Strategy for Parallel Platforms

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Abstract
The paper examines the strategic dimensions that are unique to the parallel platform, a market made up of multiple platform products or services as a set, a product system made up of multiple ecosystems, by way of a series of case studies. The examination leads to the following five areas of strategic point: (1) the management of network effects, (2) the management of profitability differences, (3) the management of multi-homing, (4) the commercialization management of product combining two platform products, and (5) the management of connecting platforms.

Keywords
Two-sided platforms, Parallel platforms, Connecting platforms, Multi-homing

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I. Introduction

This article aims to propose a new viewpoint to discuss the strategic issues that are unique to a platform (PF) product market built based on the premise of having not only a company’s own internal products but also complementary products from elsewhere. The following approaches have already been proposed in examining this field: The theory of two-sided platforms focuses on the management of network effects between players (complementary-products manufacturers and consumers) who have a stake in PFs (Rochet and Tirole, 2003, 2008; Caillaud and Jullien, 2003; Eisenmann, Parker, and Van Alstyne, 2006; Hagiu, 2008; Hagiu and Yoffie, 2009).

The two-sided platforms concept is different from the traditional concept of the value chain or the supply chain in delivering the products and services to customers (final consumers). The value chain concept captures the activities of the companies that provide customers with products and services as a series of steps such as procurement / development / manufacturing / sales / service and each steps add value and cost, then accumulated value reach to the final consumers. On the other hand, the theory of two-side platforms assumes that the consumer select platform products and complementary products, and use them as a set. From the difference of these structures, in the PF product, the focus on the management have been placed at the point that how they could develop an eco-system built around their own PFs, and how they could draw firms producing complementary products or services into their PFs.

Gawer and Cusumano (2002), Iansiti and Levin (2004), and Evans & Schmalensee (2010) examine areas of management in which the manufacturer of the product at the core of the ecosystem (the PF provider) has to concentrate in order to ensure the development of the whole ecosystem. Adner (2006) considers risk management for an innovation ecosystem (collaboration among multiple firms in which they all contribute what they have in order to create a single solution for a customer). However, these preceding discussions seem to implicitly agree that in fact what needs to be examined is the management of ecosystem1 centering on “one” platform product.

In contrast, this article examines the strategic viewpoints that are unique to a product system made up of multiple platform products or services. This discussion relates to the nature of the market that was born when the Internet came into being, and

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1 In this article, the ecosystem is defined as a system of products consisting of PF manufacturers and complementary products manufacturers (some scholars would include consumers in the ecosystem).
because of the recent development of products like electronic books and music downloads, it is now even more important to examine these issues.

II. Parallel platform market

The theory of two-sided platforms is based on the management of network effects between at least two sides of multiple interacting groups (player groups). In contrast, the parallel platform market that this article proposes is a concept for examining a market in which the two-sided platforms are paired. More precisely, the parallel platform market is defined as a market in which the supply platform of complementary products (including contents) and the user platform of complementary products are mediated by a common platform (an inter-PF interface with a certain configuration and specifications; a connecting platform) and exist as a parallel set. Here, parallel means that the supply from the former is conditional on the latter’s use. Furthermore, this definition does not imply that the supply platform and the user platform have to form a one-to-one relationship. It is possible to have a combination of multiple supply platforms and one user platform, one supply platform and multiple user platforms or multiple supply platforms and multiple user platforms. Each of the platforms on the side of the content provider and of the user also constitutes a two-sided platform market.

2 The term parallel platform was first proposed in (Negoro and Kamaike, 2010a).

3 A platform has the media and infrastructure functions. The media function includes functions such as facilitating different users to meet on the platform and mediating communication and transactions between players. The infrastructure function refers to the function the platform provides to complementary products so that the users can use the complementary products along with the platform. The theory of two-sided platforms focuses on the former as the platform function. The theory of parallel platforms takes both into account.
In the electronic book and music download markets, the communication networks and file specifications serve as an inter-PF interface (connecting platform) to connect the platform of the content provider and the platform (hardware) used for replaying and viewing, creating a parallel platform market. The scope of this theory encompasses the software industry as well. For example, the theory of parallel platforms can be applied to a market in which the web server (software used by content providers) and the web browser (software used by content viewers) are paired as a set, such as the streaming media market or the internet application market.

