several different peer assisted engines depending on the type of delivery we're talking about. If we're talking about a live event for example, we use one peer assisted delivery engine. If we're doing background delivery or push delivery or that kind of thing, we have a different engine in place that does that because there are different requirements for being successful in those types of deliveries. But in all cases, the delivery efficiency are driven by the ability to leverage peers and receives the content in order to satisfy the needs of other peers.

James Todd: Okay. Just so I have it clear, you said you use this technology for live events or no?

Fabian: Really, we have four different delivery mechanisms and three of them, leverage peering, one of that of course, and live events. Say for example, a CEO wants to be able to do a live town hall and have everybody in the company watching at the same time using your traditional, your live stream delivery mechanisms that would seemingly work, just find out on the Internet because how people are connected.

Those mechanisms will not work on corporate networks because you have nested connections and each one basically slower than the one for it and it wouldn't take very long and very many users, we're trying to watch that live before you totally cripple the corporate network.

The other mode of delivery we do is what you call background [00:04:00] delivery and push delivery and that scenario were actually sending someone a piece of content that they don't even know that they're receiving until the point in time where the reception is complete then we can announce, "Hey, you just receive this, if you care to view it." Now, the execution to that content is a local execution instead of over the net.

We use the net to get it to people, but the execution, the confidence is from the local device so therefore the quality can be much higher. Then we can leverage that delivery copy to get it to other people that are nearby, you know, they're peers.

James Todd: Okay.

Fabian: Those two of the four major deliveries, both of those use peer assisted.

James Todd: Okay. That's actually perfect because I kind of wanted to ... that was one of the things my topics that I was going to touch all my thesis is the possibility of live

events stream. You touched on it that some of the technology you use can be use for CEO town hall meetings, but I want to throw at a hypothetical issues since you use this technology, I just want to get your feel on it.

Recently the 2012 Olympics, the summer Olympics that was streamed on YouTube and it was streamed on other multimedia services. Pretty much, I just wanted to get an idea if you feel this technology maybe evolve to the point that one day, we could possibly see an event on that scale. Possibly be broadcasted on a peer-to-peer network, how do you feel about that?

Fabian: Well, there's a couple things that need to occur for peer assisted delivery. I need to be careful because when I talk about peer-to-peer, I think of that differently than say, a peer assisted delivery and I just want to make sure we quantify that. When I talk about peer-to-peer and I think when most people talk about peer-to-peer, they have the visions of things like Napster and Kazaa where users are sharing with other users. I think that's a very different model than a broadcast model which is I am a publisher and I want to be able to get this [00:06:00] to as many people as possible.

That model, we're really talking about peer assisted delivery, not necessarily peer-to-peer delivery. I know the fine line, but I think the understanding of that, it's important because in the peer assisted delivery model, the way we view at least is the end user really have little control over the mechanisms that bring those efficiencies and those deliveries to bear. Whereas in a peer-to-peer model, I have a lot of control as an end user or a publisher say of how things are distributed and who can get them and those kind of things. Is that makes sense?

James Todd: Yeah. Definitely does.

Fabian: Okay.

James Todd: It definitely makes sense.

Fabian: Having said all that, I guess the question is if I wanted to watch a live event or something that's being broadcast in a traditional sense over TV or satellite or Internet or something like that, is there a model in placed where that makes the use of peer assisted delivery viable? At number one and desirable, number two I guess, right? That cracks the question?

James Todd: Yeah.

Fabian: Yeah. Okay. I think there's a couple things that make that the answer yes or no and it really depends on a couple of things. I think number one, one of the things that the DVR has done to us socially is they've allowed us to watch TV shows on our

time, right? I may not be home every night for the prime time line up, but I want to watch three or four of those shows maybe. The DVR has given me the opportunity to store that stuff and watch it whenever I want to watch it and fast forward it, rewind it and all that other kind of stuff. That's very anti-live, right?

James Todd: Okay. Yeah.

Fabian: I think I'm personally not one of these type of people, but I think there's a lot of people who have no issues with recording sporting events and watching them later, right?

James Todd: Yeah.

Fabian: I know a lot of people do that, I'm just not one of them. If I can't watch it live, I'll just watch the highlights later [00:08:00]. The real question is in order to get efficiency using peer assisted delivery technologies; it really mathematically requires a large number of people be participating in the event at the same time, right? Particularly for live.

James Todd: Yeah.

Fabian: That those individuals be located on the Internet or on the network somewhere where helping each other makes more sense than not helping each other, right?

James Todd: Okay.

Fabian: If you and I for example, if I live in New York and you live in California, are we illegible peers? Well, mathematically we are, but does it make practical sense? Does it make, are we saving anything either on the Internet, on my connection at home or any of those kind of things by being able to say, "[Don't 00:08:49] both of you go to the server to get that stream, let's cut the server's utilization in half and therefore the provider's utilization in half by pushing that load off into the cloud somewhere allowing the ISP's deal with it."

