Pricing of Content on the Internet: The Aggregator Model

by

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Submitted to the Sloan School of Management
in Partial Fulfillment of
the Requirements for the Degree of
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ABSTRACT

An economic analysis of the market for content on the internet reveals a market failure for competitive content. The author defines, describes and analyzes a new model for pricing content on the internet which involves a single aggregator firm selling bundles consisting of multiple individual content products. Further refinements of the model reveal strategies for maintaining a competitive advantage against other individual and aggregator firms selling content on the internet.

A survey of a number of existing aggregation entities on the internet shows that these organizations are pursuing strategies and developing characteristics predicted by economic theory. An analysis of an aggregator entity in a mature content market reveals a structure very similar to that predicted by economic theory. The author then makes some general predictions about the development of the internet content industry.

Thesis Supervisor: Erik Brynjolfsson

Title: Associate Professor of Management
Acknowledgments

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I thank my parents, Jonathan and Cynthia Wilcox, who have put up with ten years of my pursuing higher education far away from home.

I would also like to thank Professor Erik Brynjolfsson and Yannis Bakos for their thoughts and guidance during the development of this thesis. I hope we will all continue researching this field in the future.

This thesis provided Joe Bailey with an opportunity to practice being a professor. Thank you for taking lunch at the trucks so many times to talk about these issues. Your positive attitude and continual faith in me has been a powerful force in these last few months.

Finally, I would particularly like to thank Elisabeth A. Browne, PhD. At a crucial point in my life, you selflessly supported me and encouraged me to follow my vision and reach for the stars. Without your help, I never would have come to MIT, and I never would have written this thesis. I dedicate this thesis to you.
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1. Introduction

The information economy is developing rapidly. The explosion of growth experienced through the World Wide Web has greatly facilitated the ability of the average consumer to look to the internet for his or her daily information needs. Before the information economy can reach its full potential, however, content vendors must determine how to price internet content products of all types - from newspapers to stock reports, from multimedia miniseries to digital art - in a manner which can support the long term development of further content.

The basic competitive pricing theories which govern markets for physical products fail within the internet space. For example, in theory, a competitive market for physical goods drives the price of the physical good down to equal marginal cost. In the internet world, however, the marginal cost of digital content is essentially zero. As a result, traditional competitive theory would dictate that the price of competitive content products on the internet would also be driven to zero, resulting in no revenues for the content vendor. This is an unacceptable position, and is generally known as a market failure.

The internet world has responded to this market failure in several ways. Large numbers of free content products are available, some provided by government, some supported through experimentation, and some designed to enhance the sales of a physical product; advertising revenue has been able to support a few sites on the web which are of interest to large numbers of people; and finally, unique, monopolistic products have been able to
use traditional pricing models since the monopolistic equilibrium has a positive price. However, these models alone cannot support the great majority of competitive content products which will be added to the information market over the next few years. If this market is to develop properly, it is necessary to find another pricing mechanism which allows for revenue to flow back to content vendors to fund the development of more content.

In this thesis, I will illustrate a new model for pricing of content - the aggregator model. This model is primarily distinguished by bundling multiple content products together and selling access to the entire bundle. I will demonstrate that a firm selling content products through the aggregator model maintains a competitive advantage over a firm selling competitive content products individually. I will also show that the aggregator model provides a viable model for funding the continued development of competitive content.

In addition, the later chapters of the thesis will discuss the interaction of aggregation entities in competition. I will explore additional forms of value an aggregator must provide in order to stay competitive against other aggregators, and I will make some predictions about the long term structure of the internet content industry.

1.1 What I am covering

This first chapter is an introduction to the thesis. I will list the subjects I intend to cover, as well as some notable subjects I do not intend to cover in this thesis.

In the second chapter, I will review the basic economic theory of competition, and apply it to the internet space, demonstrating the market failure which results from a competitive market for zero-marginal-cost products. In addition, I will identify the pricing models currently in use on the internet and speculate on why certain models work and others do not.
The third chapter focuses on one particular pricing model, known as the "aggregator" model. Under the aggregator model, a single firm aggregates a bundle of content through either purchase or licensing, and makes that content available at a single set subscription price for unlimited access for a given time period. I will demonstrate through economic theory that in a market for zero-marginal cost products, selling multiple bundles of products results in more revenue for the firm than selling each product individually. This chapter also includes a discussion of advanced topics in bundling, as well as a review of several methods aggregators can use to determine the proper value of individual products within their bundle.

In the fourth chapter, I will explore how the aggregator model is currently being applied within the internet space. The interaction of aggregator entities in competition introduces several characteristics which are designed to maintain a competitive advantage over other aggregation entities. I will review these characteristics and also provide some real-life examples of aggregation entities already in existence on the Internet.

Finally, in the fifth chapter, I will review the findings of the thesis and discuss the long-term implications of these findings on the structure of the internet content market.

1.2 What I am not covering

The internet realm is huge and expanding every minute. Many issues are yet to be discovered, and those which have appeared have little or no empirical data for significant analysis. As a result, it is important to carefully define what I am not covering in order to clarify the implications and limitations of this thesis.

1.2.1 Information Paradox

The information paradox basically states that the value of information cannot be properly determined without first purchasing the information. There are a variety of well-established methods for solving this problem already available on the internet (such as information samples, partial information and free trials).
1.2.2 Estimating Producer or Provider Marginal Costs

In any industry, the shape of the overall market will be greatly affected by producer marginal costs. In this analysis, I am assuming a marginal cost of zero for all content producers. Since the purpose of this thesis is to analyze the content market, there will be no discussion of costs associated with providing connections to the internet.

1.2.3 Network Externalities

It is patently clear to many that the software market (which I consider part of the content market) is strongly affected by network externalities. It also seems extremely likely to me that network externalities would have a significant impact on the market for various types of content on the internet, particularly in the area of navigation. However, the area of network externalities has been very well researched by several other researchers, and the point of this thesis is to focus on a different set of economic effects. If anything, the effects of network externalities should support the findings of this thesis.¹

1.2.4 Legal copyright considerations

The legal considerations of copyrights are extremely complex and have supported the efforts of numerous lawyers and law students for many years. I do not pretend to be able to speak definitively on such legal matters.

1.2.5 Justifications for government regulation

The content world is rife with governmental attempts to control the type of content available. Furthermore, certain economic structures can lead to markets which may be considered for government regulation. The economic justifications for regulation of certain markets have been well established and the details of this are not the topic of this thesis. Again, I am not an expert on government regulation, and cannot comment on the existing legal structures which underlie decency and/or antitrust regulations.

¹ For more information on network externalities, see "Are Network Externalities a New Source of Market Failure?" by S. J. Liebowitz and Stephen E. Margolis, published in Research in Law and Economics, 1995, and available at - http://wwwpub.utdallas.edu/~liebowit/netwextn.html. A number of other resources are also available at the Economics of Networks site at New York University - http://edgar.stern.nyu.edu/network/site.html
1.3 Summary

As described above, the purpose of this thesis is to explore the economic implications of the aggregator model for pricing content on the internet. The importance of this model should not be underestimated - I believe that before the end of the 20th century, the majority of content on the internet will be sold through the aggregator model.

Within this document are a number of suggestions of how content creators and content aggregators could strategically position themselves to maximize revenue and/or market power within the internet content market. If the aggregator model proves to be the dominant model for content pricing, then those firms who recognize the strategic suggestions within this thesis could gain a significant competitive advantage in the internet content market.
2. Economic Foundations of Content Pricing

In order to fully understand the implications of this thesis, we must first understand the economic foundations of content pricing. In order to understand the economic foundations content pricing, we must first define what exactly content is in this space. In this analysis, I am assuming content to be any information which can be digitized and transmitted over the internet. This definition includes text, audio files, video files and multimedia information, and it also notably includes software (which is essentially information designed for interpretation by a computer).

What common characteristics does this content have? How do these common characteristics impact the market for these products? Perhaps the most important common characteristic content goods share is that once the content is created, it can be digitally transmitted over the internet and delivered to an additional user at essentially zero cost. In economic terms, this is referred to as having a marginal cost of zero. In the next section, I demonstrate why typical pricing models fail with zero-marginal cost products. But first, let us review the basics of competitive theory.

2.1 Review basic supply and demand

Basic economics dictates the behavior of a competitive market. In the classic example for physical good markets, firms in a competitive market will drive the price of their goods down to the marginal cost of producing the good, that is, the cost associated with producing one more good and delivering it to one more customer. According to one of the basic microeconomics textbooks, “marginal cost is the addition to total cost resulting
from the addition of the last unit of output."\(^2\) Another common text describes marginal cost as "the increase in cost that results from producing one extra unit of output."\(^3\) Marginal cost does not take into account fixed investments required to build the product, but only the incremental cost of producing the extra unit.

In a perfectly competitive market, as long as the general market price remains above a firm’s marginal cost, the firm can gather more revenue by lowering its price and gaining market share. If the firm prices below marginal cost, it will be losing money on each item it produces. As a result, in the perfectly competitive market, the firm cannot price above marginal cost, nor can the firm price below marginal cost. The firm must set the price equal to its marginal cost. The point where price equals marginal cost (\(P=MC\)) is considered a stable competitive equilibrium.

Graphically, the stable competitive equilibrium is shown like this:

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The line going from top left to bottom right is the demand curve, with more product being demanded as the market price falls. The line going from bottom left to top right is the supply curve, with more product being produced as the market price rises. The curved line in the middle is the marginal cost curve. This curve is typically shaped as a U because there is usually a particular level of output which is optimal for the plant which produces the product. Below that point, marginal cost is higher because it is not running at full capacity; above that point, marginal cost is higher because overproduction typically involves overtime costs.

The competitive equilibrium represented above is special to economists because it represents a pareto-efficient equilibrium. What does this mean? Economics textbooks define pareto-optimality as a market condition under which no participant in the market can be made better off without making another participant worse off.4

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2.2 If $MC=0$, what happens to $P$?

Let us apply the same economic principles to the content market. Just as in the physical goods example, we can assume that firms with competitive content will lower their prices until the price equals marginal cost. But what exactly is marginal cost on the internet? If marginal cost applies to the incremental cost of transmitting another copy of digital content over the internet, then it is essentially zero! There are certainly costs associated with creating content; research costs, development costs, hardware and software costs, but all of these are fixed costs, essentially the same whether you deliver your content to one person or five thousand people. Once the processes are setup, the cost to the producer of delivering one more unit of the product is, for all practical purposes, zero.

Remember that in a competitive market, price is driven down to equal marginal cost. If the marginal cost of providing content over the Internet is zero, then, according to basic economic theory, the price of content in a competitive market would be driven to zero. No wonder no one can figure out how to make money on the Internet! Graphically, the situation for content on the internet is shown like this:

There is more than sufficient empirical evidence for the price of content being driven to zero on the Internet. Huge quantities of basic information are already available for free.
on the Internet; firms have found it impossible to charge for information such as
generalized sports scores, news headlines, and stock quotes, where multiple vendors are
purveying essentially the same information. This is clearly a problem for content vendors
in the short run, but it is also a problem for content consumers in the long run.

What happens in the long run if the price is driven to zero? One by one, the individual
content vendors will be forced out of the market (since they have no means of gaining
revenue). Finally, only one content provider will be left in the market. Because there are
no competitors, the last remaining content provider will have a monopoly on the content
and can act as a monopolist, raising the price of the content to the monopolistic profit
maximizing point where marginal revenue (the incremental amount received from the
sale of one more unit of the good) equals marginal cost (MR=MC). Although the
monopolistic firm does particularly well in a monopolistic situation, it does so at the
expense of consumers.

Economists, in general, dislike the monopolistic equilibrium. To economists, the
monopolistic equilibrium is generally an undesirable outcome because it does not meet
the pareto criterion. Instead, the monopolistic equilibrium results in significant
deadweight loss within the market; that is, there is benefit to the overall economy which
could be achieved, but is being lost to the overall market because what is in the best
interest of a single firm is not in the best interest of the overall market.
As shown in the graph above, the monopolistic equilibrium in this case is not a pareto-optimal solution. A situation in which natural market forces result in an inefficient long-run equilibrium is known in economics as a *market failure*.

### 2.2.1 An Example of Low-Marginal-Cost Pricing

The development of Microsoft, the software giant, provides perhaps one of the best illustrations of the effect of low-marginal-cost pricing in a content market. As I mentioned before, software is simply bits on a hard drive, just like text, audio or video. As a result, software is considered another type of content, and the dynamics of the software market should have similarities to the content market.

As the software market developed in the early 1980s, Microsoft realized that the marginal cost of duplicating its DOS and Windows operating system software was extremely low, and it decided to sell its products essentially at marginal cost, practically giving its operating system software away on millions of personal computers. Over time, this strategy marginalized many competitors in the operating system software market (such as Geoworks, Desqview and Digital Research’s DR-DOS), and it threatens to marginalize others (Apple’s MacOS, IBM’s OS/2). As of 1996, Microsoft had an 80% market share
In operating systems and enjoyed a significant amount of power in the market for operating systems.

With the advent of the World Wide Web, a new upstart, Netscape Communications, rose to challenge Microsoft’s dominance. How did it manage to do so? Netscape gave its web browser away for free. Essentially, Netscape took Microsoft’s strategy to heart and released their software at marginal cost. Since the marginal cost of distribution over the Web was essentially zero, Netscape gave its browser software away for free. Having established its name and position in the marketplace, Netscape then had to turn to other products and services (such as web servers and consulting services) to support its business and its continual product development. Just like the content providers who give away information for free in order to attract customers to purchase other information products or services, Netscape gave away its web browser in order to attract customers to purchase other software or services.

It is interesting to note that the expected dynamics of the software market are also appearing in the web server market. Since web servers are also software which can be distributed over the net, two competing firms offering similar web servers should drive the market price for web servers to zero. During the summer of 1995, Netscape sold its Commerce Server for $5000. In October, 1995, Netscape reacted to an announcement of new web server software from Oracle by cutting the prices of its Commerce Server to $2995. Finally, in early March of 1996, Netscape again reduced the price of its Commerce Server in response to Microsoft’s announcement that it would give away its

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5 The first version of the Netscape Navigator was given away for free. Version 2.0 was still free to educational users, but $49 to corporate and individual users. It is interesting to note that just as Netscape started to charge for its browser, Microsoft started giving its Internet Explorer away for free.

6 Netscape presentation to the MIT Sloan School of Management/Harvard Business School California Technology Tour, January 10, 1996.

7 Oracle Launches Web Products, Netscape Cuts Price, Inter@ctive Week, Oct. 31, 1995.
http://www.zdnet.com/intweek/daily/951031c.html
webserver for free to buyers of its Windows NT Server operating system.\textsuperscript{8} If the market price for web servers is driven completely to zero, Netscape will need to find yet another product or service to sell in order to maintain its revenue stream. By comparison, Microsoft already has such a revenue stream from the other software markets it dominates.

According to the competitive economic theories described above, Netscape and Microsoft will drive prices down until one or the other firm leaves the market. At that point, the survivor should be able to raise prices on its content to monopolistic levels.

2.3 Current Pricing Practices for Internet Content

Now that we have reviewed the economic foundations for content pricing, we will review the kinds of pricing structures we actually find out on the internet for individual content products. Theory dictates that some models are not tenable in the long term, but since the internet content market is still in the midst of experimentation, the unworkable models may not yet have been completely crowded out of the market. In practice, there are examples of five different pricing models for individual content products: the free model, the advertising-supported model, the purchase model, the metering model and the subscription model. I will now review each of these models in detail.

2.3.1 Free

The easiest form of providing content is giving it away for free; unfortunately, this is not usually a profit-maximizing strategy. Essentially, the free content model is a form of competing on different bases. Instead of trying to get consumers to pay for the content itself, the provider of the free content is typically using the availability of the content to attract people for other purposes, such as purchasing a physical product, taking a poll or gathering demographic data.

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Examples of free information are available almost everywhere on the web. Websites devoted to corporate public relations, software upgrades, product support, hobbyist communications and similar functions are all available for free on the web. Government information, in particular, is an abundant source of free content for the internet. Generally, content is given away for free if it is designed for publicity purposes, or if it was intended to attract people for another information product or service on the same site.

<table>
<thead>
<tr>
<th>Example of Websites with Free Content</th>
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<tbody>
<tr>
<td><strong>Corporate Public Relations</strong></td>
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<tr>
<td><strong>Software Upgrades</strong></td>
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<tr>
<td><strong>Product Support</strong></td>
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<tr>
<td><strong>Hobbyist Communications</strong></td>
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<tr>
<td><strong>Government</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td><strong>Enticement to purchase another product</strong></td>
</tr>
</tbody>
</table>

As wonderful as all this content is, however, it must have an economic justification in the long term. Public relations and governmental information dissemination, and just plain
mutual interest hobbyists may justify the expense of maintaining some free websites. However, other sites, originally developed as free sites in order to experiment with the web, may find it difficult to justify the ongoing expense of maintaining a website without developing some form of income.

2.3.2 Ad-supported

The advertising-supported model is a very viable pricing model for content, and will be a significant piece of the overall content market. Basically, revenue in the advertising-supported model is earned through attracting large numbers of people to your website, and selling space on your website to advertisers who want to put their names and products in front of the users you have attracted. In 1995, the total market for web advertising came to an estimated $65 Million in revenue, and it is expected to rise to $1.4 Billion by 1998. Examples of sites which use the advertising model include Yahoo (http://www.yahoo.com), Jumbo (http://www.jumbo.com) and Wired (http://www.hotwired.com).