III. The first case study of the parallel platform market: Web server + web browser market

1. The structure of parallel platforms in the market combining web server and web browser

Below, we analyze the strategy pursued by Microsoft as it successfully took over the market share from Netscape Communications, which had the early success in the browser market, to become the market leader.

A web browser is an application for viewing content contained on the World Wide Web. The prototype of the browsers which are widely used now was the software called “Mosaic” which was developed by a team led by Marc Andreesen, who was still an undergraduate student at the University of Illinois at that time, based in the National

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4 This section summarizes Negoro and Kamaike (2010a) on the web server + web browser market.
Center for Supercomputing Applications in the US.

The contents of the web, written in a language called Hypertext Markup Language (HTML), are called web pages. In order to provide content written in HTML on the web, one needs a server product (software) called a web server.

The web server to provide contents on the web and the web browser to view the content can be viewed as a set product: one from the server (content provider) and the other from the client (content user). Together they therefore form the structure of a parallel platform.

The parallel platform market structure includes the web server to provide content on the server side and the web browser to view the content on the client side, with HTML serving as the connecting platform. Furthermore, the platform on the server side constitutes a platform in itself, with the content provider and the web content to each side. The platform on the browser side has the web content and the content viewer on each side. The graphical representation of the parallel platform structure of the market combining web server and web browser described is shown in Figure 2.  

When the market is constituted with software on the server-side and on the client-side, the connecting platform refers to technical configuration such as file specification. In the case of electronic books and music download markets, the communication network serves as the connecting platform linking the contents provider's platform and the user's platform (hardware).
2. Overview of Netscape and its business model

Marc Andreessen, who led the development of Mosaic, founded Netscape with Jim Clark on April 4, 1994. Netscape earned as much as $500 million within four years of its foundation, and its growth attracted descriptions such as the fastest-growing software company in history (Cusumano and Yoffie, 1998).

Netscape achieved fame when it released the web browser Netscape Navigator (hereafter, NN) in December 1994. NN was essentially a successor web browser to Mosaic and was the first-ever commercial web browser (till then, only non-profit software was available, including Mosaic). As soon as it was released, NN expanded its market share greatly, to about 90% at one point (Cusumano and Yoffie, 1998).

While NN ruled the market for a period, its dominance did not last long, because Microsoft, led by Bill Gates, released its own web browser, Internet Explorer (IE), to compete with NN in June 1995 after it sensed the growth potential of the Internet. As shown below, IE caught up with NN and managed to reverse their positions in terms of market share.6

After defeat by Microsoft in this browser competition (the so called first browser war), Netscape was acquired by America Online (AOL), an internet service provider, in November 1998. Netscape continued to release web browsers but with the release of NV version 9 in February 2008, all development activities ceased and the history of the web browser called Netscape came to an end (its legacy was passed onto the Mozilla project). While it is outside the scope of this article, there is the second browser war on the
According to Cusumano and Yoffie (1998), the actual proportion of browser sales exceeded expectations. Netscape achieved sales of $80 million in the first year, of which 60% came from browser-related software and 40% from server-related software. However, based on the fact that 66% of sales came from server products in 1998 (according to Netscape’s 1998 annual report) suggests that the principle to achieve profits from the server products had been maintained.

3. Competition between Microsoft and Netscape

In this section, we review the chronology of the competition between Microsoft and Netscape in the combined market of web server and web browser.

It was December 1994 when Netscape released the web browser NN and a suite of web server software. It was August 1995 when Microsoft, the competitor, entered the market by releasing IE. Therefore, Netscape was practically the only player in the market in the first half of 1995.

At this point (“Period 1”), although Windows and MS-DOS had 90% share of the client’s OS, NN that operated on them had 60% share. There was no other commercial software which could compete with Netscape at this point to hinder its market share expansion.

It is well known that Microsoft was slow to initiate their effort with the Internet. Bill Gates said he used the Internet for the first time in October 1993, quite a while after the release of Mosaic at the beginning of the year (Wallace, 1997). As a company, Microsoft was much slower to get started with the Internet. Rob Glaser, a then-employee of Microsoft who went on to found RealNetworks, said that this was because Microsoft was concentrating on the development of Windows 95 (Wallace, 1997).