When in fact, we probably transmitted more data than we needed to in order to both of us get that stream. Now, if there's a million viewers, that number starts to become more attractive because as you increase the number of recipients, they're likely proximity to each other from the Internet geography perspective, not from a physical geography, but from the way the Internet looks at topologies is far more likely.

If I've got a bunch of people in say, San Francisco and all of those people happen to be on Time Warner Cable. It might be the Time Warner's benefit to say, "Hey, all you guys should be sharing this so I don't have to pull through a peering note

coming from AT&T and coming from Cogent and coming from Global Crossing and XO and all these other providers because [00:10:00] that's what cause Time Warner money is having to pull lots and lots and lots of copies of the same thing.

You would think that the telco's or the ISP's would be all over this stuff saying, "Hey, I've got redundant feeds going into my network from other networks and I'm distributing those to all my end-users." It would be a lot more beneficial to me, the ISP if I can leverage peer assisted delivery in order to reduce my load and my cost of paying that content.

The argument against that if I'm in the sales department is we're billing a lot of these people based on usage. Now, I know the usage models have changed and now it's mostly all you can eat, buy more bandwidth, right? And it's flat rate so that flattens up the pricing a little bit, but at the end of the day, I as Time Warner and distributing the same number of bits and bytes to the individual users regardless of whether they're helping each other or not, right?

James Todd: Yeah.

Fabian: Where my load goes up is on my own network, if I have a million on my own network watching the live stream and I want one person that bring it into Time Warner and the other 999,000 plus to share with each other, I'm now in effect of ... in effect, if you do the math, I'm actually transmitting more data over the network to deliver to all those people than if I just would have delivered one copy to everybody.

I'm receiving one and I'm sending it to someone else. I'm actually using twice the bandwidth. From the telco's perspective, I think what they need to balance is do I derive enough savings at my head end, in my peering points, in my acquisition points to be able to justify the added utilization rates inside my own network? That's kind of the balance point and I'm not sure where some of these guys ... [00:12:00] I think you can get different answers from different ISP's.

James Todd: Yeah.

Fabian: For Verizon for example, has been very pro peering because you know, those kinds of things but other is not so much, right?

James Todd: Definitely.

Fabian: Because that also creates an imbalance in the peering arrangements between the ISP's. If one is starting to support peering obviously, their demand of my network is going to be much lower, but my demand of their network maybe much higher if the flow goes in the other direction and that creates an unbalanced peering

situation which then has some interesting ratifications in terms of what arrangements they have between ISP's.

Again, this all assume that we're all watching the same thing. What I think is going to happen more than likely over time and I think we're starting to see this is the Internet gives you ... and a lot of the cool publishing tools and the editing tools and things that are available really, practically of the shelf, it allows almost anyone who wants to create their own private TV channels, right out of their living room.

James Todd: Yes. I'm so glad you said that because this is a big thing. Not only does it enable people to watch content, it allows people to create it and over time, have a following, a cult following.

Fabian: I think YouTube is more than proven. Certainly, YouTube has probably been the leader in terms of magnitude and timing. I think YouTube and Face book [nothing's 00:13:27] have proven the desire at least or the ability of people who just create stuff and put it out there for people to watch, right?

James Todd: Definitely.

Fabian: Next logical progression of that is let's say for example, I created a YouTube, I published a YouTube video and for whatever reason it's widely successful, people love it. Not because it's one of those videos that I'm making a fool out myself on it, people watching because of that, but because for whatever reason, I have something to say that somebody finds interesting or it's a hobby that I'm talking about or whatever it is and people, they're "Hey, I kind of dig with this guy" and let's just say, "Let me subscribe to him [00:14:00]."

Eventually that turns into something called a channel because I have enough people asking me for content and want more of it so I'll create little YouTube channel and I'll start posting videos in it. People will just subscribe to them and watch them and that kind of thing.

At one point is that become a full blown specialty TV station. Now, let's said you've got Fabian's Christmas Light channel or whatever it is that I have to be into and can I charge descriptions for that, right? Because at some point, I'm doing this for free, I would imagine if I really like doing it for free, that's really cool job that allows me to spend all the time on the site creating this content like TV station, but at some point I'm going to have to monetized this.

James Todd: Yeah. Absolutely.

Fabian: So that point, I now became a full-pledged TV station interestingly enough without any of the barriers of the FCC places on traditional broadcasters and without any of the costs involved in establishing a TV station or cable channel or any of those kind of things. It's very, very interesting dynamic.

But how many people going to watch my station and how many things can people watch at once? I think as we now approach probably 500 plus satellite and cable TV channels if we have already crossed that boundary of VMA's, we don't have that many more viewers every day, but we seem to have more and more channels and more specialty channels, cooking, weather, sports. We've got how many sport channels now and we've actually taken the sports category and broken it up in the football, baseball, soccer and hockey. They each have their own channels, right?

James Todd: Yeah.

Fabian: Yet the number of eyeballs isn't dramatically increasing, is it?

James Todd: Yeah. It's not really.