Advertising is a popular theme for generating revenue for websites, but it is unlikely that it will be able to support all types of content on the web. As Hunter Madsen, Director of the advertising agency JWT/i.e. put it, "'Most commercial sites will be dreaming [if they expect to support themselves on ad revenue], very few are such tremendous draws that they can guarantee a certain traffic or cost-per-thousand [the standard yardstick of advertising costs in other media].' Like the print world, there is a significant amount of material which cannot attract enough of an audience to be supported by advertising alone. Furthermore, some forms of content, such as certain educational or consumer-advocate sites are simply inappropriate for advertising. In such cases, another pricing model must be used to justify the presence of this content on the web.

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There is already evidence that certain types of content currently available on the web cannot be supported by advertising. The most widely recognized example is the Pathfinder site (http://www.pathfinder.com), which in early 1996 experienced some significant turmoil because its advertising revenues were not meeting its production costs. In March, 1996, Pathfinder completed a deal with CompuServe to make Pathfinder content available on CompuServe. We will look at this particular content arrangement in a later section of the paper.

An interesting side-note: the fact that advertising alone will not support all content published on the internet is supported by none other than WebTrack, the News and Database for Web marketers, advertisers, and publishers. WebTrack’s site on the internet offers its content for an online subscription price of $199/year.\textsuperscript{10}

\subsection{2.3.3 Purchase}

The purchase model is also available on the internet. Under this model, just like many physical goods, cash is transferred from the buyer to the seller in exchange for the content. Excellent lists for sites which use the purchase model for content can be found at the homepages for the various electronic money systems, such as:

- Cybercash - http://www.cybercash.com
- DigiCash - http://www.digicash.com
- First Virtual - http://www fv.com

Among these lists are several stock brokerages which offer stock and fund reports for a set price per report. For example, the Reuters Money Network offers stock and fund reports at $4.95 per report.\textsuperscript{11} Another example of purchase model sites can be found in several on-line bookstores. These sites offer entire manuscripts available for download. Typically, the publisher makes the first chapter available for download for free, then asks

\textsuperscript{10} http://www.webtrack.com/interad/interad.html
\textsuperscript{11} http://www.moneynet.com/Reports/premrep.htm
the reader for payment in some form of electronic money before giving the reader access to the rest of the book. One such bookstore offering books online for electronic download is Digital Books, which offers its products at $4.95 per book. There are also several examples of software which is available for purchase over the web. Apple’s Quicktime multimedia software can be purchased directly from a web page at Apple, and Oracle offers a range of software products from its webpage at prices from $27 to $1,995.

The purchase model is evident on the internet. Yet, as we have shown earlier, this traditional model of pricing fails in a competitive market where marginal cost equals zero. How can this be? The purchase model can still work for zero-marginal cost goods if the content provider is marketing unique content. If a firm can have such unique content that no other companies can claim to have similar enough content to compete in the same market, then the content provider essentially has a monopoly on that content. Both Apple and Oracle can currently claim to have unique content since Apple’s Quicktime software is the primary video standard in the computer industry, and Oracle is the dominant database manufacturer.

Other good examples of unique content are the various Disney animated features such as “Snow White” or “Cinderella”. There is only one such set of animated features, and no other firm in the entire world has content which could realistically compete in the same market as this content. Classic films such as “Casablanca” hold a similar cachet. New movies may imitate the style or even the storyline, but the original film is so unique that no other film can compete with its individual market. The firm holding the unique content can price it content at the monopolistic level, and those who want it and can afford it will have no choice but to pay the monopolistic price.

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12 http://www.digitalbooks.com/
13 http://qtq.quicktime.apple.com/
14 http://commerce.us.oracle.com/cgi-bin/oraweb1/Poraweb_blank_order
Most content providers believe that certain popular content is unique and therefore essentially monopolies; however, the concept of unique content is frequently a question of defining the market. Common examples of such unique information are blockbuster classic movies such as "Gone with the Wind". On the one hand, there is only one Gone with the Wind, and no other movie can truly substitute for the rush the audience gets when Rhett says "Frankly, my dear...". Nonetheless, as unique as "Gone with the Wind" might be, a person looking for classic movie material could also turn to such movies as "Casablanca", "Citizen Kane" or "Mr. Smith Goes to Washington" for entertainment. Viewed in this light, Gone with the Wind no longer seems so unique, and the theories described in this thesis regarding competitive content come into play.

2.3.4 Metering

Metering is very similar to the Purchase model. It is distinguished primarily by the fact that the content is sold in extremely small increments, either on a per-use basis or by the byte, as opposed to a single price for a single complete unit of content.\footnote{For more information, see "Superdistribution" by Brad Cox, Wired, Nov. 1994; http://www.virtualschool.edu/mon/Cox/Superdistribution.html.} Metering is frequently proclaimed as the panacea for pricing web content. Various industry pundits stated that incremental metering of content was just around the corner, awaiting the time that the public accepts and standardizes on an electronic payment system.

However, just because it is possible to price in very small increments does not mean that metering is the answer for pricing content. Metering suffers from the same basic competitive market problems as the Purchase model; if you are willing to make your content available for a dime, your competitor can sell it for a nickel and still make money. Even if the pricing increments are small, the market for competitive content will still push the price of the content down to its marginal cost, zero. Pure metering still results in a market failure.\footnote{As shown later in the paper, however, the metering model can be blended with the aggregator model to become a viable pricing option.}
More importantly, metering ignores a well established aspect of human behavior: a desire for predictability in payments. When I was in grade school, my father subscribed to one of the first on-line services, and he showed me how to use it on our home computer. The next day, I spent several hours on line while my father was at work, chatting with people in Australia. Only when the bill came later that month did I realize that the service cost $100 per hour. Fortunately, my father was very tolerant and I wasn’t punished for my explorations. However, one can certainly imagine other children and parents ending up in similar situations, with Junior racking up big search charges while doing a research paper, or even Mom or Dad finding a surprisingly high bill after a week of heavy downloads.

The ability to anticipate and plan for expenditures is important to the general consumer. This is borne out by the results of studies of flat rate telephone charges which found that users were willing to pay a premium for a single flat-rate phone plan even when a per-use plan would save them money.\(^{17}\) The security of the flat-rate plan clearly holds value for consumers. I argue that consumers as a whole will not accept the idea of “leaving the meter running” while exploring and accessing new content. Such a structure minimizes exploration of new content, and exposes the consumer to a risk of spikes in charges for content.

Working instantiations of metering applied to content on the internet are few and far between. One prominent example, however, is Infoseek Professional.\(^{18}\) This search service charges incremental amounts (around ten cents) for each search through an archive of material which includes:\(^{19}\)

<table>
<thead>
<tr>
<th>Usenet News</th>
<th>Internet Newsgroup Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cineman</td>
<td>Entertainment Reviews</td>
</tr>
<tr>
<td>Wire Services</td>
<td>Latest Business News</td>
</tr>
<tr>
<td>Computer Periodicals</td>
<td>Computer Industry News</td>
</tr>
<tr>
<td>Health and Medicine</td>
<td>Medical News and Research</td>
</tr>
</tbody>
</table>

\(^{17}\) Internet Economics Workshop Notes, published March 30, 1995. From the Internet Economics Workshop held at MIT on March 9-10, 1995; http://www.press.umich.edu/jep/works/BailWNotes.html

\(^{18}\) http://professional.infoseek.com

\(^{19}\) http://professional.infoseek.com/doc/stdhelp/InfoSeekCharges.html#standard
Corporate Information    Key Facts On Companies

A second tier of information (known as the premium collection) can be searched at prices which are specific to the resource being searched. For example, here are two sources which are available in the premium collection, along with the pricing structure for each:20

Hoover Company Profiles
Specific private and public company data
$2.95 / retrieval or
$9.95 / mo. that includes 100 retrievals and 10 cents / subsequent retrieval

MDX Health
Consumer health database
$1.95 / retrieval or
$10 / mo. that includes 20 retrievals and 50 cents / subsequent retrieval

2.3.5 Subscription

Under the basic subscription model, a user pays a monthly fee to a website in order to access the material available on that site. In general, once the subscriber has paid the fee to the firm, he or she is given full access to the content provided by that firm for the period of the subscription. Until recently the subscription model was derided as a model consumers would never accept for content on the web. Wired Magazine ran articles which stated: "That's the first principle of Webonomics: Consumers will barely pay a subscription fee for access to a Web site."21 Recently, however, a number of individual websites have begun charging or announced the introduction of subscription charges for some of their content, and the subscription model has gained favor as a model for bringing large, established companies to the web.

The subscription model alone, however, is also not sufficient to solve the market failure inherent in competitive content. If two or more content providers have similar content, each would be willing to price their content at lower and lower subscription prices until the price of the subscription equals the marginal cost of zero.

20 http://professional.infoseek.com/doc/stdhelp/InfoSeekCharges.html#premium
An example of a pure subscription site is the San Jose Mercury News (http://www.sjmercury.com). For $4.95/month, a subscriber receives access to current news stories in the Mercury, along with access to a database of Mercury stories going back eleven years.\textsuperscript{22} The fact that all the content on this site comes from one content provider is very typical of the single-firm subscription-based website.

2.4 Summary

Considering individual content products alone is not sufficient for dealing with internet content products. Although some of these models can be applied to certain types of content (notably, the free and advertising-based models are viable models for some content), none of these models alone can support the full range of content products which can be made available on the internet. In addition, neither can any combination of these models together solve the market failure which results in zero-marginal cost markets.

In the next section, I introduce the aggregator model. The aggregator model differs from the previously mentioned models primarily because it involves selling multiple products together as a bundle as opposed to selling each product individually. While this may seem like a simple difference, selling products individually or as a bundle has profound implications on the competitiveness of a particular content vendor.

As we explore the aggregator model, it is worth remembering the various pricing models described above. In addition to bundling content together, sophisticated aggregation entities combine aspects of many of these models in order to maximize revenue for the aggregator.

\textsuperscript{22} http://www.sjmercury.com/help/subscribe.htm
3. The Aggregator Model

The aggregator model is distinguished from other pricing models primarily because it involves selling bundles of content together as a single unit rather than selling individual products separately. This distinction is crucial; in the market for zero-marginal cost products, products sold in a bundle have a natural advantage over products sold individually.

The purpose of the aggregator is to be an intermediary between multiple content creators and the individual content consumer. Under the basic aggregator model, the aggregator firm licenses content from various content developers, and sells the user access to a bundle of all its content for a single set price. The user is given unlimited access and use of the content for a given time period. Once the revenues are collected from subscribers, the revenues are then redistributed to the content creators. This allows the content creators to fund the development of future content.

The aggregator firm has two primary concerns - how to bundle its content, and how to redistribute its revenues to the content creators in a manner which properly values the content. In this section, we will explore both of these topics. In my analysis of bundling theory, I will show that in a market with zero-marginal cost goods, selling bundled products together provides an advantage over selling individual products; immediately following, I will demonstrate how an aggregator can segment its customers into different groups and modify its pricing structure to maximize its revenue. In the discussion of royalty distribution, I will discuss some of the methods aggregators can use to determine the proper distribution of royalties to the content creators.
3.1 Bundling

Bundling is simply the process of selling two or more products together as a bundle rather than selling each product separately. First, I will provide a practical example of bundling increasing producer profits. Then, I will graphically demonstrate how bundling can allow the firm to capture larger amounts of producer surplus while minimizing consumer surplus as well as deadweight loss. In practical terms, bundling increases the producer’s ability to make money from a diverse set of customers who are willing to pay different amounts for each product.

3.1.1 Practical Illustration of Bundling

To illustrate the theory of bundling, imagine a situation where a firm is trying to sell two electronic books, “Moby Dick” and “Liar’s Poker”. Suppose that one of the firm’s customers, Joe, a poet, is willing to pay $5.00 for “Moby Dick”. On the other hand, Joe’s willingness to pay for the book “Liar’s Poker” is only $3.00. Another customer, Wendy, a bond trader, has slightly different preferences. Wendy thinks “Moby Dick” is OK, but really wants to read “Liar’s Poker”. As a result, her willingness to pay for “Moby Dick” is only $3.00, while her willingness to pay for “Liar’s Poker” is $5.00.

<table>
<thead>
<tr>
<th></th>
<th>Moby Dick</th>
<th>Liar’s Poker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>$5.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>Wendy</td>
<td>$3.00</td>
<td>$5.00</td>
</tr>
</tbody>
</table>

Assuming that the firm cannot price discriminate, that is, it cannot charge different prices to Joe and Wendy, the most the firm can charge to maximize its revenue is $3.00 for “Moby Dick” and $3.00 for “Liar’s Poker”. This results in a total revenue of $12.00. Charging more than $3.00 for “Moby Dick” would keep Wendy from buying “Moby

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23 The description of bundling is heavily based upon the description found in Microeconomics, 3rd Edition, by Pindyck and Rubinfeld, Prentice Hall, New Jersey, 1995, p384.
Dick” and charging more than $3.00 for “Liar’s Poker” would keep Joe from buying “Liar’s Poker”.

However, what would happen if the firm bundled the two books together? The maximum Joe would be willing to pay for both “Moby Dick” and “Liar’s Poker” individually or in combination is $8.00. Similarly, the maximum that Wendy would be willing to pay for “Moby Dick” and “Liar’s Poker” individually or in combination is also $8.00. In this case, the firm could charge up to $8.00 for the bundle and still get both customers to buy the bundle, resulting in a total revenue of $16. By bundling, the firm receives $4.00 more revenue than selling each product individually.

The firm is able to gain more revenue through bundling because Joe and Wendy have heterogeneous demands for the two products, and bundling reduces the overall differences in consumers’ willingness to pay.

The effect of bundling on the market can be shown graphically as a change in the shape of the demand curve. For example, assume the first simple market example: we are selling a single good to Joe, Wendy, and a large number of other people with different willingness to pay for the one good. We assume that the market for this good has a linear demand curve (implying that consumers’ willingness to pay for the good is evenly distributed from zero to one). In such a case, the demand curve for that one good would look like this:
The firm will find a price and quantity of output which maximizes the total profit gained by the firm. Since marginal cost in this instance equals zero, the actions of the profit-maximizing firm can be represented by finding the largest inscribed rectangular area possible under the demand curve. In this case:

![Demand Curve Diagram]

Now, let us assume that we bundle the two goods together. Each individual good still has a linear demand curve, but the shape of the demand curve for the bundle as a whole begins to change because there is less variance in the willingness to pay for the bundle in our consumer population. Whereas consumers' willingness to pay for a single good was equally distributed from zero to one, the group of consumers will be more likely to have moderate valuations for their willingness to pay for the bundle (i.e. it is less likely that any given individual would have a very high, or very low, willingness to pay for both good 1 and good 2).

Given this characteristic, the demand curve for the bundle of two goods would look like this:
As shown in the graph, the shape of the market demand curve begins to flatten, taking on the overall appearance of an 'S' curve. The consequences of this change to the profit-maximizing firm are quite beneficial. In the first example, the profit-maximizing firm could only receive the producer surplus represented by the gray square. In this case, the S-shape of the demand curve allows for an inscribed rectangle with a significantly larger area than the original square. By rough calculations, this rectangle is more than 10% larger than the square in the first example.

The graph below shows the shape of the demand curve for a bundle of twenty goods:

In this case, the gray rectangle represents the producer surplus which can be gathered by the profit-maximizing firm. Due to the change in the shape of the demand curve, deadweight loss shrinks, consumer surplus shrinks, and producer surplus grows significantly. This demonstrates very clearly that the firm under bundling can capture more revenue than when selling goods individually.

In the extreme (a single bundle of all content), the profit-maximizing firm would theoretically face a perfectly flat demand curve, and would be able to capture all of the benefit to the market in the form of producer surplus, eliminating all consumer surplus as well as all deadweight loss.

3.1.2 Limitations of Bundling

As wonderful a tool as bundling is, certain combinations of products do not lend themselves well to bundling.\textsuperscript{24} Consider “big” goods, that is, goods in which the consumer’s willingness to pay has a very large mean and variance in comparison with other goods in a bundle. For example, imagine that we wanted to add a third book, “Wuthering Heights” to our previous bundle for Joe and Wendy. Joe, the poet, would pay $20 to get “Wuthering Heights”. Wendy, on the other hand, has no use for such a book and would only pay $1.00 for “Wuthering Heights”. To summarize, we now have:

<table>
<thead>
<tr>
<th></th>
<th>Moby Dick</th>
<th>Liar’s Poker</th>
<th>Wuthering Heights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>$5.00</td>
<td>$3.00</td>
<td>$20.00</td>
</tr>
<tr>
<td>Wendy</td>
<td>$3.00</td>
<td>$5.00</td>
<td>$1.00</td>
</tr>
</tbody>
</table>

Clearly, compared to their willingness to pay for “Moby Dick” and “Liar’s Poker”, Joe and Wendy’s willingness to pay for “Wuthering Heights” has a much higher mean and

variance, and would be considered a “big” good. If the firm wanted to include “Wuthering Heights” into a bundle that both consumers would purchase, it could charge no more than $9.00 for the bundle, for a total of $18.00, an incremental revenue increase of $2.00 over the earlier bundle of only two books. On the other hand, if “Wuthering Heights” were left out of the bundle and sold separately, the firm could charge up to $20.00 and still get Joe to purchase it. This results in an incremental revenue increase of $20.00 over the two-good bundle alone.

Theoretical studies of bundling have shown that a new good should be added to a bundle if and only if the standard deviation of the willingness to pay for the new good is less than three (3) times the standard deviation of the willingness to pay for the bundle. As a result, “big” goods should, in general, be sold separately. Examples of such practices can be found in the cable industry, where most content is bundled, but certain events with high variances (notably championship boxing matches) are sold separately on a pay per view basis.