Microsoft released IE 1.0 as part of Windows 95 Plus! in August 1995, eight months after the release of NN 1.0. This marked the beginning of the first browser war between Netscape and Microsoft.

Within three months, in November 1995, Microsoft released IE 2.0. This shows that Microsoft had begun to pour effort into the Internet and IE. In addition, at the “Internet Strategy Day” event on December 7, 1995, Bill Gates publicly announced that Microsoft would focus on the Internet. This was a gigantic change in direction for browser market share going on due to the development of the mobile phones and tablet devices.
Microsoft. 7

“Period 2” covers the time between the first release of IE (August 1995) and the release of the web server product Internet Information Service (IIS) in February 1996. During this period, Microsoft did not supply products to both sides of the parallel platform, providing only the web browser (providing for only one side). Therefore, this period can be described as one in which Microsoft, which was focusing on one-half of the platform (the web browser), was competing with Netscape, which had adopted a product configuration for a parallel platform.

During this period, Microsoft’s Windows had already acquired 90% of the (client) OS market. Microsoft planned to make the most of its dominance in the OS market by adopting an envelopment strategy, treating web browser software as a one-sided platform, in the form of product bundles.

However, IE only managed to acquire 3% of the market share as of February 1996. This share was probably achieved by envelopment effects based on Windows’ dominance in the OS market, but its effects did not appear to be significant. This fact refutes the popular conception that IE beat NN because of being bundled with Windows as a client OS.

Microsoft released IIS in February 1996 and IE 3.0 in August the same year, and IIS 3.0 in December. Netscape responded by releasing NN 3.0 in August. “Period 3” covers the timeframe from when Microsoft released IIS (February 1996) to the second half of 1996, when all these developments took place.

By releasing IIS, Microsoft started to supply products to both sides of the parallel platform, just like Netscape did.

A closer examination of records reveals that IE 3.0 acquired a reputation of being neck and neck with NN in terms of functionality. IE’s share started to expand considerably when IE 3.0, the version whose functionally had caught up with NN, came to the market.

The market situation in Period 3 can be illustrated as follows. The diagram is based on the graphical representation of the parallel platform market, which has already been shown in Figure 2 above, annotated with the release or announcement date of each product or update as well as the market shares at various points of each product as far as this information was available.

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7 Cusumano and Yoffie (1998)
IE’s market share as of August 1996 was 8% (Zona Research, 1999). This share was larger than that in Period 2, but because NN’s share had also grown from 74% to 83% (Zona Research, 1999), it was hardly a case of IE catching up with NN.

Netscape also had a large share in the web server market at that time; there is data that suggests it had an 80% share.⁸

In October 1997, Microsoft released IE 4.0; Netscape released NN 4.0 in June. In “Period 4” (the second half of 1997), IE’s share had grown enormously compared to Period 3; as of September 1997, IE’s share was 36% and NN’s 62% (Zona Research, 1999). It can be argued that this was achieved because IE 3.0 managed to catch up with NN in terms of product functionality as well as sticking to its envelopment strategy of working on both sides of the parallel platform by providing IIS and IE with the Windows OS in the form of free bundled software.

As for the web server market, although there are no detailed figures on the distribution of market share, there is data that suggests that Netscape products were at the top in terms of market share at this point.⁹

“Period 5” covers the second half of 1998. IE’s market share continued to expand, reaching 45% in July 1998. In contrast, NN’s share dropped to 54% (both figures

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⁸ Cusumano and Yoffie (1998)
⁹ Cusumano and Yoffie (1998)
According to Zona Research, 1999; thus, the difference between the two had shrunk to 9%.

Around the end of 1998, IE finally outperformed NN in terms of market share, and its share continued to expand. From then till now, IE has maintained its position as the market leader.

Above, we have traced the chronology using data of NN’s and IE’s market shares. The changes in market share from December 1994 till December 1998, the period on which this article focuses, are illustrated in Figure 4.

After it was first released in December 1994, NN’s market share grew smoothly. It peaked in April 1996, and since then has been on the downward slope, starting to drop more rapidly when IE 3.0 was released in August 1996.