Fabian: No? I would argue that over time, as people become more aligned to watching things that they are interested in as opposed to traditional [00:16:00] prime time TV or things that are [tunneled 0:16:03] to feel to more generic audiences. I think those channels pick up an activity and because they're being delivered over the Internet or do those types of mediums, the TV's are now able to get that stuff too. They're not just picking up cable and all fair broadcasting.

I think what's happening is we all are starting to watch less of the same thing. When I grew up, we had five, six channels so everybody pretty much watch one of five or six shows on Monday nights and that's kind of how it worked out. The opportunity for using peering and things like to reach a broad number of people would've made a lot more sense when you had millions and millions of people watching the same TV show.

I think that's still holds true because you brought up the Olympics and the case of the Olympics, really it wasn't one stream. It wasn't like go to the Olympics live stream and watch whatever it is you're broadcasting. They actually had multiple streams going out at once.

James Todd: Yeah. Because I think there were some for basketballs, some for hockey, and some for fencing.

Fabian: Right. When I grew up, again, the Olympics were something that we watch on one channel and you got to see whatever it is they selected you to see because they decided what was they're watching or maybe they're decisions are based on

what they perceived users would be interested in, whatever it is. Now, the Olympics is really ten different channels all going on at the same time.

It adds that dimension of fragmentation of what viewers are watching and those who really want to see it live, depending on where the Olympics are going on at that particular year while it's happening, you may be watching a tape-delay version of it. You may be staying up late to watch it live, who knows, right?

James Todd: Yeah.

Fabian: I think there's a lot of opportunistic type watching going on there that [00:18:00] may or may not lend itself to using their peer assisted delivery model for that type of delivery. I think there will always be some scaling advantage to using that technology for massively large events like that because numbers just makes sense.

I honestly think that over time, as the networks become faster and faster which there's more and more connection points to the Internet, the routers are getting faster, the networks themselves are getting faster. Is there going to be high-speed everywhere, is it going to be free like we were promised in the early 2000? No, I don't think so, but we're going to come pretty close.

There's always going to be people who can't get it and they still have satellite, they still have traditional broadcast television and stuff like that. I just don't know whether a peer assisted delivery makes a lot of sense in the long term for what we know call traditional broadcast television, not convinced.

James Todd: Yeah. Well, that's another thing. I actually wanted to talk on it because you actually brought it up. When people think about peer-to-peer, they think of ... you said Kazaa and Limewire. People, they share music, they share videos and files and stuff.

Fabian: Even stuff, right?

James Todd: Yeah. Pretty much, I guess my question was just ... and again, it's another hypothetical. I just want to get your opinion on it. Say that someone possibly they get this technology, they harness this technology to its full potential and now suddenly, we have a viable, peer-to-peer television station, television channel that's actually infiltrated television, the broadcast on rains and things of that nature.

Of course, with peer-to-peer, kind of rips its [ugly 00:19:43] head because a lot of people steal content. They steal music and they steal video. Now, is this something that you could see hurting? I guess the traditional television broadcast in terms of revenue and stuff like that where people stealing the content?

Fabian: Well, I'll be honest [00:20:00] with you. People have been stealing content forever.

James Todd: Forever. Yeah.

Fabian: When I grew up in the analogy, I tend to use what people's ... when I grew up, water was free and people paid for music and now it's almost seems backwards.

James Todd: Nice.

Fabian: People expect music to be free, but we pay gladly for water which is ironic. Even back in the early days, I think things like recordable media is what started this. Whether it was a track tapes, whether it's cassette, whether it was a recordable CD's, DVD's, whatever it is, there will always be someone stealing something.

Does that make it right? Absolutely not, right? It's still someone's intellectual property and I think at one point, some of these industries who in some cases are still operating in the dark ages in terms on their processes and stuff like that and the way they distribute content, RIA is a great example.

I think they're going to wise-up, there's a price point in which people won't steal stuff anymore and maybe you send them that way. But there will always be those that believe that it's okay to just copy stuff. Is that technology make that happen? I don't know. I think is the technology makes it easier? Sure, maybe, but you are predisposed to do that in the first place and people who want to steal something, they want to copy something, they're going to do it regardless of how difficult you make, they're going to overcome that. The technology is really a race.

Does anybody really prove conclusively that what Napster and Kazaa and those guys were allowing this to happen and not necessarily condoning, but simply allowing it to happen? Did that hurt the industries that claim to be affected by it anymore than they would have been if those technologies did not exist? I don't know, there's no way to know that for sure. Did that answer your question? I don't [00:22:00] know that ... the ability for two computers to communicate with each other have long existed.

The ability for us to create tools to facilitate those communications has got much, much better and those tools themselves have got much, much better. What people do with it is something that, it's really for moral question than anything else, right?

James Todd: Yeah. That's true.

Fabian: If people want to rip you off, they're going to rip you off, it's that simple. They may do it through non-traditional means. We've had people go into movie theaters with video cameras, it still happens today. I'm sure it does.

James Todd: Yeah. Very true.

Fabian: There's nothing to stop me from grabbing an iPhone and holding it up to my TV screen when I watch the DVD that I just bought then putting it out on the Internet. Why I would do that? I don't know. There are a million in one ways to copy something if I really want to and distribute it to others if I really want to. Simply blaming the technology for that I think really skirts around the bigger issues which are more moral and legal issues.