3.1.3 Examples of Bundling in the Software Market

The idea of bundling is well established within the computer industry. Originally, software was bundled with the hardware which would run the program. Later, once a common hardware platform was well established, bundling individual software programs together became a common method for ensuring the wide distribution of a software program.

3.1.3.1 Microsoft Office

Perhaps the most dramatic and successful example of software bundling was the development of Microsoft Office. Microsoft’s suite of applications included a word

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26 As a corollary, this indicates that bigger bundles can absorb bigger goods.
27 On the other hand, if there are a number of other “big” goods which have a similar variances, it could be advantageous to bundle those products together.
processor, a spreadsheet, presentation software and in some cases, a database. This combination of programs fit beautifully into the profile of the combination of products which would benefit most from bundling. One application was crucial to different groups of people, yet all the applications also contained value for every consumer as well.

For example, financial analysts desperately needed the spreadsheet for their daily calculations, but could also use the word processor and presentation software for their occasional communication with other parts of the company. Similarly, sales people valued the presentation software very highly, and had lower but still significant need for the spreadsheet and word processor. Clearly, different consumers valued the individual products very differently (in other words, the consumers had heterogeneous demands), yet Microsoft was unable to price discriminate among the various customers. The bundle allowed Microsoft to extract more consumer surplus from the group as a whole.

It is interesting to note that Microsoft actually engaged in mixed bundling, a version of bundling in which the goods are sold both in the bundle and as individual products. Mixed bundling is a preferred profit maximizing strategy if the marginal cost of each unit is significant.\textsuperscript{28} In this particular case, the marginal costs associated with the production and distribution of boxes, documentation and diskettes were significant enough to make mixed bundling the profit maximizing strategy.

3.1.3.2 Web Servers

Similar bundling arrangements are appearing in the web server market as well. During 1995, both Netscape and Microsoft began marketing high-profile web servers as individual products. Within a period of several weeks in early 1996, both Microsoft and Netscape had announced bundling arrangements for their web servers. Microsoft announced that it would bundle its webserver with every copy of its Windows NT Server operating system. Netscape announced a bundling agreement with Novell’s network

\textsuperscript{28} For more information on all types of bundling, see Microeconomics, 3rd Edition, by Pindyck and Rubinfeld, Prentice Hall, New Jersey, 1995, p384.
operating system. During the same time period, Compaq computer announced it would bundle Microsoft, Netscape and Novell’s webservers on each and every Compaq server delivered to customers.

In this case, the marginal costs associated with adding the software (and online documentation) are very close to zero. Copying the three webservers onto a disk drive requires only a little time and coordination; there are practically no marginal costs of production or distribution. As a result, Compaq is choosing to engage in pure bundling, without selling the servers separately as well.

3.1.3.3 Netscape Navigator Plug-ins

With the advent of the world wide web, the cost of production and distribution of software has truly fallen to zero. As a result, it is no longer advantageous to participate in any form of mixed bundling. Instead, bundlers on the web should exercise bundling in its pure form in order to maximize revenues. Netscape Corporation has recognized this in the development of new versions of its software.

Originally, Netscape’s Navigator software encompassed basic functionality and allowed for “plug-ins” which could enhance the capabilities of its software. Numerous independent software companies produced plug-ins with audio, video and document handling capabilities. With the announcement of Version 3.0 of its software, however, Netscape has announced that it will bundle various plug-ins directly with the Netscape Navigator. As a result, when a consumer downloads Netscape, it will have audio, video and document handling capabilities built into the product.

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31 http://www.cnet.com/Content/Reviews/Hands/040196/netscape.html
As a side note, Netscape's announcement caused major problems for audio, video and document-handling plug-in developers who were not included in the bundle. Overnight, their products became uncompetitive in the market for plug-ins.

### 3.1.4 Advanced Bundling - Segmentation of the Market

In addition to the basic bundling strategy outlined above, it is possible for a firm to capture even more revenue from the market through the use of advanced bundling techniques. Basic bundling theory assumes that the firm cannot discriminate among its buyers. In practice, however, the firm is occasionally able to segment buyers into large groups with similar buying patterns. In such a case, the firm may be able to change its bundling or pricing strategies to extract even more consumer surplus from the market as a whole.

Within the entire consumer market, there may be segments which are clearly willing and able to pay much more for almost all products. For example, a stock broker on Wall Street and an individual trading his own account from home may have very similar relative interests and relative willingness to pay for certain goods; both would probably be willing to pay much more for their daily stock information than information on seating for tonight’s plays on Broadway. However, it is also probably true that the stock broker would be willing to pay more for both the stock information and the play seating information than the individual investor. In such a case, it may be possible for a firm selling information to find a way to segment the market between the stock broker and the individual investor such that the price for the stockbroker is significantly higher than for the individual investor.

Such segmentation occurs on a regular basis in physical goods markets. Educational discounts are a form of segmentation. Special prices for children and seniors are another example, and separate individual and corporate prices abound in the physical goods markets. There are many more possibilities for segmentation (for example, by profession as shown above), but it is difficult to establish those differences in the physical world,
and interactions among people in the physical world tend to dissuade significant price discrimination on the individual level.

The internet offers a variety of opportunities for establishing differences on the individual level. It is now possible to record exactly where a visitor goes on a website, how long he or she is there, and what products or services he or she has purchased through the website. Combine this with demographic and purchasing power information and it may be possible to achieve very high degrees of price discrimination, in which case, the firm can charge different prices to different customers and gather significantly more profit.

Graphically, this can be shown as a three-dimensional segmentation of the single demand curve. Instead of facing the single demand curve, the firm faces a set of demand curves, one for each segment of the market. Each segment has slightly different willingness to pay for the entire bundle, and if the firm can achieve segmentation of its customer base, it can charge different prices for the bundle to each segment of the market, maximizing its profit across all the segments.

This graph illustrates a firm offering the bundle of products at different prices to different segments of the market. Note the stepped appearance of the demand curves. Each "step" represents a different bundle or service available at a different price.

As an example of such market segmentation online, consider the billing plans for the major online services, such as AOL and CompuServe. Their typical charges consist of a set, flat fee for basic access which includes a number of hours' worth of free access per month. Additional hours cost extra. This represents a level of market segmentation according to level of use. One segment of the market (the occasional user) pays the set, flat fee. Another segment (the heavy user) pays a much higher fee which varies from month to month. By segmenting the market, the online service manages to get some revenue from the occasional user, and more revenue from the heavy user. Note that since the additional time charges are billed in ten minute increments, segmentation according to time online demonstrates similarities to the metering pricing model.

The time online market segmentation is a very simple example of segmentation. Given the total recording capabilities on the internet, it would be very easy to implement segmentation according to age, time of access, buying patterns, locations visited, personal profiles as well as other demographic information such as zip code, education or race. As interesting as this capability is, it is important to remember that some levels of price discrimination are illegal. Check with your lawyer for more information.

3.2 Royalty Distribution

The final consideration for the aggregator is how to properly value the individual products within the bundle so that content creators can be properly compensated for the value of their product. When selling individual goods, the value of an individual product can be determined from the market price of the individual product. Aggregators receive lump sum payments for an entire bundle of content. Since the bundle by definition
aggregates consumers' willingness to pay, any information about the individual value of products within the bundle is lost. As a result, a substitute method must be used to recreate or simulate consumers' demand curves for each product within the bundle.

The most basic method of determining the value of individual products is to leave the determination up to the judgment of an individual manager. This method, however, is prone to the vagaries and biases of the individual decision maker. On the other hand, there are several methods which can be used within the internet space to provide an objective measure of the value of individual content products. Here, I list three such methods: website traffic estimates, usage monitoring and coupon discounting.

3.2.1 Website traffic estimates

A simple way of determining how much users value particular content is to measure how often it is accessed. As of Spring 1996, website traffic monitoring is the most common means of determining the value of particular content. This statistical measure is typically represented as the number of hits generated by the page which holds the content. Several software programs, including net.Analysis\(^{32}\) and Wusage\(^{33}\) are available to measure website traffic. In addition, several third-party organizations, such as I/Pro\(^{34}\) and WebCount\(^{35}\) are providing audited measurements of website traffic for verification of claimed traffic levels.

Website traffic measurements are slowly being extended through time-on-page measurements and other enhancements, but measuring traffic alone does not reveal how much the user is willing to pay for the content. For example, imagine you are a bond trader who subscribes to a bundle of content for a single set price. Imagine you regularly access two different pages on the same server; one page contains the daily weather report, and the other contains the crucial announcements in the bond market that morning. You

\(^{32}\) http://www.netgen.com
\(^{33}\) http://www.boutell.com/wusage/
\(^{34}\) http://www.ipro.com
\(^{35}\) http://www.webcount.com
might access each page the same number of times and spend a similar amount of time on each page, but chances are that you would be willing to pay much more to retain access to the bond announcements than you would to retain access to the weather report.

3.2.2 Usage Monitoring

Usage monitoring is useful for determining how many times a piece of software is used. By measuring the direct usage, the aggregator can determine what percentage of the overall revenues goes to a specific content provider.

There is no particular technical barrier to statistical or even direct monitoring of software usage. With more and more computers connected to the Internet, it is possible to have a program record each time it is used, or communicate with a centralized server each time. Even if total direct monitoring is not feasible, statistical monitoring of a small volunteer (or compensated) population could provide very acceptable software usage estimates.

Unfortunately, usage monitoring for software falls victim to the same problems experienced by website traffic monitoring. The number of times software is used is a very bad indicator of how individual subscribers to the bundle value that particular software.

3.2.3 Coupon discounting

Coupon discounting is another means of determining how much the user is willing to pay for each piece of content in the bundle. Under the coupon discounting method, the aggregator identifies a statistically valid sample group of subscribers and offers them coupons for discounts on the bundle if they choose to have a particular segment of content removed from their bundle. By varying the coupon size and measuring the rate of acceptance, the aggregator can measure subscribers' willingness to pay for that particular

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segment of content. Over time, the aggregator can gather enough information to build a demand curve for the particular item.

This method is interesting because of its theoretical accuracy and for the relative ease with which it can be implemented. Overall, it may become the preferred method for determining subscribers' willingness to pay for individual products within a bundle.

3.3 Summary

In this section, we have demonstrated several important aspects of the aggregator model. First, we have shown that bundling zero-marginal cost products enhances the aggregator's ability to gather revenue from its customers. As a result, a firm selling competitive content in a bundle has a competitive advantage against firms selling similar content individually. Furthermore, we have also shown that with detailed information about its customers, an aggregator firm can extract even more revenues through segmentation of the market. Second, we covered several methods for determining how individual content products within the bundle can be valued in order to properly distribute royalty payments from the aggregator to the individual content providers.

Now that we understand the structure of the aggregator model, it is important to explore existing aggregator entities on the internet to determine how they are similar and/or different from what theory would predict. In the next chapter, we will review the current state of aggregator entities on the internet. This will provide several insights into the level of sophistication of these entities, as well as an understanding of the competitive considerations an aggregator entity must take into account in order to maintain a viable business.
4. Aggregators in the Real World

Aggregation entities are already appearing and quickly maturing within the internet content space. These aggregators appear in the form of online access providers with proprietary content, large websites, and online libraries with targeted search capabilities. Furthermore, since a number of these aggregators compete within the same market, these aggregators, they also demonstrate characteristics which provide competitive advantages over other aggregators.

In this exploration of aggregators in the real world, I will first discuss the dynamics of a market of several competing aggregators, and consider possible tactics an aggregator can use to compete within such a market. The second part of this chapter reviews the current pricing and bundling structures of major online service providers and other aggregation entities already in existence on the internet. After a brief overview of each, I will directly compare each entity to determine how well each has implemented aspects of the aggregator structure.

4.1 Aggregators in Competition

At the beginning of this thesis, I analyzed the dynamics of a market for zero-marginal cost goods. In a competitive market, the price of the good will be driven to marginal cost, resulting in a price (and therefore firm revenues) of zero, and a situation known as a market failure. Earlier in this thesis, I have shown that a firm can use bundling to achieve a competitive advantage over a firm selling products individually. What happens,
however, when multiple aggregator firms with similar bundles of content compete within the same market?

Two aggregators in competition face the same problem two firms faced by two firms selling individual content products. Just as a single content product has a marginal cost of zero, a bundle of content products has a marginal cost of zero. According to competitive economic theory, two competing firms would therefore drive the price of their competing bundles down to zero, resulting in no revenues and another market failure. Bundling theory alone does not fully solve the market failure evident in competitive content products.

In order to create a viable market, an aggregator must therefore provide other sources of value. Traditional marketing provides hundreds of sources of value for the customer, anything from airline miles affinity programs to free baseballs with the purchase of a hamburger. All these traditional sources of value are available and should be considered. For the purposes of this discussion, however, I will focus on a type of value which is prevalent within the internet realm: coordination value.

4.1.1 Coordination Value

To understand coordination value, it is necessary to understand the idea of transaction costs. Whenever a consumer wants to access information on the web, he or she has to "pay" the costs of learning how to use a computer, setting up an online connection, learning where the interesting content is on the web, registering for individual websites, creating and remembering a bevy of usernames and passwords, and so on. Each of these tasks can be a significant burden for the user, and constitute a cost the consumer must bear in order to perform the transaction (a transaction cost).

Transaction costs are different for different individuals. For example, the typical college student today is very familiar with computers and is perfectly comfortable accessing Yahoo!, Lycos, or some other search engine in order to locate information on the web.
By comparison, her grandmother is not likely to have a good understanding of computers, let alone the interconnected nature of the web. It would take a great deal more effort on the grandmother’s part to locate the information on the web than it would for the college student to do so. The cost of completing the transaction would be much higher for the grandmother than for the college student.

Notice how lowering transaction costs can affect the market for content. Assume that two aggregators are selling the same bundles of content at the same price. Since the actual price paid by the consumer is a combination of price and transaction cost, the aggregator who minimizes transaction cost has an “effective price” advantage over other aggregators.

In such a case, the aggregator with lower transaction costs can charge a price equal or lower than the transaction cost and still retain the customer.

Coordination value can also have another beneficial effect upon the aggregator. By providing coordination value, the aggregator increases the consumer’s switching cost. Switching costs appear to the user as an extra cost to using alternative suppliers, typically in the form of setting up a new system, understanding the unique commands, and other specifics to the new supplier.
For example, imagine a customer who accesses the internet using America Online (AOL). Over time, the user becomes familiar with AOL’s unique interface, understands how to use the mail system, becomes used to the alerts and lists of interesting internet sites provided by AOL, and begins developing a community of contacts who know they can contact the user through a particular e-mail address, “user@aol.com”.

Then, the user is contacted by an Internet Service Provider (ISP), who promises full access to the internet, e-mail service and similar lists of interesting sites for a lower price. The deal might be enticing, but in order to switch, the user must install the new software, setup a new internet connection, learn a new e-mail system, and notify all his or her contacts of a new e-mail address, “user@isp.com”. Depending on the user, these switching costs may constitute anywhere from an afternoon spent on the computer to over two weeks tracking down bugs and notifying all contacts.

The presence of switching costs has a significant impact on the market.

![Diagram](chart.png)

Even if the actual price of a competing supplier is lower, a user may stay with his or her existing supplier because the cost of switching to the new supplier may make the
effective price of the competing supplier much higher than the price of the consumer’s existing supplier.

As shown, providing coordination value can give an aggregator a significant competitive advantage over other aggregators. I will now discuss a number of examples of coordination value which can be easily provided by an aggregator.

4.1.1.1 Navigation

"The good news is that there are five gazillion sources of information on the internet. The bad news is that there are five gazillion sources of information on the internet."37 Although the internet has a wealth of information, finding what you need is sometimes difficult. An aggregator can provide value to the user by organizing content in a particular manner to ease navigation to sites which would be logical related in one way or another. Alternately, the aggregator can provide a search engine which will find the content desired by the user. The most famous, net-wide search engines, such as Lycos and Yahoo!, have already proven their value through their very successful public offerings. Smaller, more targeted search engines can also provide significant value when a user wants to find particular information within a specific database. For example, Infoworld has an arrangement with the search engine Excite! to provide search services within the Infoworld database.38

4.1.1.2 Trust and the Elimination of FUD

Another major issue for the web is the establishment of trust. With the advent of the electronic age came a level of anonymity in human relations which has not been previously available. When communicating with someone electronically, the consumer has no means for judging the other person’s reactions, character or even verifying the other person’s identity. As a result, many people now feel a need to establish trust among

38 http://www.infoworld.com
the various players we interact with electronically. The internet is an untamed frontier, and some people are willing to pay for the safety provided by living in a protected area.

For example, fear, uncertainty and doubt (FUD) has been one of the primary limiting factors in the development of online commerce. How do you know that a website truly represents the entity it claims to? A perfect example of this question can be found in the various political sites which appeared for the 1996 presidential elections. In addition to the official candidate sites, a number of unofficial and spoof sites sprang up on the World Wide Web. At times, it was difficult to determine which was which. For example, below are the screen shots for two sites which were very popular in 1996. One has the address “http://www.dole96.org/”, and the other has “http://www.dole96.com/”. At first glance, it is difficult to tell which site is the proper location for accessing information about Senator Bob Dole’s 1996 campaign for President. This is a harmless and humorous example, but could similar things happen for commercial firms? Instead of giving your personal information to a company you know and trust, you could be giving it to a front page for a scam.