Meanwhile, IE 1.0 was released in August 1995. Although its market share grew gradually, it remained less than 10% until IE 3.0 was released in August 1996. Figure 4 shows the expansion of IE’s market share following the release of IE 3.0, which is said to have caught up with NN in terms of functionality.

IE’s market share has continued to expand since then, while NN’s share has kept shrinking. It led to the reverse of their positions in late 1998, and the difference between the two has kept on growing since then.
4. Microsoft’s strategy

The strategy Microsoft adopted in this case study can be summed up as follows.

[The first phase (from August 1995 to February 1996)] Enveloping one side of the platform

When Microsoft released the first version of IE in August 1995, it only supplied a web browser product (IE), and therefore competition took place on just one side of the parallel platform. At this point, Microsoft adopted an adjoining layer-bundling strategy of (envelopment strategy), making use of its dominance in client-side OS (Windows). Netscape, which Microsoft was challenging, was supplying products to both sides of the parallel platform, in a clear contrast with Microsoft.

The strategy to bundle adjoining layers is a concept proposed by Kato (2009) and Negoro and Kato (2010) who expanded the platform envelopment strategy proposed by Eisenmann, Parker, and Van Alstyne (2011). It is a strategy for expanding product market share in which a firm bundles a product, which is facing stiff competition with other, with adjoining products (in either the upper or the lower layer) to make the firm’s product more readily available. The firm may also set the price for the products in the competition layer below cost or achieve functional improvement by bundling a few products. While Eisenmann, Parker, and Van Alstyne (2011) only discuss “envelopment

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10 Source: Compiled by the authors based on the following: Zona Research(1999); UUIC(1998); WebSideStory(2001); Cusumano and Yoffie(1998)
from below,” that is, bundling with a product in the adjoining upper layer (for instance, bundling of OS with application software), because theoretically speaking, an “envelopment from above” strategy is possible (for example, provision of an OS on which an attractive application operates smoothly), we call it the “adjoining layer-bundling strategy,” not the “platform envelopment strategy.”

[The second phase (after the release of IIS in February 1996)] Enveloping both platforms

Microsoft started to provide products to both sides of the parallel platform when it released the web server product IIS in February 1996. It therefore shifted the structure of competition to one in which both Netscape and Microsoft supplied products to both sides of the parallel platform. However, while Microsoft supplied OS products to both sides, Netscape did not market OS products. Microsoft attempted to increase the share of IIS and IE in their respective markets bundling them with the Windows OS.

It can be argued that Microsoft took over Netscape’s market share by way of an adjoining layer-bundling strategy consisting of a first phase (enveloping one side of the platform) and a second phase (enveloping both sides of the platform). In the end, Microsoft’s growth in market share accelerated after it started to provide products to both sides of the parallel platform; its strategy in the second phase, which attempted to envelop both sides of the platform, turned out to be more effective than that in the first phase, which attempted to envelop only one side of the platform.

IV. The second case study of the parallel platform market: Online bookstore + e-reader market

In this section, we examine the strategic challenges that emerge from the structure of the electronic book market by examining the case of the Kindle e-reader produced by Amazon.com, Inc.

1. The development of Amazon’s content-distribution business

On July 16, 1995, Amazon opened its website for an online bookstore based on a business model of mailing out books ordered through the Internet. It made losses till 2002, despite the expansion of business and investment in infrastructure. As of June 2000, its long-term debt was in excess of $2.1 billion. It also reported the largest deficit in its history, $545 million, for the period between October and December 2000. However,

11 The bulk of this section draws from Shimizu (2010).
in July 2001, it received investment to the tune of $100 million from AOL, and achieved profits ($5 million) for the first time in the period between October and December 2002. Ever since achieving profitability, its business has grown smoothly, and it finally cleared its accumulated debt in 2005. Amazon subsequently achieved a leap in sales growth and became the world's largest online bookstore.