James Todd: I guess I just want to follow that up with a ... Could you see peer-to-peer technology? I don't know, maybe you touched on this already, possibly changing the revenue structure that is within the television broadcast industry today. How do you feel about that?

Fabian: Traditional media, and whether it's music, television, movies, they really have ... I hate to generalize, but I have to I guess in this case, they really have not fundamentally changed in their structure. They've done some creative things like for example, today you can go buy, let's say a movie on a DVD and it also comes of the PC version so you could take it with you. Then, in some ways, there's an interesting way of saying, "Hey, you've licensed this. Let me make it easier for you to watch on multiple medium" since opposed to try a copy which then gives you a not-so-literal license to distribute it, right?

They're trying [00:24:00]. They really are trying to be considerate to the licensees and the viewers and stuff like that and still maintain control over the content. Repeat the question one more time?

James Todd: Pretty much just with peer-to-peer it's a different technology than what would be used with, you know?

Fabian: I don't know if peer-to-peer is going to be the driving force. I think the ECE's in which content can be created and distributed on its own without peer-to-peer is efficient enough to change that model.

James Todd: Okay.

Fabian: I don't know that peer-to-peer or peer assisted delivery changes that dramatically. The desire is going to be there, the tools are going to be there and again, as long as the network itself continues to improve the way it has been then in the long term certainly for consumer-type content ... Again, my focus in [ignite 00:25:00]

is on the enterprise and the enterprise is not likely to change its ways anytime soon just because of the nature of how these networks are built.

In the case of the Internet where everyone is essentially plugged into the big magic cloud, how fast you want to go is strictly a financial question. It's really not a technical issue anymore for the most part. There's still pockets of areas where you're limited on what's available, what's not available, that kind of stuff.

I think that dynamics that are going to change this or not whether peer-to-peer is available to distribute this content, it's going to be how easy is it to produce and market.

James Todd: Okay. Actually, well, I'm thinking about it now. I wanted to ask you something about, you talked about peer-to-peer making it easy for people to create content. Do you think before it's all set and over, somebody will possibly a full-pledged, I guess television sitcom or a comedy show produced through this technology? Do you possibly see that happening? [00:26:00]

Fabian: It depends which mean by that. If you're talking about somebody going to create a sitcom because of peer-to-peer, no. I think the day will come where a group of people who are not on the same studio, are not on same city or even country, can collaborate because of the ability of the peer technology and produce that together.

James Todd: That's probably ... Yeah. I guess the way I asked that it came out wrong, but it just I guess instead of traditionally like creating out of a warehouse like CBS and ABC, how they do their stuff? Just more of harnessing that technology kind of taking it in.

Fabian: Yeah. We've seen examples of that. We know that even those records are produce that way where rhythm tracks are produce in Nashville, electronic versions of those tracks are sent to New York and somebody lays down a base track and then they send those tracks to Hollywood and somebody lays down a couple of guitarist. We've seen that happen already, the collaboration is in fact happening.

Is it happening with movies? Yeah. It's probably happening to some extent it's not as easy because of the nature and the magnitude of the amount of data we're talking about with full scale movies, but it's happening and it will continue to happen.

I think it's pretty interesting because the traditional model for creating content involved, everybody being in a room at the same time. We had things in the case of music, you have the studio obviously, but when you talk about TV and movies, you had story boards and writers that all get together in a room and you see the

classic model here where they all get together and they try to create something and they throw ideas out on the wall and they modify story boards and all that stuff.

The ability to interact electronically over the Internet now means I don't have to be in the same room with you to create that stuff and the tool is just going to get better and better and better for us to have this a virtual electronic storyboard where I can draw something here locally, show it up there, show with the people and they can [00:28:00]modify and tweak and we can interact in real time.

Again, will this happen with groups of thousands of people? No, because I don't think you can ever put a thousand people in a room and accomplish it anyway. If you're talking about building teams of 5, 10, 50, maybe even a hundred people where they're collaborating on something, really what you're doing is you're just physically ... you're eliminating the need for them to be physically present with each other using peer-to-peer technologies for them to collaborate just like they were together.

That, I think is going to happen more and more and more not only in entertainment, but a lot more in business in general where back in the old days, I used to fly back and forth between New York and California to get stuff done, now I don't have to get out of plane anymore. That, I think is where peer-to-peer on the production side is going to have a tremendous effect, not so much on the distribution.

James Todd: Okay. Well, Mr. Fabian, I want to thank you because this is actually my first piece of data. I've been just ripping and running, trying to get in contact with people and you were actually the first person that is actually taken a little bit of their time to kind of assist me with this so I really ...

Fabian: No, No problem. Let me know how things are progressing and if you have any question by any means, by all means, let me know. I love to see what the output looks like.

James Todd: Yeah. Absolutely. I guess as you probably already know, this will be use in my thesis. I will quote you. I just want to make sure I have your permission to use it.