In this kind of market, the aggregator can provide value through verification. Since bundled content requires that the aggregator make a contract with the content provider, the individual user can be reassured by the presence of the content provider that the firm
represented is indeed a valid entity. Aggregators are in a position to provide that level of protection. Because aggregators are an intermediary between the end consumer and other entities on the web, the very presence of the aggregator minimizes the risk taken by the individual user. Instead of giving his or her credit card to a variety of vendors, the user only has to trust the single aggregator with the credit card information. Since payments to the content creators are made by the aggregator, the content creator never needs to see the individual users' credit card information.

As a side note, aggregators have an interest in ensuring that content on their site is not misrepresented. If the L.L. Bean content on an aggregator's site is not coming directly from L.L. Bean, both consumers and L.L. Bean might have reason to bring a lawsuit against the aggregator.

4.1.1.3 Single Password Access

One of the greatest sources of coordination provided by an aggregator is the convenience of having large amounts of content accessible through a single password. Currently, when consumers access individual sites on the web, they must register for each site separately, creating a new username and password for each site and remembering that specific username and password each and every time he or she wants to access the site. As the number of registered sites increases, the burden this represents for the consumer increases exponentially. Conceivably, the consumer could use the same username and password for each site, but this solution has two flaws. First, the selected username may already be taken at some sites. Second, using the same password means that the model railroad site webmaster knows the password for accessing your mutual fund information. In addition, each new registration with a different firm also increases the chance that the information granted will be distributed to junk e-mailing lists or solicitation vendors.

If the consumer forgets a username or password, he or she must incur significant cost contacting the website and confirming his or her identity before being granted a new password and given access to the site. In fact, it is possible that many consumers would
simply not attempt to access a site if he or she forgets the password. Wired magazine experienced this effect early in its existence. Originally, Wired required username and password registration to access any part of its site. Eventually, Wired decided to make many portions of its site open access, with only certain sections requiring password access.

Forgetting one's password may seem trivial, but in practice it appears to be a significant enough concern to warrant a lot of attention from existing websites. For example, note the information included in every HotFlash weekly mailing:

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HotFlash 3.12
*************

Hello and welcome to HotFlash, the weekly newsletter of events and information for HotWired and WIRED magazine - 22 March 1996.

To receive the HotWired Frequently Asked Questions (FAQ) list, which includes a complete list of HotWired contact information, send a message to:
hotfaq@hotwired.com

Forget Your Password?
+--+-++-+-++-+-+++--

We know, we know. You have 18 slightly different usernames and passwords, and you just can't keep track. Don't let an eight-digit password keep you from posting to Threads. If you've forgotten yours, all you have to do is (1) reply to this message; (2) change the subject line to read PASSWORD (that's important); and (3) write us a one-sentence note with your name, email address, and membername (if you remember it). It's that easy.
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This is not an isolated phenomenon. Other sites, such as Travelocity (http://www.travelocity.com), also have procedures for recovering users' lost passwords prominently displayed on their homepages. The value of the single password should not be underestimated. As an experiment, go onto the web and register for ten sites using slightly different usernames and passwords. Return two days later and try to access all ten sites again. Chances are you will forget several of your password permutations. Note
how frustrated you get trying to remember them and think how a consumer would feel if they got similarly frustrated accessing a content site.

For an example of this type of coordination value, see the major private online services, such as CompuServe and America On-Line (AOL). These groups have been giving access to a wide variety of content through a single username and password for years.

It is interesting to note that the coordination value provided by single password access is scaleable. That is, the larger the aggregator's content base, the more valuable the coordination value provided. The scaleable nature of this type of coordination value is also evident in the next two sources of value discussed, single billing and guaranteed access.

4.1.1.4 Single Billing

Ever since the breakup of AT&T, phone users have been receiving multiple bills from telecommunications companies. Today, in the ongoing battle among the major long-distance carriers, convenient single-billing for all local, long-distance and cellular phone lines has recently become a major selling point. Such coordination of all one's telecommunications charges on a single bill is a significant source of value.

In the internet world, this effect could be even stronger. A well-connected user could easily want access to a dozen different content products, from a daily news feed to several monthly e-zines to trade newsletters and/or an entertainment service. As a result, an active user might receive bills from a dozen different content providers. In such a realm, single billing becomes an even more significant convenience which the aggregator can provide for the consumer.\footnote{In a press release dated May 14, 1996, AOL announced the introduction of security and online commerce capabilities to its service. http://www.pcweek.com/news/0513/14eaol.html}
As a side note, single billing is also beneficial to the vendor because it raises the average bill to a level which is economical. According to Verifone, a company heavily involved in credit card transactions, the processing overhead cost of a single credit card transaction is approximately $0.06 per transaction.\textsuperscript{40} Given the additional overhead related to maintaining a credit card account for an individual and dealing with non-payment and losses, the minimum economical monthly credit card transaction for a firm, is approximately $20-$25.\textsuperscript{41}

\textit{4.1.1.5 Guaranteed Access}

Another huge benefit large, sophisticated aggregators can provide is a guaranteed level of access. A major benefit of the internet is its distributed nature. However, this distributed nature is also becoming a major shortfall of the internet. When accessing a far-off server, a user at the mercy of each and every transmission line and computer in between. The user and the destination server may have huge, 45 megabit connections to the internet, but if some link in the middle is overwhelmed with traffic, the connection will still crawl along at the speed of a 2400 baud modem.

As traffic on the internet has increased exponentially, dire warnings have appeared in both the technical\textsuperscript{42} and popular\textsuperscript{43} press about the upcoming traffic jams on the internet. These delays are a crucial consideration for a content provider, because they increase the transaction cost of accessing content.

A large, sophisticated content aggregator, however, can create the structure necessary to minimize access delays by essentially building its own private internet. The aggregator can then host content on its own private network and guarantee that subscribers trying to

\textsuperscript{40} Conversation with William Wong of Verifone, April 17, 1996.
\textsuperscript{41} Conversation with William Wong of Verifone, April 17, 1996.
reach content hosted on the private network will never experience congestion. This is extremely valuable because it ensures that content hosted on the private network has a lower transaction cost to the user than competitive content hosted elsewhere on the internet.

AOL and CompuServe have long had their own proprietary networks, but their network architectures have not always been known for their speed. On the other hand, several cable companies (notably TCI, through its investment in @Home) are building high-speed proprietary networks, as well as physical plants which can host content. If the internet truly does slow to a crawl, content hosted on these private high-performance networks will have a competitive advantage over other content in the form of a lower transaction cost of accessing the content.

4.1.1.6 Personalized Content

Another, more effective means of providing value is to create personalized content specific to the needs of each individual user. Personalized content is merely content which is built in a manner specific to the interests or needs of each individual user. Several firms have already started providing personalized news services on their websites.\textsuperscript{44} In order to create the personalized news service, the user is required to input specific information about his or her news preferences. The personalized news service then uses those preferences to filter news stories from various sources and provide the most important set of stories to the individual user.

The process of inputting his or her specific interests is a cost to the user. By definition, this cost constitutes a switching cost, since the user would have to input the same information again in order to have the same level of service through a different aggregator.

\textsuperscript{44} Individual, Inc. (http://www.individual.com), Wall Street Journal (http://update.wsj.com).
The most elaborate example of personalized content I have encountered is the customizable Excite homepage (http://home.excite.com/home). This service not only provides customized news, but it also allows the user to build up a database of information on special events (birthdays, anniversaries, etc.), customizable hotlinks, reference sources, sports scores, columns and even a personalized cartoon. The effort required to program this personal webpage constitutes another form of switching cost since a user would have to reprogram another such page if he or she were to switch to another content service.

4.1.1.7 Guaranteeing Quality of Content

The content available on the internet is extremely diverse, and many parents fear that their child could come across adult-oriented material while casually browsing the web. The passage of the Telecommunications Decency Act of 1996 and numerous cover story articles about pornography on the web highlight the level of alarm many parents have about their children’s wanderings on the web.

In response, several companies, such as NetNanny and SurfWatch have developed software which blocks access to certain sites and provides parents with peace of mind. In order for such software to be effective, however, the list of blocked sites must be regularly updated as new sites are added to the web. An aggregator, particularly the online access providers, can maintain updated lists and can provide different levels of access to particular subscribers. This type of service is something parents would likely pay for.

This kind of service does not apply only to children. By targeting its audience and tailoring the content available on its site, a content aggregator can provide that same peace of mind, a level of trust that the content available through this particular aggregator is of a certain quality, character, viewpoint or other characteristic. For example, a user

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45 http://www.netnanny.com/netnanny/home.html
46 http://www.surfwatch.com/
might want to know how a particular consumer group, religious group or political action group rated various sites.

Work on various rating systems is being done the Word Wide Web Consortium. The Platform for Internet Content Selection (PICS) project is designed to create a means to control internet access without censorship. According to the PICS structure, rating mechanisms are created by a third party and “subscribed” to by the individual user. This allows any organization to create a rating system, and does not allow any organization to restrict itself from being rated.

Under the PICS structure, the aggregator could provide a service by locating the various rating mechanisms, and by creating an easy-to-use means of tracking the rating structures subscribed to by each user.

4.1.1.8 Privacy

Privacy on the internet is a major concern for many people. In addition to basic credit-card duplication concerns, users have concerns about the amount of personal demographic information which can be assembled on an individual. For example, in direct response to users’ privacy concerns, BigFoot, an online e-mail directory, announced that it will provide a feature which allows users to un-list contact information such as email addresses, home pages, mailing addresses, and phone numbers. In another example, Yahoo deleted 85 million records containing unlisted home addresses from its new People Search service.

A trusted aggregator can provide a service by becoming a holder of private demographic information, releasing to interested parties only that information which the individual

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47 http://www.w3.org/pub/WWW/
48 Conversation with Prof. Paul Resnick of MIT, April 10, 1996.
49 http://www.cnet.com/Content/News/files/0,16,1191,00.html
user has previously authorized to be released. In this manner, the consumer can retain control of the amount of personal information given to marketers.

It is interesting to note that the demographic information database service is already available through a third-party firm known as Internet Profiling (I/Pro). The I/Code service assigns a specific code to users which they can then use to quickly distribute selected information to marketers. It is quite conceivable that an aggregator entity could provide a similar service for the consumer.

4.1.1.9 Intelligent Agents

Perhaps the most powerful method of building switching costs is for the aggregator to provide intelligent agents which facilitate users' interactions over the internet. Intelligent agents are software programs which are designed to act in the interest of the user. In general, intelligent agents are designed to learn a user's needs and unique characteristics and act in the user's interest in the marketplace. As a result, over time, the agent becomes more and more specifically tailored to the specific interests and concerns of the individual user.

If these agents are provided as a service by an aggregator, the aggregator provides a value added service to the user by providing the agent, the aggregator provides another service in protecting and backing up the information stored within the agent, and the aggregator creates a significant switching cost for the user. If the user switched to another aggregator, the user would have to reprogram a new agent to reflect the user's needs and unique characteristics. With sophisticated agents, such a process could require months' worth of "training".

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50 For more information, see the MIT Media Lab Autonomous Agents Group, http://agents.www.media.mit.edu/groups/agents/
51 Conversation with Prof. Pattie Maes of the MIT Media Lab, April 10, 1996.
4.2 Current State of Major Content Aggregators

The primary purpose of this review is to observe the existing practices of content aggregators and determine whether these content aggregators are following developments in the market for content as predicted by economic theory. All the information in this section is current as of May 15, 1996. Since most online content companies are in an experimental stage, I fully expect that the specific strategy details of individual content aggregators will change significantly by the end of 1996.

4.2.1 On-line Providers

I will review the current state of five major online providers: America Online (AOL), CompuServe, Microsoft Network (MSN), Prodigy and Netcom. Each of these services provides access to the internet, either directly or through a proprietary online service.

On-line providers are in a unique position in this internet content space. Because they have the first connection to the customer, they are in a unique position to analyze consumers and provide value-added services tailored to consumers’ needs.

4.2.1.1 America Online

America Online is the largest of the proprietary online services, with over six million members as of Spring 1996. Over the years, AOL has built a reputation as a system which is relatively easy for novices to use. At the same time, some veteran online service users and internet users find AOL’s limitations to be frustrating. Currently, while AOL members can access the web from within AOL, web surfers cannot view AOL’s content. All of AOL’s content is stored on a proprietary network which is only accessible to AOL members.

AOL’s overall structure is very much that of an aggregator. On the service, all content is available through a single password, and all fees are based upon a combination of a monthly fee and a time-based access fee. There are no extra access fee related to
particular content. Currently, subscriber fees account for 90% of AOL's revenue, with limited advertising revenue making up the balance.\textsuperscript{52}

It is worth noting that AOL has initiated one of the more interesting forms of content development. AOL is in the midst of a concerted effort, known as the "Greenhouse" program to encourage the development of new content for its service. The program provides AOL funds and/or standardized contracts to content startups which will then be hosted on AOL's service. In the past year, AOL has funded 30 enterprises for a total of more than $10 million.\textsuperscript{53} In return, AOL receives an equity stake in the developing content enterprise. In this manner, AOL can aid the development of content and maintain a level of control over the content, ensuring that it does not end up available on another online service. Recent examples of the success of this program include "The Motley Fool" and "NetGirl", both of which may expand beyond AOL into non-internet media.

As an aside, it is interesting to note that AOL's average monthly subscriber bills have recently risen to $18.\textsuperscript{54} This amount is very close to the $20-25 minimum economical credit card charge amount mentioned by Verifone.

\subsection{Market Segmentation}

AOL is starting to divide its customer base into distinguishable segments, and it is practicing a form of price discrimination according to customer demand. In particular, AOL envisions three different pricing plans for three separate groups of users - the existing pricing plan for the basic AOL user, a heavy-usage plan with a higher flat fee but

\begin{itemize}
\item \textsuperscript{52} “The Online World of Steve Case”, BusinessWeek, April 15, 1996. http://www.businessweek.com/1996/16/b347111.htm
\item \textsuperscript{53} "We have to be Prime Time", BusinessWeek, April 15, 1996. http://www.businessweek.com/1996/16/b347110.htm
\item \textsuperscript{54} “The Online World of Steve Case”, BusinessWeek, April 15, 1996. http://www.businessweek.com/1996/16/b347111.htm
\end{itemize}
lower extra hourly charge\textsuperscript{55} (designed to retain users who might switch to an internet provider), and a completely flat-rate access plan through AOL's Global Network Navigator (GNN) subsidiary for internet users.\textsuperscript{56}

It does not appear that AOL is currently pursuing price discrimination according to age, demographics, ability to pay or any other criteria.

4.2.1.1.2 Sources of Value

One of AOL's major strengths is the coordination value it provides to newcomers to the internet. Until recently, AOL made a concerted effort to distribute thousands of introductory disks to the general public throughout the nation. AOL distributed disks through direct mail, with magazines, even in cereal boxes and frozen steak packages. Although it was the subject of many jokes, AOL's massive introductory disk distribution program served as an introduction to the online world for many people.

In this manner AOL provided a huge amount of coordination value. Consider the plight of the novice computer user who wants to access the internet. What can he expect to find online? What software should he get? Is it compatible with his computer? Should he be worried about anything else? This novice user might not even know who to call to setup an access account. Suddenly, a disk from AOL arrives with his frozen steak delivery. Within the disk are answers to most of these questions, as well as all the instructions necessary to actually get online and start exploring on his own, using an online interface has been specifically designed to be easy for the novice user. These considerations amount to significant coordination value, and I suspect that they represent some of the major reasons AOL has been one of the most successful online services to date.

\textsuperscript{55} On May 8, 1996, AOL announced their new pricing plan would include 20 hours of free use for a single set price of $19.95/month, with extra hours $2.95 each. Wall Street Journal, May, 9, 1996, pB2.

\textsuperscript{56} "The Online World of Steve Case", BusinessWeek. April 15, 1996.

http://www.businessweek.com/1996/16/b34711.htm
It appears that AOL intends to maintain its high level of coordination value. Recently, AOL has signed agreements with Microsoft and AT&T to make one-click AOL access available within Microsoft's Windows95 operating system and through AT&T's WorldNet service. With these deals, AOL will be easily accessible from almost every desktop in the nation.

In addition to helping users get into the online world, AOL also provides a number of coordination services once they have arrived. For example, AOL offers parental controls to restrict access to particular areas of AOL's online content. Notably, the content controls on AOL also permit access to selected World Wide Web sites which have been screened by AOL staff.

4.2.1.3 Royalty Distribution

AOL's royalty distribution system also mimics the aggregator model. Under the current AOL content contract, the content creator receives a set base amount of revenue, plus a royalty which is a set percentage of the revenue derived from the amount of time subscribers spend on the content creator's section of AOL. AOL also receives a percentage of all advertising and product sales which occur through a content creator's pages.

4.2.1.2 CompuServe

CompuServe has been in the online information market for years. With over four million members and over three thousand different databases available, CompuServe is a premier source for business-related information. Overall, CompuServe's structure is similar to that of an aggregator; most of its information is available as part of the base package. All content is available through a single password, and fees are based upon a combination of a monthly fee and a time-based access fee. Unlike some of the other online services, however, CompuServe also has an extensive set of extra-charge areas, known within CompuServe as premium services. These areas charge extra for downloading individual
content items such as company analyses, stock quotes reference searches and commodity reports.

CompuServe is notable as an aggregator because it has the most mature market segmentation strategy of any of the major online services. CompuServe is also notable among the online services for its major deal with Time/ Warner to make content from the Pathfinder site available on the CompuServe system. I will cover both of these areas in detail.