Amazon released the Kindle, an electronic book reader or e-reader, on November 19, 2007. The Kindle adopts E-link's electronic paper technology, which prevents eye fatigue by mimicking the appearance of prints on paper, and can store more than 200 books in its memory of 256MB. The first generation of Kindles was sold at $399. It can also use an SD memory card of up to 4GB. Because of its inbuilt wireless communication function, the Kindle does not need other equipment such as PC (this feature is to address a problem in the business model, not a technological breakthrough). The user can purchase electronic books by way of the US mobile phone network using a wireless system called Amazon Whispernet (as of January 2010, the mobile network provided by Sprint [US] is employed). In addition, because each user's purchase history and reading history are recorded for books purchased from the Kindle Store, the user can re-download a book or access his or her reading history (how far he or she has read, notes that have been placed on the book) on a later occasion or from a different Kindle.

The device’s most significant feature is that Amazon pays for its access to the mobile network so that the user does not have to pay. This has become possible because the Kindle's contents—black-and-white electronic books—require only a small data capacity, and the cost of using communication infrastructure has been going down. At the Kindle Store, a dedicated format called AZW is used. Because it is a format developed for Kindle to read electronic books protected by Digital Rights Management (DRM)\textsuperscript{12}, one cannot view AZW without a Kindle (or a Kindle Reader).

The slogan “Buy any book in 60 seconds” is very apt to the online bookstore environment in the US, where the number of independent bookstores has decreased and there are many towns in which one has to travel more than an hour to get to the nearest bookstore because the consolidation of bookstores in the form of big chains has advanced. The newspaper industry is also suffering, and many towns do no longer have daily paper delivery. The Kindle has flourished under these circumstances. As a result, the US e-book market has also grown. According to the Association of American Publishers, the sales of

\textsuperscript{12} As long as the contents are not protected by Digital Rights Management (DRM), Kindle can read electronic books format developed by MobiPocket (US) as well.
electronic books downloaded via the Internet in 2008 were $113 million, showing 68% growth compared to the previous year. In February 2009, Amazon released a successor model, the Kindle 2, in the US. It was priced at $359. While its size and weight have increased, it has reduced its thickness by about half. The major functional difference from the first-generation model was that the new one is 20% faster in turning a page. In October 2009, Amazon announced that it was going to release the Kindle in more than 100 countries in the world, including Japan. The price was set at $279.

An explanation of the value chain from the development and release of the Kindle is now in order. Amazon set up a subsidiary called Lab126 in Silicon Valley in 2004 in order to develop and design the Kindle. The company is said to employ several hundred engineers, many from Apple and Palm. The “126” in its company’s name denotes the first and last letters of the alphabet, A and Z. With regard to procurement of basic parts, Lab126 buys its application processor from Freescale Semiconductor, its wireless communication module from Novatel Wireless, and its electronic-paper module from E Ink and Prime View International (PVI), which uses modularized parts from Toppan. Manufacturing is carried out by an associate of Foxconn International Holdings, a major EMS in Taiwan called EnSky. At first, the Kindle was not available at retail stores; it was only sold from Amazon’s website.

Amazon’s financial statements for the third quarter (July to September) for 2009 released on October 22 reported sales of $5.45 billion, showing a 28% growth compared to the same quarter of the previous year, and net profit of $199 million, showing a 68% growth. Amazon publicly attributed this to the better than expected sales of the Kindle. Jeff Bezos, Amazon’s CEO, stated in the announcement that “the Kindle has become Amazon.com’s number one product in terms of both the number of units sold and the size of sales.” The sales of electronic books for the Kindle exceeded those of hardcover books in July 2010 and of paperbacks during the fourth quarter of 2010 (October to December). In April 2011, the number of copies of electronic books sold exceeded the printed books (both hardcover and paperbacks). In April 2011, it was reported that for every 100 printed books sold, 105 Kindle e-books were sold. The number of Kindles sold by the end of 2010 exceeded 8 million, and the amount of downloadable content from the Kindle Store had increased to 730,000 items as of the end of 2010, from 90,000 items when the Kindle was first released. Further, about 80% of newly published

bestseller novels are now available from the Kindle Store.

Given the above, we can conclude that Amazon’s e-book business is successful at the present time.

2. Analysis based on the parallel platform business model

Figure 5 illustrates the concept of the content-distribution business based on the parallel platform business model. In this case study, the content platform is the Kindle Store and the product platform is the Kindle itself.

The strategy Amazon has adopted in this case study can be summarized as follows.