Fabian: Yeah. Absolutely. That's fine. I'd like your review copy, if that's okay?

James Todd: Absolutely. That's not a problem at all. All right. Well, I really appreciate, I'll definitely be in touch, okay?

Fabian: That'd be awesome. Thanks.

James Todd: You have a great rest of the day.

Fabian: You too. Bye-bye.

James Todd: Bye.

Digital Expert

East Coast Major Market Television Station

James: Very nice. All right, so you are putting a lot of digital stuff with NBC, correct?

Digital Expert: Yes. Digital entity, not stuff.

James: Okay. Like Lydia may have told you, I'm doing a thesis on peer-to-peer Internet television, and I'm doing it on whether or not it could be a benefit or harm to traditional broadcasters such as NBC, ABC, and channels of that nature. I guess, the first question-

Digital Expert: What exactly ... What's the thesis of this? What's your hypothesis of everything?
[00:02:00]

James: The hypothesis for me is pretty much ... You know, peer-to-peer is used primarily for, I guess I want to say illegal use, in terms of reciprocating video, broadcast content, stuff like that. What I'm looking for, more or less, is to see if ... I guess pretty much to just see if this is something that can actually stand up and be something regularly used on more of a mainstay structure, pretty much. It's where my thesis comes down to.

Digital Expert: Okay, yeah. There's obviously a lot of different issues that go into it. Like, I'm more on the news side, so from a news perspective, we're kind of doing a lot of peer-to-peer, if you really think about it, anywhere. We're taking the links to our stories on our videos, we're putting it on the Facebooks and the Twitters and Google+. You're [inaudible 00:02:58] share photos through Instagram and things like that. Where that is basically, we're taking our users and [inaudible 00:03:07] giving it to them what your will on that.

James: Okay.

Digital Expert: Work on that story, there might be an ad on there, things like that, but the story that made some level of advertising dollar on it but you're basically promoting your brand without the middle man. You're basically promoting your brand directly to the consumer. There's no TV, there's no nothing else. Then people share links with one another, too, when they email a link. Like, to see, okay, X amount of traffic to the stores into e-apps. Let's say 10%, 15%, whatever might be, you can see those things and you know that that is peer-to-peer directly.

From that perspective, it is changing. For secular TV, it's a different situation because TV costs money. You have to give a lot of production costs. The average TV show, you're talking of hundreds of thousands of dollars per episode and that's a low-end estimate [00:04:00]. There's a reason why reality TV is so popular -- because it's cheap to make.

James: Yeah, exactly.

Digital Expert: There are issues because when you go peer-to-peer you're obviously not seeing advertising and things like that. But at the same time, on demand, argumentatively, you're not seeing the ads early either, because you're skipping through them. Or if you are, not on demand, but if you do DVR, like direct video and things like that. I think that there's a challenge of the media entity to figure out how to do that. I think, if you look at something like what HBO does, there's a lot of ... I think, the future of what HBO does -- you watch a show [inaudible 00:04:41] big love, whenever they got in the car, they would scan slowly across the GMC logo, and I guarantee that General Motors paid a pretty good penny to have that embedded advertising.

James: Yeah. Absolutely.

Digital Expert: A classic show back in the day, it's a show called Step by Step [inaudible 00:05:02] on Friday night. So like Family Matters and shows like that and in that show they would drink Mello Yello every single time [crosstalk 00:05:12] anything. Including breakfast, there would be Mello Yello on the table, and I guarantee you that those things were [inaudible 00:05:17] bucks. So this isn't a new idea. I just think that now, without having the cash cow of everyone having a lot of those commercials and everything else, there's challenges to get [posed 00:05:28]. Obviously, the Internet makes those challenges even more.

James: Yeah, absolutely. Okay. If you don't mind, I was going to ask you a couple of questions and I guess we can go off each other if that's okay.

Digital Expert: Yeah, that's fine.

James: Okay. You said you work a lot with the news, but one of my main questions I wanted to ask you dealt with just the reproduction of illegal content. Well, not illegal content but just of content in general [00:06:00], and I guess a prime example of this, I'm thinking of large events such as the Superbowl and the Summer Olympics, for example, because it was predominantly shown on NBC but also it was streamed on YouTube and other streaming websites. I guess my question around all of this is do you think that, in regards to peer-to-peer, you think one day that the Superbowl, or maybe just a large-scale event, could possibly be streamed on this technology?

Digital Expert: This is [inaudible 00:06:36] if you have someone 20 years ago that they thought that TV, when the Internet was just coming around, that they thought the TV would be run through the Internet they call you crazy.

James: Yeah.

Digital Expert: Everything I say most likely it's going to be considered crazy but we learn more. We stream our news, for example, which is our [inaudible 00:06:57] this is a live event [inaudible 00:06:59] this isn't street-produced you know. There could be no commercials if it's big news there [inaudible 00:07:05] tragedy or there's something [inaudible 00:07:09] we want to get people [inaudible 00:07:09] immediately. There's a live aspect to that and we give it away for free on the Internet with no ads running on the Internet stream, so we're basically eliminating the peer-to-peer aspect. We're saying, "Here, you can have it."