The amount of content available on CompuServe is impressive. There are over 3000 groups within CompuServe which provide specific information on a particular topic. Many areas also have very good depth of content. For example, within the electronic commerce section of CompuServe, the user can find:

Braun Simmons
Security First
CheckFree
PAWWS Financial Network
A bank-branded version of Managing Your Money
Block Financial’s Conductor
National Discount Brokers
E*Trade Securities
Quick & Reilly
Mutual funds online

In addition to various contracts with small and mid-sized content creators, CompuServe has also arranged licensing deals with several large content providers such as National Geographic and, most recently, Time/ Warner for its Pathfinder content.

The Pathfinder deal, in particular, is an event of particular importance. Originally, Time/ Warner created a site on the World Wide Web to make available electronic versions of its various magazines, with the intention of generating revenue through advertising.

57 http://www.compuserve.com:80/at.html
While the site did generate significant advertising revenues, it was not enough to support the cost of creating the content necessary to maintain the site. As a result, Pathfinder announced that it would start charging for some of its content. Furthermore, Pathfinder announced that it would license its content to CompuServe so that CompuServe members could access Pathfinder content for free.

The deal is interesting for two reasons. First, as William Giles, Manager of Media Relations for CIS put it, "[the Pathfinder deal] is a recognition of the fact that the best Internet content will require more than what advertising alone can support as a model."58 Second, the royalty agreement with Pathfinder is unique in that CompuServe pays a single set flat fee for access to the Pathfinder content. Unlike the typical royalty agreements used in the aggregator model, the fee is not based upon the amount of usage the Pathfinder content receives on CompuServe.

It appears, however, that the Pathfinder deal was unique in its size and importance, and that such royalty arrangements are not common on CompuServe. It also appears that CompuServe is committed to attracting more content to its service. To quote Mr. Giles again, "We do not want to have members to be nickelied and dimed to death on the internet."59 In order to ensure that does not happen, CompuServe must gather that content under its monthly payment umbrella.

4.2.1.2.1 Market Segmentation

"Our whole strategy is one of market segmentation," - CompuServe, CEO Robert Massey.60

CompuServe clearly understands the concept of market segmentation. Within its brand name service, CompuServe was one of the first services to offer different pricing plans for different users. Currently, CompuServe offers two pricing plans, a basic plan with

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58 Conversation with William Giles, Manager of Media Relations, CompuServe, April 12, 1996.
59 Conversation with William Giles, Manager of Media Relations, CompuServe, April 12, 1996.
60 "End of The Line for On-Line Services?" Upside Magazine, May, 1996.
low monthly fees and high hourly charges and a "Super Value Club" plan with higher monthly fees, but lower hourly charges. Furthermore, CompuServe's premium services sections are geared to appeal to yet another segment of the market. These services can be compared to "pay per view" content on cable television.

CompuServe's market segmentation strategies goes far beyond pricing strategies alone. The company's C.E.O., Robert Massey, envisions a carefully sliced customer market with different online services targeted for different demographic groups. The most obvious example of this segmentation strategy is CompuServe's new WOW service. WOW! is an online service designed for home use. In developing this service, CompuServe recognized that this particular demographic group had different online needs. For example, since WOW! is targeted for a generally more novice user, it was important to keep WOW! simple to use. Furthermore, compared to the regular CompuServe service, there is much less of a need for depth and breadth of content. Information providers on WOW! include AutoSite, Money Magazine, Dr. Joy Browne, Entertainment Weekly, E-Town, Hearst New Media & Technology, National Geographic, On Location Education, Charles Schwab, Sports Illustrated For Kids and Travelocity. 61 Some of this content is also available on the regular CompuServe service, but not all CompuServe content is available on WOW!

Finally, whereas commercial users could afford an occasional jump in charges due to increased online activity, it was crucially important for home users to have a predictable budgeted online service charge each month. As a result, WOW! offers unlimited online access at a set fee of $17.95 per month. 62 Massey is also considering further segmentation into specific groups such as Wow for Kids, Wow for Seniors and similar ventures, "We want to be able to address every emerging market." 63

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61 COLUMBUS, Ohio, April 11 /PRNewswire/ via Individual Inc.
62 Conversation with William Giles, Manager of Media Relations, CompuServe, April 12, 1996.
4.2.1.2.2 Sources of Value

To focus on one particular source of value, CompuServe recently announced that it would be among the first online services to adopt the Platform for Internet Content Selection (PICS) content rating specification, and that the service would arrange to rate all online content to meet the PICS specifications by July 1, 1996.64

While the adoption of PICS certainly provides value, CompuServe could provide even more value in this area in several ways. The company could maintain the lists of PICS ratings desired by each user, as well as publicize new ratings issued by various rating groups.

4.2.1.3 MSN

The Microsoft Network is currently in the midst of a major transition. Originally conceived as a proprietary network, the appearance of the World Wide Web caused Microsoft to rethink the structure of its network. The new Microsoft Network will be more web-oriented, but many of the details of the service are still being developed. Even if many of the decisions have been made, it would be difficult to discover because Microsoft is being very secretive about its plans for the network.

What is clear is that the new MSN will include some web-based aggregation services in addition to proprietary network services. It is also clear that Microsoft sees the online content field as the core of its growth strategy into the next century. In addition to licensing content, Microsoft has expressed interest in developing content, either on its own or in conjunction with other partners.65 Currently, MSN has over 850,000 subscribers.

64 http://www.cnet.com/Content/News/Files/0,16,1297,00.html
65 Internal Microsoft memo, signed by group vice presidents Pete Higgins and Nathan Myhrvold; "These businesses -- MSN and content products -- are a critical part of Microsoft's future growth and an area in which the company will focus a lot of attention and investment."
4.2.1.3.1 Market Segmentation

As released in 1995, the original MSN was a direct competitor to America Online. As such, it offered a similar pricing structure - access to all content within the service for a monthly fee (which included a base number of hours of access) and a supplemental fee for extra hours.

Full pricing for the new incarnation of MSN has not yet been announced, but it appears that MSN will segment its market into at least two groups: MSN access customers and general internet customers. In an announcement in late April, 1996, Microsoft stated that it would offer internet users the ability to access selected content on the Microsoft Network for a flat fee of $6.95 per month. This allows internet users who subscribe to other internet access providers to subscribe to MSN content.

There is also some indication that MSN will subdivide the market even further. An executive at Microsoft mentioned the idea of providing “channels” of content to subscribers. The idea is to provide bundles content tailored to segments of the market with particular interests. According to Vice President, Laura Jennings, some channels would be subsidized by advertising, some would be available through a monthly subscription, and some would be essentially pay-per-view.

4.2.1.3.2 Sources of Value

Microsoft seems set to provide significant coordination value. The company appears to be targeting the same set of users as AOL, novice users who could use a significant amount of handholding as they make their way onto the internet. In Microsoft’s view, one of the most important elements of MSN is “tools to make the Net easier to use, including guide books, directories and search engines.”

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66 “Microsoft to Charge Flat Fee for Data Over the Internet”, Wall Street Journal, April 30, 1996, pB7.
67 Interview with Victoria Rosenborg of Microsoft, April 22, 1996.
4.2.1.3.3 Royalty Distribution

Microsoft's arrangements with content providers are the most closely guarded secrets of its service. Several large-scale partnerships with media companies have been announced, most notably with NBC, but the exact terms of these agreements have never been released.\(^70\) It appears likely that content agreements are still being negotiated on an individual basis.

4.2.1.4 Prodigy

If MSN is in the midst of redesigning itself, Prodigy has just completed the process of finding a justification for its own existence. The service's original owners, Sears and IBM, have been unable to respond quickly enough to the challenges of the internet. In response, Prodigy's managers recently arranged for a management buyout of the company, with help from Boston Technology Inc. With new ownership, it is likely that the company will completely change its bundling and pricing structures in the near future.

4.2.1.4.1 Market Segmentation

Prodigy appears to be pursuing several different market segmentation strategies. Like most online services, Prodigy has both a regular pricing plan and a high-usage pricing plan. In addition, Prodigy will soon be rolling out an internet access product with a completely different pricing structure than its basic service. Pursuing another area of market segmentation, Prodigy has also announced plans to add Spanish areas to its service to appeal to the Hispanic market and to allow the service to expand into Latin America.\(^71\)

4.2.1.4.2 Sources of Value

Since Prodigy was originally targeted at the family market, a number of its value sources are family-oriented. For example, Prodigy provides multiple passwords for each account,

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\(^71\) Inter@ctive Week, April 24, 1996.
which parents can then use to ensure that certain household members do not have access
to selected Prodigy bulletin boards.

4.2.1.4.3 Royalty Distribution

The Electric Library’s sister service, the Homework Helper, debuted on Prodigy last year.
Under the royalty agreement created at that time, the Homework Helper received a
percentage of the revenues generated by the time spent on the service, a very standard
royalty agreement among the online services.

4.2.1.5 Netcom

Netcom On-Line Communications Services, Inc., based in San Jose, California, was one
of the first large scale internet service providers (ISP). Over the past five years, Netcom
has grown to more than 400,000 subscribers, and has points of presence (local phone
numbers) in 41 states. Essentially what Netcom originally provided was an account on a
UNIX machine which the subscriber could use to run UNIX programs as well as access
the internet. Netcom is notable because it was one of the first ISPs to offer single-fee,
essentially unlimited internet access\textsuperscript{72}, and because Netcom has provided users with a
proprietary set of tools (known collectively as NetCruiser) for accessing the internet and
World Wide Web.

In March, 1996, however, Netcom announced its entry into the information services
business.\textsuperscript{73} The company announced a new content service called Netcomplete, in which

\textsuperscript{72} Netcom allows 40 hours of primetime online use and unlimited non-primetime use for the single fee.
The primetime restriction is simply designed to ensure that people do not stay connected to Netcom
indefinitely.

\textsuperscript{73} “Just last week we announced a family of exciting new services that will soon be available to you as an
added benefit to being a NETCOM subscriber. Called Personal Services, the new offerings will help you
customize much of what you enjoy doing most on the Internet. Our thinking behind Personal Services (and
everything we provide) is to give you a complete solution at a fixed cost so that you can better
enjoy your Internet experience. We all know there's a lot to be sifted through out on the Net, and that not
all of us view the same things as important. Certainly, my experience will be different than yours, and
what you get out of the Net won't be the same as what your neighbor is looking for on-line. This seems
like an obvious statement, but it's ignored by most companies because it is hard to do. As we move to
provide you with a complete solution, we will be increasing the choices available to you. From the
software that we provide to the services we develop, we want the choice to be yours -- so you can make the
subscribers would have access to various general and personalized content as part of the subscriber's single flat fee. This announcement brings Netcom into direct competition with AOL, CompuServe, MSN and Prodigy in terms of providing both access and content for its subscribers.

While Netcom has only one bundled service available in April, 1996, a personalized news service licensed from Individual, Inc., it is clear that Netcom intends to expand this service to a range of other products. James Hogan, Senior Director of Market Development stated that Netcom will also offer portfolio-tracking, an on-line encyclopedia, internet phone calls and free home pages as part of its standard single-fee online subscription.74

4.2.1.5.1 Market Segmentation

Netcom's existing pricing structure is essentially a pure implementation of single-price bundling. There has not been any indication of sophisticated bundling practices or levels of discrimination being used within Netcom or the Netcomplete content product line.

Given Netcom's relatively technically oriented userbase, the typical market segmentation methods which are appropriate for other online services may not be appropriate for Netcom. Essentially, Netcom's userbase constitutes a particular segment of the market. In order to further segment its customer base, Netcom will have to discover new categories into which its customer base can be subdivided.

4.2.1.5.2 Sources of Value

Netcom's recent public statements demonstrate that the company understand the importance of coordination value:

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"We believe this business is more than just providing Internet dial-tone." said David Garrison, NETCOM chairman and chief executive officer. "Initially, some companies may offer access only with a browser to attract new users to the Internet, but our experience indicates that active Internet users want more than just access to the Net. In addition to high-quality service at a value-point price, they are looking for a provider to help them make sense of the maze of information available to them on the Net. Our record growth is a reflection of NETCOM's ability to deliver a complete value-added solution."75

As evidence of this strategy, Netcom developed its NetCruiser tools for the internet to provide coordination value for Netcom subscribers.

With its entry into the information services business, Netcom is focusing attention first on value-added services which can build up switching costs for the consumer. Personalized news and information, portfolio tracking and internet phone call services (with associated address books) are all services which require the user to input individualized information. If Netcom is successful in luring subscribers to use each of these services, they will constitute a significant set of switching costs for any subscriber tempted by offers from other online information services.

Netcom is definitely in the beginning stages of its jump into the information services business; it will be interesting to see how the company’s strategy develops.

4.2.1.5.3 Royalty Distribution

With its one existing content service, Netcom appears to be following the aggregator model for royalty distribution. Netcom’s personalized news service, is licensed directly from Individual, Inc. Individual, Inc. receives a fee for providing the service based upon Netcom’s userbase.76 Since Netcom’s flat-fee structure dictates that most of Netcom’s revenues are proportional to the userbase, Individual’s success is directly tied to Netcom’s success. While this royalty structure does not perfectly match the aggregator

76 Conversation with Yosi Amram, CEO of Individual, Inc., April 11, 1996.
model, it is an excellent start at creating a viable royalty model to use as Netcom’s content business develops.

### 4.2.1.6 Comparison Tables

<table>
<thead>
<tr>
<th></th>
<th>America Online</th>
<th>CompuServe</th>
<th>Microsoft Network</th>
<th>Prodigy</th>
<th>Netcom</th>
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<tbody>
<tr>
<td>Pricing Model</td>
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<td></td>
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<td>Subscription</td>
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<td>Yes</td>
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**Coordination Value**

<p>| | | | | | |</p>
<table>
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<tr>
<th></th>
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<td>Yes</td>
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<td>Single Password</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Personalized</td>
<td>No</td>
<td>Limited (hotlist)</td>
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<td>Content</td>
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<tr>
<td>Guaranteed Quality</td>
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<td>Yes (channels of content)</td>
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<td>of Content</td>
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**Market Segmentation**

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<td>No</td>
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<tr>
<td>By Type of User</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Profession</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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</tr>
</tbody>
</table>

**Royalty Distribution**

77 AOL claims to have standardized contracts, but the terms of these contracts are changed almost monthly. Furthermore, each contract entails significant individual negotiation.

78 In its proprietary configuration, MSN developed standardized contracts for small content providers. The contract structure for the new web-based service is still being developed.

79 AOL also owns and operates the Global Network Navigator (GNN), an internet service provider targeted toward internet-savvy users.

80 Compuserve also owns and operates Sprynet and Wow! Compuserve is targeted for buseniss and some home users; Sprynet is targeted for heavy internet users; Wow! is targeted for children and families.

81 Compuserve also owns and operates Sprynet and Wow! Compuserve is targeted for buseniss and some home users; Sprynet is targeted for heavy internet users; Wow! is targeted for children and families.

82 Most online services are very secretive about the royalty arrangements they have with their content providers. Actual values of royalty arrangements appear to vary widely across online services.
<table>
<thead>
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<th>Traffic Measurements</th>
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<td>?</td>
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<td>Coupon Discounting</td>
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<td>No</td>
<td>?</td>
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<td>Royalties distributed as a percentage of total revenues</td>
<td>Yes</td>
<td>No</td>
<td>?</td>
<td>Yes</td>
<td>Yes(^{83})</td>
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</table>

4.2.2 Independent Aggregators

Aggregators can also arise out of third-party entities who are not on-line access providers. Some excellent examples of independent aggregators have already appeared on the web. Much as I did with the online service providers, I will describe the overall purpose of each aggregator, their market segmentation strategies, their means of adding value, and their royalty distribution arrangements. Finally, I include a direct comparison table at the end of this section.

4.2.2.1 Wall Street Journal

In some ways, the Wall Street Journal site should not be included in this list of aggregators. Strictly, an aggregator is an entity which combined content from multiple content creators, whereas the content on the Wall Street Journal site comes almost exclusively from the Wall Street Journal newspaper. However, since the site is well

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\(^{83}\) Netcom's fee arrangement with Individual, Inc. is based upon the number of Netcom subscribers. Since Netcom provides essentially flat-rate access, this is substantively equivalent to being a percentage of Netcom's overall revenues.
established and has begun implementing a number of aggregator-like functions, I have
decided to include it for the sake of comparison.

Interactive Edition”, a site on the internet which provides online access to content from
the Wall Street Journal. The site has many news stories from the print version of the
Journal, including “the most important stories in technology, marketing, the law - even
sports, weather and an expanded presentation of the Journal’s editorial-page features”. In
addition, the site provides a number of features which are not available in the print
version, such as continually updated coverage of stock markets around the world.\[84\]

4.2.2.1.1 Bundling

As of the writing of this thesis, the Wall Street Journal site is still free access. On July
31, 1996, the site will come one step closer to aggregator status when it begins charging
for access. The fees for access have not been publicly announced. It appears that some
level of access segmentation will occur, with some content available for free, some ad-
supported, and some subscription-based. Based upon public announcement\[3,], however,
there appear to be no plans for more sophisticated market segmentation.

According to the theories of this thesis, the Wall Street Journal would be able to gather
more revenue from its content by either aggregating content from other content producers
on its site, or by licensing its own content to other aggregation entities for inclusion in a
bundle of varied content. Since only content from the Wall Street Journal is available
through the site, it cannot currently make use of the advantages which content bundling
provides.

4.2.2.1.2 Sources of Value

The Wall Street Journal has also been active in developing coordination-value applications in the form of a personalized “Personal Journal”, and in the form of facilities to which allow a subscriber to build and monitor a personal stock portfolio.