(1) The strategy concerning price and amount of contents

According to the New York Times’s comparative analysis of the price and cost structure of hardcover books and electronic books published in March 2010, the average price of a hardcover book is $26, while the same book in the electronic format is priced, on average, at $13.

According to this analysis, about 30% of the sale price is paid to the content platform provider as commission, and the publisher makes a profit of about $5 after deducting royalty payments to the author, cost of digitization, and marketing cost. This

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15 Source : http://www.nytimes.com/2010/03/01/business/media/01ebooks.html?partner=rss&emc=rss
analysis also shows that there is not much difference in the profit the publisher makes between hardcover and electronic books.

The first-generation Kindle (released in November 2007) was priced at $399. The successor Kindle 2 (released in February 2009) was priced between $250 and $400, and the Kindle 3 (released in August 2010) between $139 and $189. According to iSuppli\(^\text{16}\), an American firm, the cost of parts for the Kindle 2 is estimated to be $176.83 ($185.49 including the battery) or about 51% of the total. If this estimate is correct, Amazon is making a profit from sales of the Kindle device.

From above, we can conclude that in Amazon's e-book business, both the content and hardware sides are operating on a profit-making model. However, communication cost, as discussed below, is unlikely to be recovered unless the sales content is exceptionally good.

(2) The strategy of the inter-platform interface

What made the Kindle revolutionary was that it was a content-viewing product with a wireless communication function. Before the Kindle, contents had to be downloaded to a computer before being transferred to an e-reader. One could not use the device without a computer or purchase content away from the office or the home. The Kindle removed this inconvenience. On top of this, this wireless communication capability came free of charge.

However, Amazon's Kindle Store (the contents platform) can only be accessed by the Kindle (the product platform). In other words, this is a closed interface.

(3) Opening up of the hardware

What is interesting in the case of the Kindle is that while it adopts a closed interface structure, as described above, Amazon also distributes its own software free of charge to allow viewing of content purchased from the Kindle Store on a computer, iPad, or smartphone. In other words, the Kindle is not necessary to view content purchased from the Kindle Store. This suggests that Amazon regards the Kindle as a tool to encourage use of the Kindle Store as part of its basic business model.

V. Conclusion: Strategic issues unique to the parallel platform market

This article aims to delineate the strategic issues that are unique to the parallel

platform market consisting of a set of two-sided platforms. Below, the major points that emerge from the above case studies are summarized.

(1) The management of network effects

The phenomenon in which player groups interact with each other is called the two-sided network effect in the theory of two-sided platforms. The parallel platform has a structure in which platforms on both sides are connected through complementary products, and the sharing of complementary products on the content side also means sharing on the viewing side. In this case, a strategy that makes use of the sharing of complementary products makes use of two-sided network effects on the viewing side as well as network effects between the platforms.

Microsoft’s IE was capable of reading already-published web pages because it was based on HTML. This means that Microsoft adopted a client-side strategy aiming at the ecosystem on the server-side. In contrast, in the case of the Kindle, because the content Amazon provides can only be read by Amazon’s own hardware (or software), it was important to secure a large enough amount of accessible content at the beginning.

IE’s adjoining layer-bundling strategy makes use of network effects between layers, as it is a strategy to increase the use of application software (the upper layer) using the number of users at the OS level (the lower layer).

Network effects that work within the same player group are called same-side network effects in the theory of two-sided platforms. The Kindle’s quote function, allowing a quote from a book being read on the device to be posted to Facebook or Twitter since a software upgrade in May 2010, aims to promote these same-side network effects. The effective use of same-side network effects is a common strategic challenge is shared by the platform products in general.

(2) The management of profitability differences

In the two-sided or parallel platform, one can execute a pricing strategy which takes both sides and/or platforms into account (Rochet and Tirole, 2003; Eisenmann, Parker and Van Alstyne, 2006). Specifically, it becomes possible to offer products or services from one side at a price below cost or free of charge. This kind of intentional manipulation of unequal pricing between sides or platforms is called management of profitability differences.

In the case of web browsers, Netscape distributed client-side software free of charge (as a trial version) on the assumption that it would profit from the serve-side software.
The latecomer, Microsoft, destroyed Netscape’s profit model by bundling NN with the server-side OS free of charge.