I think that the peer-to-peer ... There is some of that out there because, for example, channelsurfer.com is all about the stolen ... I used to visit my friend in Atlanta, Georgia. We watched Philly's game live peer-to-peer through that, but we were watching with the [inaudible 00:07:45]. That's the one thing that you have to add the advantage of these live events like the Superbowl is that there's ... even if people are stealing a stream or with the Olympic [inaudible 00:07:57]. I watched a lot of the 2010 Summer Olympics through Canadian TVs website [00:08:00].

James: Okay.

Digital Expert: That's because there's the filters because I was covering it for NBC on the local end and I needed to [inaudible 00:08:07] these athletes were doing. But the filters were so difficult, and it wasn't full streaming at NBC. NBC buys the 2012 Summer Olympics and literally streamed everything.

James: Yeah.

Digital Expert: Sometimes it had announcers, whatever it was, but you could watch everything as it was happening. If you wanted to get up in 3:00 in the morning, you could watch [inaudible 00:08:27]. You could watch all these events that are kind of [inaudible 00:08:33] show in this upcoming winter games it's going to be the same. You'd be able to watch everything and probably more with announcers because the BBC showed how you can do it because they had ... if there was, for example like a sport like [fringe 00:08:47] sport, like let's say bay surfing. They had wind surfing experts that might not normally be announcers but they have them do the announcing just for the event.

So peer-to-peer, that's where I think, if companies don't catch up with that and they're just showing the content without really having analysis and things like that. I think peer-to-peer, someone could slow in and basically live announce these events as they're coming through. We're going to get the stream almost immediately and send it out with a slight delay and that could be the future for those types of events, if companies don't do enough to actually give analysis and have experts and things like that during the actual broadcast.

James: Okay, so actually, a side question to that as well, and I think you may have answered this already but you did say that a person could sweep in with this technology and ultimately make it better. Something that could possibly challenge, if the networks don't properly use it. Do you see this as something that a broadcast network, such as NBC, could use to their benefit or do you think, ultimately, it could do them harm?

Digital Expert: Absolutely! I think the 2012 Summer Olympics from that perspective and last year, I went, for example, at the Online News Association Conference [00:10:00], which I went to in San Francisco last year. There were entire sessions about the [contest 00:10:03] specifically and, depending on who you ask, some people thought it was the best coverage ever and some people thought it was the worst. But if the companies [don't want to pay 00:10:12] billions of dollars to broadcast something, and NBC basically had the exclusive rights to video of the Winter Olympics and everything else so I don't even want to project their investment. If you [inaudible 00:10:27] okay, yeah, we're the big dog. No one can do it like we can. But I don't think companies have that luxury anymore.

In 2012, the BBC, NBC, [CTV 00:10:37], all these companies from big countries, and big Olympic countries that care about the Olympics changed how they did it. They started saying we can't just assume that people are going to get this otherwise. We need to give it to them in a way that they're going to consume it. [Inaudible 00:10:50] companies, they need to adapt almost before even ... Obviously, the techies and everything [inaudible 00:10:59] that first but they need to be able to adapt and be able to respond before the average user realizes what they want or don't want.

That's going to be the key for this. I do think that there's going to be some peer-to-peer and I think it's going to be more though companies are to be able to produce these days and give them to your shows seamlessly and so easily that people won't want to go to the peer-to-peer.

James: Got you.

Digital Expert: It's almost like people still go to Starbucks even though they might not be the best [inaudible 00:11:30] so they know, no matter where they go, [inaudible 00:11:32] yet. That's what these companies need to do, and the pieces of the pie are shrinking but that doesn't mean that you can't take a big piece of that pie once people want it.

James: Very true. Very true. I'm trying to think. What else? Advertising was something that was very big. Peer-to-peer, for example, I know that when I watch ... I'll watch TV on my television. Sometimes I may be away, watching a peer-to-peer

site on my laptop. You have spoken about this before, when you guys [00:12:00] do news piece on the Internet, when you put it on there, there is no form of advertisement. But-

Digital Expert: I said there's no stream of advertising, it's just that there's no like, embedded ads right now but if you watch a video that we've loaded to a website, there's normally pre roll ads, even on YouTube now, pre roll ads is obviously coming. That's it. [Inaudible 00:12:24] If you watch TVs ... Look at what TV networks are delivering shows on the Internet. I'm a big Amazing Race fan on CBS.

James: Okay.

Digital Expert: So a lot of times I might miss it [inaudible 00:12:37] I try to DVR it, but if there's football, it might get completely knocked out by an hour on the DVR and I didn't get to watch it so now I'm really stuck. Okay, how do I watch this episode? Well, they give it to you online, but the problem is they're giving it to me maybe a week later, because they're protect their entity, and they're [inaudible 00:12:58]. So the user assumes the ads and just knows, "Okay, so here comes an ad," and a lot of times, the companies are even showing you where the ad break is. If you watch online, there's a little dot where the ad break is, and if you try to skip ahead of that dot, it will show you the ad that you missed.