4.2.2.1.3 Royalty Distribution

Since all the content on the site comes from the Wall Street Journal, all distribution of revenues is determined by management decisions.

4.2.2.2 IBM Infosage

As a world leader in information systems technology, IBM would appear to be in an excellent position to create products which would facilitate the distribution of information. With its Infosage information delivery product, IBM appears to have developed a very sophisticated implementation of the aggregator model for information distribution.

With Infosage, a subscriber can search through an impressive set of research sources, including: 85

- COMTEX
- Dun & Bradstreet Corporation
- Information Access Company
- Intell.X
- PAWWS (division of Security APL)
- The Reference Press
- Reuters NewMedia Inc.
- Standard & Poor's
- Weather Services Corporation

Each of these sources itself is a aggregator of information from a wide variety of other sources. For example, here is the description of the first company on the list, COMTEX. 86

85 Infosage Content Resources - http://www.infosage.ibm.com/about/content.html
86 Infosage Content Resources - http://www.infosage.ibm.com/about/content.html
COMTEX is a leading aggregator of hundreds of real-time news sources from around the world. COMTEX provides news and information from the following sources:

A & G Information Service, business, political and economic news from the former Soviet Union and Eastern Europe.

Africa News Agency, news coverage from the African continent.

American Banker/Bond Buyer, news of the banking and bond markets.

AsiaInfo Services, news abstracts from over 600 local newspapers and journals across China.

Business Wire, full-text corporate press releases for 12,000 U.S. companies.

Cineman Syndicate, latest music, video and book reviews.

COMTEX Newsroom, news coverage of the major headlines of the day and up-to-the-minute financial news and statistics on domestic and foreign markets.


Futures World News, news and information on commodities traded on the world's commodity futures exchanges.

Inter Press Service, providing news originating in developing and third-world nations.

ITAR/TASS News Agency, news, business and sports from Russia.

Knight-Ridder/Tribune Business News, a leading domestic newswire service that provides timely business news from more than 70 newspapers and magazines throughout the U.S., providing selected items, on a daily basis, from Knight-Ridder Financial, an around-the-clock service that reports on business, finance and economic news.

Knight-Ridder/Tribune News Service, news, features, sports and financial coverage from some of America's best newspapers along with a global perspective from correspondents based in Europe, the Orient, Middle East, Africa and Latin America.

Pan-Africa News Agency, news from across Africa covering 48 national news agencies.

PR Newswire, full-text corporate press releases from over 17,000 U.S. companies.

South American Business Information, providing daily news abstracts from Argentina, Brazil, Chile, Paraguay and Uruguay.

The Sports Network, up-to-the-minute coverage of all domestic and international sports events.
United Press International, up-to-the-minute news, business and sports stories from around the world.

U.S. Newswire, full-text press releases from U.S. government agencies.

Xinhua News Agency, news coverage from all 30 provinces in China as well as Hong Kong, Macao, Latin America, the Middle East and Africa.

Ziff-Davis Wire Highlights, timely articles on the high-tech industry including the movers and shakers in the industry and important stories that affect members.

Infosage offers search access to all of this content for a single flat rate of $24.95/month. Included in that same price, Infosage also offers personalized news and information delivery over the web or by e-mail.

4.2.2.2.1 Bundling

As shown above, Infosage is currently structured as a single bundle of an enormous amount of information available at a single set price. That one bundle appears to be fairly well developed; many of the information sources are targeted for audiences interested in particular parts of the globe. It is fairly likely that people in different countries or in different occupations might have very different levels of interest in South America or Russia. As a result, the combination of these news sources within a single bundle fits very nicely into the definition of how to maximize revenue through bundling.

It does not appear, however, that Infosage has progressed to any more sophisticated level of bundling. Everything within Infosage is available at a single price. There is no price discrimination according to level of use, according to ability to pay or according to type of user.

4.2.2.2.2 Sources of Value

The declared purpose of IBM’s Infosage service is to provide “an information delivery system individually tailored by you to meet your specific needs”. Infosage’s personalized information delivery provides excellent coordination value, particularly given the huge number of information sources within the service - manually culling that same quantity of content would be impossible. The system for identifying your personal information
needs appears to be both powerful and easy to use. Through category and subcategory specifications, the user can let Infosage know his or her areas of interest down to a very fine level of detail.\textsuperscript{87}

4.2.2.2.3 Royalty Distribution

Unfortunately, IBM's Infosage management is not very responsive about the royalty arrangements used by Infosage and did not return repeated attempts to contact them.

4.2.2.3 Pathfinder

Pathfinder's experience with online content is a wonderful example of the need to develop a sophisticated understanding of the aggregator model. Over the past year, Pathfinder has moved from an advertising-only based service to include some characteristics of the aggregator model, primarily because Pathfinder found that it could not sustain the development of its content on the advertising model alone.

Time Warner's Pathfinder site (http://www.pathfinder.com) made its name in the online world as one of the most popular sites on the web, with millions of hits from people coming to view its free content from a large variety of magazines, newsletters and other content providers. Originally, Pathfinder's only source of revenue came from selling advertising on its site. Pathfinder was able to sell $2 Million of advertising in 1995, but this did not come close to covering the costs of the service.\textsuperscript{88}

Since its introduction, Pathfinder has clearly been an aggregator of content - dozens of articles from various magazines are available on its site, though almost all the content came from Time Warner magazines. As of early Spring 1996, Pathfinder had not implemented any of the services appropriate for a sophisticated aggregator. Registration was optional, and all the content on the site was still free - no revenue was generated from

\textsuperscript{87} Infosage Member Profile - http://www.infosage.ibm.com/demo/examplepro1.html

\textsuperscript{88} Poletti, Therese, "Time unveils its first Internet subscription service.", Reuters, 04-11-1996.
subscriptions. Single password services were not available, and there was no apparent effort to separate users into definable groups by usage or willingness-to-pay characteristics.

In April 1996, however, Time/Warner announced two new initiatives for Pathfinder. First, Pathfinder announced a value-added personalized service news and information service, available to subscribers at a monthly subscription price. Second, Time/Warner announced an arrangement with CompuServe to make Pathfinder material available on CompuServe as part of CompuServe’s normal content.

4.2.2.3.1 Bundling

The details of Pathfinder’s subscription services are not yet publicly announced, but it appears as though some of Pathfinder’s content will remain free, while some will become subscription-based. The separation of content into free and subscriber levels is in itself some level of bundling according to level of use, but there is no evidence of bundling according to ability to pay or type of user.

4.2.2.3.2 Sources of Value

As mentioned before, Pathfinder’s new initiative involves providing both access to subscription content as well as personalized news and information services. In addition, Pathfinder’s deal with CompuServe allows CompuServe members single-password access to Pathfinder content. As mentioned before, this is a beautiful example of single-password access value which can be provided by an aggregator.

However, the CompuServe deal also granted CompuServe exclusive single-password access to Pathfinder content. In other words, Pathfinder cannot make a similar single-password arrangement with any other content aggregator. This is a severe restriction on one of the most important sources of value an aggregator can provide.

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89 As of May 1, 1996, the Encyclopedia Brittanica area on Pathfinder required a separate username and password login.
On the other hand, another aspect of the Pathfinder-CompuServe deal introduces another source of coordination value. A third partner in the deal was Open Market, the webserver vendor, who announced that the new Pathfinder service would use its Open Market Express technology. In addition to allowing for the customization of news, Open Market’s Express technology allows users to program the software to look for specific Web sites, including those not linked to the Pathfinder site, and download them to their PC, at specific times of the day. These sites can then be stored for access and viewing offline.

The effect of this technology is very similar to the idea of “guaranteed access”, a source of coordination value identified earlier. Instead of risking problems in the speed of the web at the time you wish to view your information, the Express technology allows the user to access his or her desired information as quickly as the computer can call it up from the hard disk. As Gary Eichhorn, CEO of Open Market, put it, “This really does solve the problem of the World Wide Wait.”

4.2.2.3.3 Royalty Distribution

Time/Warner was very unwilling to talk about its royalty arrangements with content providers. On the other hand, it is clear that Time/Warner has been active in licensing its own content to other providers. In addition to its major deal with CompuServe, Time also has deals with AOL and Prodigy. As Bruce Judson, general manager of new media at Time Inc., stated, "As the nation's largest magazine publisher, it is appropriate for us to explore every venue possible."

4.2.2.4 The Electric Library

The Electric Library, created by the Philadelphia firm, Infonautics, is a research service targeted toward children and young adults. For a single, low monthly fee, a subscriber can search through all the content available on the site, and download individual articles for personal use. In total, The Electric Library contains more than 150 full-text
newspapers, nearly 800 full-text magazines, two newswires, multiple reference books, hundreds of maps, and thousands of photographs as well as major works of literature and art.  

The Electric Library is available on the Internet, as well as on Prodigy and the Microsoft Network. Notably, it is currently an extra-price resource on both of the online services.

4.2.2.4.1 Bundling

Infonautics' bundling strategy is very simple. A subscriber from the Internet is granted full, unlimited access to all content for a single, flat fee. Since the service is primarily designed for children and their parents, a group which is difficult to differentiate (both demographically and politically), this bundling strategy is probably appropriate for the company's existing products. The Electric Library does exercise some level of price discrimination according to type of user through its different prices for individuals and educational institutions, but the company does not attempt any price discrimination according to ability to pay or level of use.

4.2.2.4.2 Sources of Value

Ease of use is the primary source of value for the Electric Library. The design and feel of the service is tailored to appeal to school children, and features such as the natural language query, the "Best Part" button (automatically goes to the most relevant part of a target article) easily changeable search settings and spelling correction services greatly facilitate children's' ability to get what they want from the service. Infonautics also provides very high speed searches and an intelligent engine which "learns" the user's specific desires over time. If the company were to expand its service to target other customer segments, it might want to consider developing a separately branded service with different value-added features than the ones provided with the Electric Library.

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4.2.2.4.3 Royalty Distribution

Of all the aggregation entities listed here, The Electric Library comes the closest to mimicking the royalty distribution structure of ASCAP. Royalties for content providers are calculated as a percentage of overall receipts, and are distributed on the basis of number of accesses as a percentage of total accesses for all content within the library. Such accounting would normally take an immense amount of labor, but the Infonautics database system includes a detailed access reporting structure which can automatically record and pay royalties from the publisher level down to the individual author level. As a result, The Electric Library's royalty distribution is even more accurate than ASCAP's.

4.2.2.5 Individual, Inc.

Although it does not produce news itself, Individual, Inc. has entered the news business by being a value-added aggregator of news for the average consumer. The company recognizes that there are numerous purveyors of news on the net, and has therefore embarked on a strategy of providing "premium niche content" and "differentiated content."91 The company has created a whole line of products which provide customized information to targeted demographic groups.

4.2.2.5.1 Market Segmentation

Individual, Inc. products and pricing strategies display some of the most sophisticated stratification of customer groups and content of any of these aggregation entities. Three of the four major services (all except BookWire, which is not an aggregation service) perform similar functions. Each delivers daily news and information to the customer, but through a combination of different news sources, different coordination services, different delivery mechanisms and different summary structures, Individual Inc. manages to carefully target three completely different customer segments.

Individual, Inc.'s First! product targets corporate information needs, providing both generalized and specific industry newsletters to provide information specific to a pre-

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programmed interest profile. This product is delivered through a variety of digital channels common to corporate environments, such as Lotus Notes, Microsoft Exchange and HTML for corporate intranets. First! is a! priced accordingly for corporations, from $5000-$8000 per year for a ten-user license. By comparison, the company’s NewsPage Direct product is targeted for a more general market, it is much less expensive and is available in the delivery forms common to the general public, e-mail and the Web. A subscriber to NewsPage Direct pays only $6.95 per month for an e-mail every morning with personalized news and information culled from various sources. The HeadsUp! product provides personalized quick (1-2 sentence) summaries of major stories, with available access to the full text, if desired. This appears targeted toward stock watchers who have a very targeted desire for information on specific companies.

Within each product, users are divided into different tiers according to the consumer’s level of demand. For example, Within the HeadsUp! product, there are three different levels of subscription:

1) HeadsUp! for $29.95 per month (fax or e-mail delivery, 1 page of personalized briefs + 5 full-text articles; extra full-text articles, $2.97 each)
2) HeadsUp Expanded! for $49.95 per month (fax or e-mail delivery, 2 pages of briefs + 10 full-text articles per month)
3) HeadsUp Alert! for $19.95 per month (personalized briefs on specific stocks send by e-mail).

This stratification of users allows Individual, Inc. to gather maximum revenue from each level of user.

In addition to differentiating by level of use, the company also differentiates by size and makeup of the bundle. Within its NewsPage product, for example, Individual, Inc. provides four different levels of access:

1) Free information (supported by ad revenue)
2) Information available to registered users (enhanced access, still free, but Individual, Inc. gathers traffic information and demographic information)
3) Subscriber access (unlimited access to premium sources, plus personalized e-mail)
4) Pay-Per-View (premium content)
A brief overview of the content sources for each group within NewsPage reveals an interesting trend. A small set (7) of very general sources are available for the non-registered user. The set of premium content available for registered users has over 150 more fairly general news sources. Finally, the Pay-Per-View content comes from a set of very targeted sources such as medical journals, electrical engineering journals, and the like. This stratification of content closely mirrors what bundling theory predicts. That content which has a high mean value and high variance in value (as one might expect for sources such as “Gas Markets Week” or “Hospital Outcomes Management”) should not be included in a bundle of generalized content.

Clearly, Individual Inc. is exercising price discrimination according to level of demand across several products. Furthermore, the company successfully exercises differentiation according to type of user (corporate/individual/stockholders), as well as a clear understanding of the proper types of content to bundle. Lastly, however, the company displays no evidence of price discrimination among its customers according to the customer’s ability to pay.

### 4.2.2.5.2 Sources of Value

The personalization of news is clearly the primary coordination value provided by Individual, Inc. It appears that the company also recognizes the value of single-password access since it is actively pursuing distribution agreements with other aggregators in addition to providing its product on its own website. Notably, the Microsoft Network is an equity investor in Individual, Inc.

### 4.2.2.5.3 Royalty Distribution

Content providers within Individual, Inc.’s service receive a percentage allocated against the usage volume of their content. The actual records of what content was accessed, how many times and at what time of day is recorded by Individual Inc., and they provide

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92 List of Basic Sources - http://www.newspage.com/NEWSPAGE/basic.html
94 List of Pay-Per-View Sources - http://www.newspage.com/NEWSPAGE/ppv.html
auditable records to the content providers. At the moment, there do not seem to be any additional structures for modifying the royalty payments according to other criteria.

### 4.2.2.6 Comparison Tables

<table>
<thead>
<tr>
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\(^5\) Starting on July 1, 1996
\(^6\) Announced.
\(^7\) E-mail delivery.
\(^8\) Via Open Market’s Express technology which downloads content in the background according to a preset schedule programmed by the user.
\(^9\) E-mail delivery.
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100 Pay-Per-View for articles from specific professional magazines.
5. How might the Content Industry Develop?

The economic principles underlying the aggregator model have profound implications for the development of the content industry. In a competitive market for zero-marginal cost products, aggregators have a competitive advantage over individual content vendors. Furthermore, as shown by the fact that various sources of coordination value can be scaled up, the larger an aggregator is, the greater its competitive advantage. We can expect that in the long run, many individual vendors of and small aggregators of competitive content will disappear.

Already, online services have been gathering content as quickly as possible through acquisitions and licensing deals such as CompuServe’s agreement with Pathfinder. Furthermore, these same groups have been aiding the development of new content through programs such as AOL’s Greenhouse program. This race for content is crucial to the survival of these online services; the more content they license, the more value they provide to the customer, and the more new customers will consider moving to their network.

Acquisitions cannot go on forever; at some point, the industry must either stabilize or refragment into smaller entities. Refragmentation would require a change in the basic industry economics. As a result, I expect the industry to stabilize after considerable consolidation. The question is, what will the industry look like when it does stabilize? In this section, I will briefly review two market structures which I consider likely long-term outcomes for the industry, monopolistic competition and oligopoly.
5.1 Monopolistic Competition

In a monopolistically competitive market, a large number of firms produce products which all fall into the same broad category of product, but each producer’s product is easily distinguishable from its competitors’ products. The most common example of such an industry is the fashion industry. Numerous fashion designers make “dresses”, but each designer’s dress is unique and distinguishable. In this manner, each individual designer has some level of monopoly power due to the uniqueness of the design, but this power is limited by the fact that there are reasonable substitutes readily available.

There are several interesting things to note about the theoretical long-term equilibrium of monopolistic competition. In particular, at the long-term equilibrium point:

- The market price stays above marginal cost.
- Producers are not producing at the lowest point on the average cost curve.
- Firms within the industry maintain excess production capacity.
- Firms within the industry spend large amounts on advertising to distinguish their product from competitors’ products.

To illustrate graphically:
Note that this graph contains two demand curves. One (dd’) is the demand curve the firm faces if no other firms in the industry change their price or outputs. The other (DD’) is the demand curve the firm faces if all other firms in the industry mimic the moves of that one firm. The theory shows that the equilibrium point in this system can be found at the point where the firm’s marginal revenue curve crosses its marginal cost curve. The two demand curves will shift until the intersection of the two demand curves cross at the quantity dictated by the MR=MC constraint.