In another example, the Apple iPod would never have achieved its current popularity without the provision of heavily discounted content ($1 a song) from the iTunes Music Store, Apple’s own service. In the first phase, the prices were set at the level where profits were made with the hardware (the iPod, the product platform) and no profits were expected from the content side (the iTunes Music Store). This is a strategy that becomes possible only when providing products and services on both parallel platforms.

In the case of the Kindle, the major reason for its success is thought to be due to its business model, which does not charge communication costs (this can be regarded as a type of profitability-differences management in which the content platform covers the communication cost).

(3) The management of multi-homing

Multiple platform products and services are sometimes used in parallel. The additional costs that occur when using multiple services are called multi-homing costs. The cost of purchase of additional hardware and the hassle of using multiple services are examples of multi-homing costs.

Bundling trial software with an OS leads to an increase in take-up of the trial product. Once the product is tried, users tend to continue using the software because of the multi-homing cost of using multiple software.

As described earlier, with the free software provided by Amazon, one can view electronic books purchased from the Kindle Store on a computer, iPad, or smartphone, without using the Kindle. This is a strategy aiming to increase the sales volume of e-books form Amazon, which is the main source of profits, by making the same content accessible for consumers who use computers, iPads, and smartphones in addition to the Kindle (or even if not using Kindle). Thus, the Kindle Reader has enabled multi-homing of hardware.

(4) The commercialization management of product combining two platform products

Providing products for both sides of the parallel platform can promote inter-platform network effects and increase the attractiveness of the parallel platform. Also, providing products and services for both sides can make functions that can only be realized when both are treated as a set to become reality.
In the case of the Kindle, if the long-term strategy had been the success of the Kindle Store and if it had been decided not to provide any dedicated device (i.e., a completely open strategy in regards to hardware), the model may never have succeeded. In order to ensure the spread of e-books, Amazon had to provide hardware built on an unconventional business model at the same time.

In the case of the iPad, it made sense at the time of its release to make sure all iPhone applications in principle would function on iPad. The reason why this was possible was that Apple controlled both the supply of iPhone applications (through the Apple Store) and that of the product (the hardware).

In the case of the web browser, as described earlier, Microsoft began providing products to both sides of the parallel platform by releasing a server-side product (IIS) in February 1996. In addition, while Microsoft was the OS provider to both sides, Netscape did not provide an OS for either side, which worked to its disadvantage. Microsoft’s “envelopment of both sides of the platform” strategy as described above can be seen as an advanced strategy combining on the use of an inter-layer network and the provision of products to both sides of the parallel platform.

(5) The management of the connecting platform

When providing products and services to both sides of a parallel market, it can be advantageous to provide the connecting platform in an exclusive format. However, for a challenger firm, it can be disadvantageous in terms of network effects if the same format as the connecting platform used by the early starters cannot be adopted. If the early starters have adopted a closed-interface strategy and shut out latecomers, it is customary for the latecomers to supplement the lack of content by adopting a more open specification, but this often leads to a smaller profit margin.

In the case of Microsoft’s IE, its spread was predicated on the adoption of an open specification called HTML that connected the server-side ecosystems and the client-side ones.

In the cases of the iPod and the Kindle, products and services were offered to both sides of the parallel platform, while the connecting file format was configured to their own specifications. As a result, tunes purchased from the iTunes Music Store can only be enjoyed through the iPod, and e-books purchased from the Kindle Store can only be accessed through the Kindle or Kindle reader. This puts the early starter or market leader in an advantageous position in terms of profits.
Of the five points discussed above, points (4) and (5) are unique to the parallel platform structure. Points (1), (2), and (3) can be considered extensions of the points discussed in the theory of two-sided platforms.

Our future tasks include a deeper analysis of the relationship among the above points and the issue of connecting three or more platforms. Just as the discussion of two-sided platforms has the potential for expansion to cover the discussion of multi-sided platforms, the theoretical scope of this article is not limited to the issue of the connection of two platforms but extends to include the connection of multiple platforms. However, with regard to the issue of connecting multiple platforms, we need more analysis based on case studies. For example, in discussing management issues in dealing with three or more platforms, the connection between the devices (for example, the mobile device and the computer) is emerging as an important issue, in addition to the inter-server connection and the server-client connection.
References


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