James: Yeah.

Digital Expert: So I think companies are getting there. They aren't quite there yet but I really do think that the embedded advertising, which a lot of shows like the Amazing Race have, anyway. Oh, Ford Focus, that you have jump in their Ford Focus and [inaudible 00:13:29] live systems, whatever their version of On Star is to get to the next place. There's a lot of those things anyway and I think that more and more we're going to revert back to where we were in the 50s and 60s. You're going to watch a news program sponsored by [inaudible 00:13:51], you know? There won't be Laramie Cigarettes, but I just think of the Simpsons when they make fun of old advertising. They had one episode where Lisa Simpson wins the Ms. Rachel contest sponsored by Laramie Cigarettes [00:14:00] and she had to smoke cigarettes as part of her Little Ms. Springfield agreement.

James: Yeah.

Digital Expert: There's more and more going to be that aspect, which is an old idea. That's not a new idea, that's an old idea.

James: Yeah.

Digital Expert: There's got to be a balance, and I don't think that these mega-companies are going anywhere. If they were, we would see ... I think we'd see some consolidation. Like the CW [inaudible 00:14:26] and some other things. But, otherwise, their strength [inaudible 00:14:31] and you have to have really strong [inaudible 00:14:34] as funny as it is, there's less probably quality starting programming but there's better quality [sticking 00:14:42] programming. Like a lot of times pilots are pretty bad right now because there's just so many places where a pilot can air. But once a show sticks, there were very few [inaudible 00:14:52]. There's very few shows that [inaudible 00:14:56] terrible.

James: Okay. So you said embedded and product placement advertisements, but one thing I want to ask you, and maybe this is something that broadcast companies channels they may not do. Do you think that one day they may adapt a side banner advertisement type of model, in relation to that.

Digital Expert: I think there is some precedence for that. Ideal would be like when you go to a stadium. Even on the scoreboard, they have it surrounded by ads.

James: Yeah.

Digital Expert: If you go to peer-to-peer sites a lot of times, you will see ... You know?

James: Yeah, that was what I was trying to get to because I know that's when-

Digital Expert: [crosstalk 00:15:38] Google ad or whatever it might be. So I think that there's that much lack of presence. I think, right now, there's concern over abusing the product, so to speak, in that, "Okay, we're lower surge ad," and things like that. Lower surge because if you're CNN [inaudible 00:15:58] 24-hour news cycles so [00:16:00] so it's lower surge have become views, the information. So I think to then switch that to an ad would be questionable. But if you look at [East Ghana 00:16:10], we also know that there's a lower surge now sponsored by Gatorade.

James: Yeah.

Digital Expert: You will see that occasionally. So I think that there is some of that, but you could be on a computer and have your screen that you're watching be completely free of the ads but then have surrounding boxes. Like CBS with their NBA coverage this year. You're watching in a box that had advertising ... I want to say it's Chevrolet but I'm not positive, across the top. There's the banner ads right across the top. Yeah, you could watch in full screen and things like that. But then in full screen you might have, during the commercial break have it bumped back and out of full screen. There's a lot of things technology-wise that they can do that the user will be inundated be ads and almost not even notice it.

I think of [inaudible 00:17:02] if you watch golf. It's like, "Oh, there's beautiful, green, lush fields and everything else but every single player has logos all over his whole body [crosstalk 00:17:10] advertise on his body." I think that we're coming to a point where I think seeing the next 10 to 15 years, I'd say that [inaudible 00:17:18] adaptable, but one of the American sports teams could be wearing advertisements on their jerseys instead of it now. Like what they do in European soccer; I think that's coming. When that comes, the [inaudible 00:17:35].

James: Yeah, because I know right now the WNBA, they do it too. They've gone to a format where they have advertisement on their jerseys as well so you're definitely not off. It's coming. It definitely is.

Digital Expert: Yeah.

James: I wanted to ask you about the illegal side of peer-to-peer. Now, I guess just with the [00:18:00] reproduction or the replayment of broadcast events and news and stuff like that on peer-to-peer networks. That's obviously something big, and it's a main draw, that's why people sometimes watch it because they don't have to pay for it and they know it's always there. Is this something that negatively affects broadcast channels? Or they really don't? They don't pay it much mind, in terms of people viewing their content?

Digital Expert: [crosstalk 00:18:23] Let's go back to sports, for example, boxing has almost killed its own sport by making it all pay to watch, even on TV. Now UFC's going through the same thing, too. With UFC, you can't even, if you're covering ESPN or Fox Sportsnet or NBC Sportsnet, they want to cover a UFC fight for Sunday morning after, they can't even show video of the actual knockout. All these companies have all these different rules of what they think they can basically own and at some point, the people are going to [inaudible 00:19:00] you can't assume, like, people are watching right now a heavyweight bout that might cost \$49.95 to watch when it's airing. So the next day, find some peer-to-peer to watch that Pacquiao bout or watch that next WWF Summerslam or whatever it might be.