The monopolistic competition model describes many people’s hopes and wishes for the structure of the content industry on the web. Ideally, numerous individual content producers would make their products (or bundles of products) available. Each product would be somewhat uniquely distinguishable, but many of these products would be classified as within a general category of content, such as “general news”, “travel information”, or “women’s magazine”. Much like fashion designs, different web page interfaces would appeal to different people; this would give the individual vendors some level of monopoly power. However, the presence of other content within the same category would will limit that power.
This description of monopolistic competition theory is very basic. Monopolistic competition is complex, and a detailed study of the theory is outside the scope of this paper. Since it is a possible outcome for the content industry, a detailed study of the implications of monopolistic competition on the content industry would be a very interesting area for further study.

5.2 Oligopoly

The other market structure I believe is likely is oligopoly. The theory of oligopoly analyzes the interactions of an industry dominated by a few, huge entities, whose individual decisions and actions greatly impact the decisions and actions of the other entities within the industry. This interdependence characterizes oligopoly, and introduces the idea of game theory to strategic decision making.

Oligopoly is even more complex than monopolistic competition. Depending upon other characteristics of the specific industry, including demand and supply elasticities, the threat of entry and the relative size of existing firms in the industry, oligopoly can lead to behavior which mimics perfect competition, or behavior which mimics monopoly. A discussion of any of these characteristics is beyond the scope of this paper, but should provide a rich source of ideas for further research.

I will note, however, that the major online service providers may already be engaged in oligopolistic behavior. This small set of companies (usually counted as no more than five separate firms) are aggregators with millions of subscribers and numerous individual content products in their bundles. It is very likely that the actions of one of these firms would have a significant impact on the actions of the other online service providers. In my research, I found it extremely difficult to get information from some of the online service providers. Maintaining secrecy about one’s plans and strategies would be a logical outgrowth of an oligopolistic industry structure.
5.3 Examples of Mature Content Aggregators

In its final, mature form, aggregators in the content industry are likely to resemble aggregators in a number of other high-fixed cost, low-marginal cost industries. In this section, I will review the structure of ASCAP, the American Society of Composers, Authors and Publishers, the dominant aggregator in the music industry, an mature content industry with similar characteristics to the internet content industry. By observing ASCAP and its development, we can learn about the potential for such huge bundles within other parts of the content industry.

In the later part of this section, I will draw attention to come curious similarities between the packaging and pricing structures available in the cable and movie industry and packaging and pricing structures which are showing up on the internet.

5.3.1 ASCAP

The American Society of Composers, Authors and Publishers (ASCAP) was originally founded in 1914 in New York City as a means for individual composers to collectively negotiate for royalties on their works from the various bars and clubs in New York City. In addition, ASCAP initiated efforts to enforce copyright violations against bar clubs and performers who refused to negotiate.

The organization was successful in its efforts, and as radio became a factor in the musical world, ASCAP expanded its coverage to represent composers throughout the country, and to cover any and all performance, transmission or rebroadcast of any song developed by its member composers. ASCAP offered radio stations and performers license rights to perform either specific songs from its collection, a specified genre of songs within its

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101 Information about ASCAP was gathered during conversations with Bennett Lincoff, Director of Legal Affairs for ASCAP; Ellen LaChapelle, Senior Account Executive, ASCAP Radio and Television and the Internet; and Bill Lee, Director of National Sales, ASCAP General Licensing; during the month of April, 1996.
collection, or a full license to all songs within its collection. According to the structure of the license, the licensee pays a single yearly payment, and is granted the right to play all the songs as many times the licensee wishes.\textsuperscript{102}

Any composer can become an ASCAP member for a nominal fee (under $100). Once the composer is a member, ASCAP is then permitted to license any and all of the composer’s songs for non-dramatic performances on any media. Furthermore, the composer grants ASCAP all rights to pursue copyright violations against any and all of those songs, as well as the power to initiate and complete court action and negotiations with regard to these rights. In return, ASCAP promises to take actions to protect the composer’s copyrights, and to collect and distribute appropriate royalties to that composer. In essence, by becoming a member of ASCAP, the composer gains some significant bargaining power against entities which want to license is or her songs.

The individual composers who become members of ASCAP are compensated according the number and type of performances each song receives. The number and types of performances are determined through surveys of performance artists and broadcast networks, and a statistical sampling of all broadcast media which are not part of an established network. As a result, the composer does get compensated according to the popularity of his or her work.

5.3.1.1 Licensing Issues

Licensing is ASCAP’s main function. ASCAP offers two licenses, the “blanket” license and the “per program” license. The per-program license is designed to cater to talk or religious stations which have little or no need for music. As a result, most licensees purchase the single price, blanket license. This blanket license grants the licensee (typically entities such as radio stations and nightclubs) full access to any and all songs within the ASCAP repertoire for a given time period (typically one year). The blanket

\textsuperscript{102} Source: ASCAP. http://www.ascap.com
license contains no per-use fee, and there is no limitation on how many different songs or how many times a single song may be played by the licensee during the license period. For more specific information, a copy of the ASCAP blanket license is attached as Appendix A.

The blanket license is essentially the ultimate bundle. The licensee either licenses access to all the songs or none. Much like the bundling example with "Moby Dick" and "Liar's Poker", this bundling structure allows ASCAP to capture consumer surplus from its diverse group of licensees with heterogeneous demands. For example, a Jazz station values a jazz repertoire highly, but only barely values top-40 repertoire. On the other hand, a Top-40 station values the Top-40 repertoire highly, but only barely values the jazz repertoire. However, in order to get access to the Jazz songs in ASCAP's repertoire, a station must also license the Top-40, Blues and Rap songs in ASCAP's repertoire. The Top-40 station is in the same bind. In this manner, ASCAP can capture the largest amount of value from its licensees as possible.

5.3.1.2 Coordination Value

Although ASCAP was originally designed to protect licensing rights, it has developed into an organization which provides significant coordination value to its members and customers. Since the primary need within this market is contracting, most of the coordination services provided revolve around simplifying contracting and resolving disputes.

5.3.1.2.1 Single marketplace for composers

Composers want to spend time creating music, not seeking out buyers for their completed works. ASCAP provides a single location where a composer can make his or her work available to all interested buyers at once, minimizing the work necessary to locate buyers and allowing the composer to return to composing.
5.3.1.2.2 Standardized contracts for composers

Composers are good at creating music, but not necessarily good at negotiating contracts with music buyers. ASCAP's structure by definition eliminates the need for bargaining with composers and maximizes the level of revenue returned to composers.

5.3.1.2.3 Auditing of Buyers

As shown above, the collection and distribution of revenues is heavily dependent upon a measurement of the usage of particular content. As a result, the accuracy of these measurements is absolutely crucial to the proper accounting for the revenues.

ASCAP provides coordination value by gathering usage statistics for individual songs from its various licensees. Both per-use licenses and blanket licenses require the licensee to send a monthly report detailing how many hours station was on the air, and what the station played during that time period. Such detailed records allow ASCAP to properly calculate the royalties to be paid to individual composers. Furthermore, ASCAP provides additional coordination value by occasionally conducts audits to confirm the licensee's claims.

5.3.1.2.4 Legal Power to monitor and pursue copyright violators

ASCAP's contract with composers also gives the aggregator the power to pursue copyright violations in the name of the composer, as well as to settle legal prosecution against the violator. This is a very significant source of value because typically, an individual composer does not have the power to pursue a violator. Such a power guarantees that composers are properly compensated for their work and ensures the development of new music.

5.3.1.2.5 Collective bargaining power against radio and TV networks

As a large entity representing composers, ASCAP is also in an excellent position to bargain against radio and television networks. Without such an organization, the individual composer would be almost powerless to extract any revenue from the broadcast networks.
5.3.1.2.6 Single marketplace and standardized contracts for buyers

ASCAP also provides significant coordination value to buyers of content. Without the presence of the aggregator, each radio and television station would have to negotiate individually with each and every composer whose song the radio or television station wanted to play. The task of finding the composers alone would be tremendous, let alone the expense involved in negotiations and maintenance of the relationship. The presence of ASCAP provides a single marketplace in which buyers can find a large number of songs and composers.

5.3.1.3 Market Segmentation

ASCAP practices a highly refined level of market segmentation. By pursuing a variety of pricing strategies with different licensee groups, ASCAP can capture large amounts of consumer surplus from its customers. To illustrate, we will look at three examples of market segmentation within ASCAP's pricing structure:

- market segmentation according to the demand of the buyer
- market segmentation according to the buyer’s ability to pay, and
- market segmentation according to the type of buyer.

5.3.1.3.1 Market Segmentation According to Demand of Buyer

As mentioned previously, ASCAP offers two different major types of license, the blanket license and the per-use license. The per-use license is itself divided among two groups, the occasional-use license and the featured music license. These three license types are tailored to meet the needs of different consumer groups within the market. Using the radio station license arrangements as an example, we see that ASCAP has essentially broken the market into three distinct segments, the talk-radio segment, the mixed-format segment and the general music format segment, and has created separate licensing fees for each.

The occasional-use license is designed for stations which have no music at all, typically talk radio stations and the like. These stations have no need for a blanket license since
they don’t play music on a regular basis, but they still may need a basic license since commercials or bridges from one show to another may have music embedded within. The licensing fee for occasional use is 0.24% of adjusted gross revenue.

The featured music per-use license is significantly more expensive, and is designed for radio stations with a mixed format. Under this license, the station records how many hours it plays ASCAP-licensed music, and pays a fee weighted according to time played. Essentially, this structure results in an hourly based blanket license; if the station plays anything licensed by ASCAP anytime within the hour, the station pays for that hour of time. Currently, the license fees amount to 4.22% of adjusted gross revenue times the percentage of total time the station played ASCAP-licensed music.

Finally, the blanket license is designed to appeal to music stations. Under the blanket license, the licensee has access to all the content within the ASCAP library for a single fee. This licensing fee for radio stations currently amounts to 1.615% of the revenue of the licensee station.

The distinctions between the licenses have been calculated to appeal to each individual segment. In addition, the dividing point between licenses is well understood by ASCAP. For example, the per-use featured music license is designed to be less expensive unless and until music constitutes 30% of overall play time. Beyond that point, the blanket license is less costly.

5.3.1.3.2 Market Segmentation According to the Buyer’s Ability to Pay

You may have noticed that all the license fee quotes mentioned up to this point have been as a percentage of the adjusted gross revenue of the licensing radio station. ASCAP chose this method of calculation deliberately in order to distinguish the probable ability to pay among its various licensees.\(^\text{103}\)

\(^{103}\) See the appendices for an example of ASCAP’s license fee structure for radio stations.
Since a radio station’s advertising revenues are typically related to the number of listeners for a particular radio station or performance, this method of assigning fees is a relatively accurate means of determining the approximate benefit gained by the buyer of the license as well as the buyer’s probable ability to pay for the content.

5.3.1.3.3 Market Segmentation According to Type of Buyer

The most startling level of price discrimination practiced by ASCAP involves the huge variety of specific license agreements which ASCAP maintains for licensees from different industries.

A variety of different organizations use music for different purposes. For radio stations, music is the primary source of entertainment. For television, it is typically used as supporting material for the pictures on the screen. For restaurants and casinos, music is primarily a background filter for the main activity of the establishment.

ASCAP has recognized these differences, and has recognized that each different use provides different value for the user. In response, ASCAP identifies several dozen classifications of users, some of which have different pricing schedules based upon criteria specific to a particular classification.\textsuperscript{104} This is a partial list of the types of specific licenses which ASCAP has available:

\begin{quote}
\textit{Commercial Establishments}\\
Radio\\
Television\\
Bars, Grills, Taverns and Restaurants\\
Stores\\
Airlines\\
Music on Hold\\
Conventions\\
Dancing Schools\\
Aerobics\\
Ice Rinks\\
Roller Rinks
\end{quote}

\textsuperscript{104} List of classifications from phone conversations with ASCAP, April 16-19, 1996.
Non-Commercial Establishments
Basic Non-Commercial License
School Radio Station (slightly less expensive)
Community Radio Station (slightly more expensive)

This is a truly bewildering set of classifications. Even within some individual classifications, there are distinctions. For example, within Bars, Grills, Taverns and Restaurants, a category which makes up about one-half of all licensees, ASCAP has different license fee rates for chain establishments and independent single establishments. Furthermore, it is worth remembering that each separate type of license fee agreement bases its fees on criteria specific to the classification of licensee. For example, the license fee for Stores is based upon the number of square feet within the store and the number of speakers within the establishment. By contrast, conventions and dancing schools are charged according to the number of attendees.

What all these classifications demonstrate is the high level of market segmentation ASCAP has achieved over the years. The segment-specific fee calculation criteria indicate how hard ASCAP has worked to determine how to gather the most revenue possible out of each segment of the market. Clearly, ASCAP has gone a long way towards implementing a terraced demand space, and is poised to maximize its profits within each market segment.

5.3.1.4 Royalty Distribution

Once the license fees are collected by the organization, ASCAP must calculate how the royalties to the individual composers shall be distributed. The challenge for ASCAP is to find a means of determining the relative value of each song in the repertoire so that
royalties from the bundle can be parceled out to composers in relationship to the value of their content within the bundle.

In order to determine the proper royalties to be distributed, ASCAP analyzes transcripts of each and every network television or radio broadcast to determine which songs are played how many times. In addition to the number of times a song is played, royalty payments are also modified according to the time a given song is played. For example, if a given song is performed during rush hour, it is given a higher weighting for royalties than a song played at four in the morning. That difference in value is reflected in the royalties paid to the composers.

Non-network performances are sampled statistically. Samples of each station’s playlist are conducted by outside survey consultants appointed by federal court. These consultants determine the time and date of the survey of a particular station with little or no advance warning. Once the time is chosen, ASCAP can then measure the usage of material during the set time. Finally, each station’s sampling is granted a percentage weighting of time based upon the fees paid by that station as a proportion of total fees paid by the radio industry in the previous year.

The number and time of these performances are compiled into “credits” which represent the weighting of each song. The total number of credits from all songs is then divided into the total revenue collected from licensees, determining a value per credit. This value multiplied by the number of credits assigned to a given song determine the total royalties assigned to that song.

This system is not a perfect description of each station’s usage of material, but taken across a large number of stations, this method is sufficiently statistically accurate to properly compensate the composers for the use of their songs.
5.3.1.5 Is ASCAP Monopolistic?

In the ideal world, a single dominant aggregator, such as ASCAP, is one of the most efficient market structures possible. Under this market structure, all content is available to everyone for a single low price, deadweight loss is minimized and the aggregator earns a small amount of producer surplus. Here is a graphical illustration of what the pure, single aggregator does to the overall market:

![Graph showing D, P, Q, and MC = 0 with Deadweight Loss shaded area.]

However, this is not likely to happen in the real world.

This theoretical view of the effect of a single dominant aggregator does not take into account the possibility that the aggregator firm might take advantage of its unique market position to raise its prices and gather more revenue. This is one reason that examples of single dominant aggregators are extremely rare; the single dominant aggregator is also a monopolist. Since it is the only buyer of content and the only vendor of content in the market, it can act in a monopolistic manner on both sides of the negotiation.
As in any monopolistic market, the monopolist maximizes its own producer surplus, raising prices in the market and increasing deadweight loss. This results in a lower quantity of goods produced and a higher price for the goods.

When ASCAP was first founded, it held such a monopolistic position. As the only organization of its kind, it was truly a single, dominant aggregator. In 1940, ASCAP attempted to take full advantage of its position by raising its fees to radio stations by 100% in a single year. This resulted in a tremendous backlash from the radio music industry. Radio networks refused to carry any ASCAP programming, the radio industry founded BMI, a competitor to ASCAP, and the United States Government initiated an antitrust investigation of ASCAP.

The antitrust investigation was resulted in a ruling known as a Modified Final Judgment against ASCAP. The organization was not broken up, but the government did impose certain restrictions and requirements on its business practices. The most important restrictions are:
1) ASCAP is required to license its material to anyone who requests a license.
2) ASCAP cannot price discriminate among licensees within a single category of user.
3) Any licensee can take ASCAP to court to challenge its pricing; in such a case, ASCAP has to justify its pricing to the court.

The modified final judgment contains various other restrictions, but these three restrictions alone greatly impact ASCAP's ability to engage in monopolistic practices. In theory, the government's actions also bring the market closer to the desired low price, high quantity, low deadweight loss position, resulting in more benefit to the overall market.

In practice, however, government intervention has generally been seen as an inefficient means of running an industry. This inefficiency comes from a number of effects. For example, the regulated firm has little incentive to minimize costs, and the choices made by the decision markers within the regulated firm may be driven by forces other than maximizing overall welfare (such as personal power enhancement or a simple unwillingness to make difficult decisions). However, debating the benefits and problems with government regulation is beyond the scope of this paper, but it is important to recognize that government intervention is a valid theoretical solution to this type of market failure.

5.3.1.6 Summary

Studying ASCAP contains many rich lessons in understanding the possible structure of mature internet content aggregators. ASCAP aggregates content, it engages in very sophisticated market segmentation, and it has detailed processes for redistributing revenues to content creators. It is likely that mature internet content aggregators will display many of the same characteristics.

Unfortunately, ASCAP is also heavily regulated. Content aggregators should learn an important lesson from ASCAP's regulatory experience. Within thirty years of its
founding, ASCAP was able to gather sufficient market power to be investigated by the justice department for antitrust violations. It is possible that at some point in the future, a dominant content aggregator may develop enough market power to be investigated by the government for antitrust violations.

5.3.2 Cable and Movie Industry

Recently, people within the internet content world have been turning to the cable and movie industry as a model of how the content industry might appear in the future. For example, Microsoft actively views the new incarnation of MSN as another form of cable programming. According to a description in Wired, “In the same way that customers can now choose a selection of TV programming form their cable services, MSN members will be able to select their own mix of Web programming.”