They're finding ways around that as it is. If people continue to find ways around it, and be illegal or not, and if it's difficult for these companies, like they can legally go after people but the rigmarole of it all is difficult and you would really need to talk to a lawyer to get a good grasp of what that legal rigmarole is. But if not, [inaudible 00:19:42] where the aspect of trying to find these people, cease and desist order, and everything else, who's really making any money off of it?

James: That's true.

Digital Expert: You have to assume ... there used to be 100% to 100% of your product for you [00:20:00]. You have to now assume that you'll lose some of it, be that right or

wrong, and I think it's a challenge for the leading entities to figure out where the balance is, you know? How much do you give away? [inaudible 00:20:12] probably they should give [inaudible 00:20:15] Norway, but it's difficult when it's in another time zone, you know? When do you let people show the video? How long can they show the video? The NFL has weird rules when it comes to showing video online that even a few of the news entities shoot your own video. You can only have it on your website for 24 hours, period. You go beyond that, they'll send you a cease and desist order and they can also charge you for [inaudible 00:20:35], even though you shot the video yourself, it could be 100% shot yourself in a locker room, not even of game action, and the NFL owns it.

There's going to [inaudible 00:20:47] backlash because the NFL over it [inaudible 00:20:50] backlash [inaudible 00:20:53] things like that. But at the same time, the people will understand that someone's trying to make money off of this stuff so there has to be some level of balance, and media entities, including NBC, pay millions of dollars to air football games so they need to protect. A lot of these organizations, especially the NFL, will go and almost over-do it, realizing that by overdo-ing it, they're protecting what [inaudible 00:21:18].

James: Got you. Okay. I guess my last-

Digital Expert: And also promoting the No Fun League aspect of it.

James: Yeah, that's true. I just have one more question and it just deals with content, revolving around peer-to-peer. When people think of peer-to-peer they think of peer casting and just putting themselves out there, whether it's their own content or other content. So pretty much, since you work for NBC dealing with digital entities, would it be possible, say, 5 or 10 years down the line, for peer-to-peer to actually have a substantial television program that can actually [00:22:00] ... I don't want to say, well, it could benefit or harm broadcasters. I'm trying to find ways to-

Digital Expert: I don't really know if I'm able to speak on the benefit or harm aspect of it.

James: Okay.

Digital Expert: And also, you know, it's not my forte to predict 10, 15 years down the line. It would be purely opinion, but I view it 10, 15 years ago, look at public access channels, especially in New York [inaudible 00:22:28] how many public access channels are there, where people could pay to show whatever the hell they wanted, pretty much.

James: Yeah.

Digital Expert: Peers, or whoever else wants to watch. I don't think there's a [inaudible 00:22:40] I think that the idea of the FCC that, you know, these broadcasting licenses carry with them certain regular responsibilities that you need to ... they kind of need to, we need to figure out what you are, how you are ... you kind of have to have a public service with you and all these other things. I think that's going to continue and maybe how that continues in the future is that stations get more of an opportunity through 3rd, 4th, 5th, 7th, 12th digital channels, which you know are going to be coming.

James: Yeah.

Digital Expert: With the advancement of high speed Internet and high speed LAN and everything else that is out there, you know? That you can now download [inaudible 00:23:30] mere seconds, minutes, through peer-to-peer and other things that [inaudible 00:23:36] going to be more of an offer from the licensing aspect of being there for the public good of making these entities more user-generated and user friendly. But that's just my opinion of where I think it's going, and I think that you have 12 people in the business and they all have 12 different opinions on it [00:24:00].

James: Okay. Yeah, I definitely don't want to get you in trouble. Didn't mean to do that.

Digital Expert: No. I don't feel like ... like I said, it's not really my forte so it's more just an opinion or anything else with that because I'm not in the day-to-day meetings where they're talking about that. [inaudible 00:24:16] the threat of it is obvious but, at the same time, there's also opportunity there and I think that, as you can see from what is being done -- the Olympics being a prime example -- of giving the content basically making the content available to everyone as they want it, you know? Almost 100% [inaudible 00:24:34] online but also ... What's funny is that NBC had a record, if I remember correctly a new record for record viewership on air for events that have already happened because people still want to see it in the comfort.

The one thing that computers haven't done, and people are still buying flat-screen TVs out the wazoo, people are still paying for cable TV, they're still hooked up to all these things, and I think that that's not going to necessarily go away, and maybe it will run through your computer instead of through cable that we'll only have one box, so to speak.

James: Yeah.

Digital Expert: But people want to be able to cuddle up and turn the TV and have a wonderful experience, and I don't think that's going anywhere. There's still ... people still go to the movies because they still want to see guys blowing stuff up on 90, 180-inch screen [crosstalk 00:25:25]. There's still an aspect, [inaudible 00:25:31] with your

girlfriend or boyfriend or your kids to go into a movie theater to be amongst the community and I don't think that's going anywhere. That's where I think peer-to-peer might go in, but I don't think that that's going to disappear while peer-to-peer flows in. I think that they might just work off of each other.

James: Okay. All right, I really appreciate you taking the time out to help me with this.

Digital Expert: No problem