Other online services also see the similarities. Edward Bennett, president and CEO of Prodigy, is an alumnus of Viacom Inc.'s cable television business. He sees the state of on-line services today as similar to the early days of cable, when advertisers shunned channels such as Home Box Office, which had only 600,000 viewers just two decades ago. Perhaps it is not accidental, then that a number of content companies are creating pricing structures very similar to the structures seen in the cable industry.

Compare the pricing packages available from DirecTV, a cable-like direct broadcasting service provider, and Quote.com, a financial information site on the World Wide Web:

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Note that both services provide unlimited access to particular content once subscribed at the single base price. However, both sites also provide higher levels of content at higher prices. These higher-priced bundles are designed to appeal to segmentable parts of the overall population - groups that have a need for a larger amount of content and therefore a greater willingness-to-pay for the content.

The second example provides an even more obvious example of market segmentation. Both DirecTV and Quote.com provide specialized content for groups which can be easily distinguished from the rest of the population: sports buffs and business types. In order to access full sports programming for the NFL on DirecTV (content which is extremely valuable to a segment of the sports buff population and almost worthless to others), NFL nuts must pay a significant extra fee. Similarly, in order to access full information on the Canadian market (again, content which is extremely valuable to a segment of the analyst population and almost worthless to others), Canadian market watchers must pay an extra fee.
Similar examples can be found in various other parts of the web and cable industries.

There is a logical reason why there might be some similarities between the web and cable industries. In simple terms, the web is a digital form of content delivery, much as cable systems are an analog form of content delivery. As the web develops into a more multimedia-based medium, the quality of content, and the costs of development will approach the levels found in the cable and movie industries.

5.4 Who are the Likely Content Aggregators?

Exactly what kinds of firms are likely to become players within the content aggregation industry? Clearly, the names of specific firms are unknown, but there are a number of groups who are well placed, or who would have a strong interest in becoming a part of this space. Below is a brief discussion of three of these groups.

5.4.1 Telecommunications Providers

Internet content relies on telecommunications abilities, and it follows logically that the major telecommunications companies would have an interest in becoming aggregators. Telecommunications companies hold an excellent position within the aggregation space because they already have a direct relationship with the end user; these firms can take advantage of their relationships with consumers to quickly enter the aggregator market.
The most likely candidates to enter the market within this group are the telephone companies, the cable companies, and the existing online service providers.

5.4.2 Publishing groups

Producers of content may also create aggregator entities. Just as ASCAP was formed as a collective bargaining organization for composers, publishing groups and content creators may want to organize to protect their rights in the online world. In fact, such an organization already exists. The “Authors Registry” is an organization which has been in existence for over a year and is specifically designed to mimic ASCAP. The organization titled its announcement press release, “AUTHORS & AGENTS LAUNCH ASCAP ORGANIZATION FOR WRITERS TO ADDRESS ELECTRONIC RIGHTS ISSUES.”107 Like ASCAP, the Authors Registry will provide a single location for locating authors of specific content, and will develop a simple accounting system for paying royalties to registered authors.

The Authors Registry provides many of the same types of coordination value provided by ASCAP, including a single marketplace, standardized contracting, protecting intellectual property, and creating a viable method for measuring usage of copyrighted material.

It is also interesting to note that ASCAP itself is extending its reach into the world of digital content. Recognizing that music can is placed on webpages to be downloaded or played via streaming audio, ASCAP has been initiating negotiations with major online services to establish a licensing structure for musical content on the web. Though the online services have not been particularly responsive on this issues up to this point, ASCAP has published an experimental, proposed license agreement for musical content on electronic media. A copy of this proposed license agreement is attached as Appendix B.

5.4.3 Software firms

At the beginning of this thesis, I mentioned that software is also included within the definition of content since it can also be transmitted digitally. Large software firms also have an opportunity to enter the aggregator market through marketing their own bundles of software directly to customers.

For example, imagine if Microsoft decided to sell access to a large bundle of their software for a set, annual price. The 1999 Microsoft Software Bundle might include the basics, a word processor, spreadsheet, database and presentation software, but it would also include access to a day planner or financial software. For a higher subscription level, a user might also receive access to project management software, high-end graphics software, or even CAD software. Further market segmentation might reveal tailored packages for engineering firms, sales organizations, real-estate brokers and other definable groups.

Though the idea of a subscription-based software bundle might seem unrealistic, it already exists today within the software market. The Open Software Foundation, an entity which primarily makes a UNIX operating system and software development tools, sells access to a bundle of software for a set price per development station.108 This strategy might be an interesting way for a niche operating system to maintain its hold upon a piece of the market.

5.5 Summary

Analyzing content pricing models alone is not sufficient to determine the probable structure of the industry. However, the dominant economics of content can indicate which market structures are more likely than others. In the internet content industry, it is clear that pure competition will not be the final model, and there are some reasons to believe that there will be a large amount of consolidation. Whether the ultimate outcome

108 For more information on the Open Software Foundation, see http://www.osf.org/
is closer to monopolistic competition or oligopoly will be determined by content production costs, technological trends and regulatory moves in telecommunications and media.

Determining which firms will be a part of that equilibrium is a shot in the dark. A few categories of likely participants can be identified (for example, it is likely that the major online services will have a powerful role in the stable industry equilibrium), but many other aggregation entities have not yet entered the market, and many of the current aggregators and new entrants will disappear through mergers and acquisitions before a stable equilibrium is achieved.
6. Conclusion

In this thesis, I have demonstrated the market failure in the market for internet content, and I have proposed a business and market structure, the aggregator model, which solves this market failure. The zero-marginal cost characteristics of internet content mean that an aggregator selling bundles of content maintains a competitive advantage over selling products individually. By increasing coordination value for the consumer, an aggregator can gather even more revenue, as well as maintain a competitive advantage over other aggregator entities. As a result, an aggregator which engages in developing coordination value for its customers should have a defensible and profitable position within the internet content space.

Once established, an aggregator can take various steps to maximize revenue. According to economic theory discussed earlier, a profit-maximizing aggregator firm would engage in significant market segmentation. My analysis of ASCAP provides evidence that a mature aggregator firm does engage in detailed market segmentation. Furthermore, there is ample evidence that the developing aggregator entities on the net have also begun to exercise some level of market segmentation by providing different products and services targeted for different population groups. Given the extreme tracking abilities of the internet, it is possible that internet entities will be able to easily exercise extensive market segmentation.

As a result, the aggregator model appears to be very well suited to the internet content space. This thesis provides an introduction to the aggregator concept, but I strongly
believe that there are still many areas within the aggregator model which deserve greater clarification. In particular, I feel that the following areas require further study:

- Establishing and defining market segments in the internet space.
- Determining the allocation of content products among market segments.
- Proper valuation of individual content products within a bundle.
- Double marginalization issues - should a content aggregator also be a content creator?
- Measurements of aggregator market power.

This last area of study hints at governmental regulation of aggregators. While the economic theory and practical experience with ASCAP indicate that dominant aggregators may attract the attention of antitrust groups, the industry must mature significantly before any such attention might occur, and the internet content industry is very much in its infancy. Instead, the results of this analysis should indicate to readers that content aggregator entities are an interesting, and potentially very profitable, market opportunity.

As of Spring 1996, it appears that the aggregator market is still open for new entrants. Huge amounts of new content will become available in the near future, and the installation of high-bandwidth connections to the internet will introduce a whole new realm of multimedia internet content. We have shown that aggregators will be a significant part of the internet content industry; yet so far, only a few aggregator entities have appeared on the net. Aggregators who structure their businesses properly, with detailed segmentation of their markets; various sources of coordination value for their customers; a coherent system for establishing royalty payments; and a method for determining the proper value of individual products within the bundle; these aggregators will have a competitive advantage over their competitors.
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Appendix A - ASCAP Local Station Blanket License Agreement

The following document is a sample blanket license agreement typically signed by licensees of ASCAP’s content.
AGREEMENT made between AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS ("Society") and

("Licensee") as follows:

1. **Term and Scope of License.** Society grants to Licensee and Licensee accepts for a period commencing as of 1995 and ending December 31, 1995, a license to perform publicly by radio broadcasting on "Licensee's Radio Programs" from Radio Station located at

("the Station") non-dramatic performances of the separate musical compositions in the "Society's Repertory". This license does not extend to or include the public performance by radio broadcasting or otherwise of any rendition or performance of any opera, operetta, musical comedy, play or like production, as such in whole or in part. Nothing in this agreement shall be construed as granting, or as authorizing Licensee to grant, to others any right to perform publicly or reproduce in any manner any of the musical compositions licensed under this agreement, or as authorizing any receiver of any radio broadcast to perform publicly or reproduce the same in any manner. The radio broadcast performances licensed under this agreement may originate at the Station or at any other place but nothing in this agreement shall be deemed to grant a license to anyone authorizing any public performance in such other place of any such composition.

2. **Definitions.** As used in this agreement:

A. "Society's Repertory" means all musical compositions which the Society has the right to license for public performance now or hereafter during the term of this agreement. Included for the full term of this agreement are all compositions written and copyrighted by members of Society and in the repertory on the date this agreement is executed. Compositions later written or copyrighted by members during the license term shall be included for the full balance of the term.

B. "Licensee's Radio Programs" means all programs and announcements broadcast by the Station, all of "Licensee's Simulcast Programs", and all of "Licensee's Occasional Network Programs", whether originated by the Station or by any other source, including those furnished by networks, or by any other program suppliers, whether or not such networks or other program suppliers are licensed by Society.

C. "Licensee's Simulcast Programs" means all programs broadcast simultaneously or by so-called "delayed" or "repeat" broadcasts by two or more stations owned by Licensee or for which Licensee acts as a time broker.

D. "Licensee's Occasional Network Programs" means all programs that Licensee (or any company under the same or substantially the same ownership, management or control as the Station) causes to be broadcast simultaneously or by so-called "delayed" or "repeat" broadcasts on any group of two or more radio stations affiliated with Licensee for the purpose of broadcasting such programs. For the purposes of this agreement any sports network operated by Licensee (or any company under the same or substantially the same ownership, management or control as the Station) shall be deemed to be an occasional network.

E. "Time Broker" means any person, firm or corporation not under the same or substantially the same ownership, management or control as the Station that engages in "time brokerage".

F. "Time Brokerage" means any arrangement between a station and a time broker that:

1. authorizes the resale by the time broker of the radio broadcasting facilities of the station;

2. permits the time broker to provide programs for 10% or more of the time the station is on the air; and

3. provides for the sale by the time broker of all or substantially all announcements within the brokered time.

G. "Gross Revenue" means all cash payments made by or on behalf of:

1. sponsors or donors for the use of radio broadcasting facilities of the Station;

2. sponsors of, or donors to, Licensee's simulcast programs;

3. sponsors of, or donors to, Licensee's occasional network programs;

4. time brokers who each provide programs for less than 10% of the time the Station is on the air, or recognized wholly independent companies engaged in arrangements with radio or television stations generally for the resale of the radio broadcasting facilities of the Station; and
(5) wholly independent networks or other program suppliers for the broadcasting of such networks' or program suppliers' programs or announcements by the Station.

Such payments shall include all payments made directly to, or as authorized by, Licensee, its employees, representatives, agents or any other person acting on Licensee's behalf, and all payments made to any company, firm or corporation under the same or substantially the same ownership, management or control as the Station. Such payments shall not include payments made to third parties, such as networks or program suppliers, that are not under the same ownership, management or control as the Station, or non-cash payments such as payments in goods or services commonly referred to as "trades" or "barter".

H. "Adjusted Gross Revenue" means gross revenue less:

(1) advertising agency commission not to exceed 15% actually allowed to an advertising agency that has no direct or indirect ownership or managerial connection with Licensee or the Station;

(2) any sums received from Licensee's political radio programs;

(3) bad debts actually written off and discounts allowed or rebates paid; and

(4) rate card discounts, cash, quantity and/or frequency actually allowed.

I. "Revenue Subject to Fee" means adjusted gross revenue or, at Station's option, adjusted gross revenue less the total of the following itemized deductions which exceeds 15% of adjusted gross revenue:

(1) All compensation over and above the total annual amount indicated below, actually paid by the Station to personnel whose duties primarily are acting as (a) master of ceremonies or disc jockey on musical programs; or (b) vocalist or instrumentalist engaged for a specific program; or (c) featured newscaster and news commentator; or (d) featured sportscaster; or (e) master of ceremonies on an entertainment program; or (f) announcer:

<table>
<thead>
<tr>
<th>Station's Annual &quot;Adjusted Gross Revenue&quot;</th>
<th>Total Annual Amount Not Deductible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $50,000</td>
<td>$6,200</td>
</tr>
<tr>
<td>$50,000 - $149,999</td>
<td>$18,600</td>
</tr>
<tr>
<td>$150,000 - $299,999</td>
<td>$27,900</td>
</tr>
<tr>
<td>$300,000 - $499,999</td>
<td>$41,900</td>
</tr>
<tr>
<td>$500,000 - $749,999</td>
<td>$46,500</td>
</tr>
<tr>
<td>$750,000 - $999,999</td>
<td>$53,700</td>
</tr>
<tr>
<td>$1,000,000 and Over</td>
<td>$62,000</td>
</tr>
</tbody>
</table>

Licensee may not deduct any compensation paid to any person who has a stock or other ownership interest in Licensee or in the station of 40% or more.

(2) The actual payment by the Station to an independent supplier of news ticker or news audio service (i.e., AP or UPI or other similar agencies) for news ticker or news audio service.

(3) The following actual costs incurred by the Station for a specific program: (a) payments to the telephone company or like transmission utility for remote pick-up necessary to broadcast such program from a point outside a studio of the Station; and (b) rights for broadcasting a sports or other special event.

(4) The following actual payments made by the Station to a wholly independent network not licensed by Society for a specific local program: (a) if such network is owned and operated by a college or university, the actual payment made by the Station to such college or university; (b) if such network is not owned and operated by a college or university, the actual payments made for talent and for broadcast rights (which may not exceed the amount actually paid to or for the original holder of the broadcast rights for the particular program), and the actual payments made to or for the telephone company or like transmission utility for interconnecting lines and remote lines necessary to broadcast the program from a point outside the studio of the Station, which may not exceed the amount actually paid to or for the telephone company or like transmission utility.

(5) The following actual costs incurred in connection with Licensee's occasional network programs: (a) the payments to its affiliated stations in connection with such programs; (b) the actual payments made for talent and broadcast rights (which may not exceed the amount actually paid to or for the original holder of such broadcast rights); and (c) the actual payments made to or for the telephone company or like transmission utility for interconnecting lines and remote lines necessary to broadcast that program from a point outside the studio of the Station, which may not exceed the amount actually paid to or for the telephone company or like transmission utility.

3. Music Reports. Licensee agrees to furnish to Society upon request a list of all musical compositions on Licensee's local radio programs, showing the title, composer and author of each composition. Licensee shall not be obligated to furnish such list for a period or periods which in the aggregate, exceed one month of any one calendar year during the term of this agreement.
4. Right to Restrict.

A. The members of Society shall have the right to restrict the radio broadcasting of compositions from musical comedies, operas, operettas and motion pictures, or any other composition being excessively broadcast, only for the purpose of preventing harmful effect upon other interests under the copyrights of such works; provided, however, that (1) the maximum number of compositions which may be restricted at any time shall not exceed 500; (2) limited licenses will be granted upon application to Society entirely free of additional charge as to restricted compositions, if and when the copyright owners thereof are unable to show reasonable hazards to their major interests likely to result from such radio broadcasting; (3) such right to restrict any such composition shall not be exercised for the purpose of permitting the fixing or regulating of fees for the recording or transcribing of such composition; (4) in no case shall any charges, "free plugs", or other consideration be required in respect of any permission granted to perform a restricted composition; and (5) in no event shall any composition, after the initial radio broadcast thereof, be restricted for the purpose of confining further radio broadcasts thereof to a particular artist, station, network or program.

B. Society reserves the further right in good faith to restrict the radio broadcasting of any composition, over and above the number specified in the previous paragraph, only as to which any suit has been brought or threatened on a claim that such composition infringes a composition not contained in the Society's repertory or on a claim that Society does not have the right to license the public performance of such composition by radio broadcasting.

5. License Fee.

A. In consideration of the license herein granted, Licensee agrees to pay to Society for each year during the term of this agreement a fee which is the applicable percentage of "Revenue Subject to Fee", or Minimum Fee, whichever is greater:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage Fee</th>
<th>Minimum Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1.575%</td>
<td>$400</td>
</tr>
<tr>
<td>1992</td>
<td>1.585%</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>1.600%</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>1.605%</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>1.615%</td>
<td></td>
</tr>
</tbody>
</table>

The minimum fee for each year 1992 through 1995 shall be the minimum fee for the prior year adjusted annually in accordance with any increase in the Consumer Price Index (National, all items) between the preceding October and the next preceding October.

B. In the event that Licensee's payment of fees under this agreement causes Society to incur a liability to pay a gross receipts, sales, use, business use, or other tax which is based on the amount of Society's receipts from Licensee, and (1) Society has taken reasonable steps to be exempted or excused from paying such tax; and (2) Society is permitted by law to pass through such tax to its licensees, Licensee shall pay to Society the full amount of such tax.

6. Reports and Payments.

A. On or before the first day of April in each year commencing 1992, Licensee shall send to Society a report of the license fee due for the preceding calendar year. Each such report shall be made by completing fully the Statement of Account form supplied free of charge by Society. A copy of the Statement of Account form is annexed and made a part of this agreement.

B. For each month during the term of this agreement, Licensee shall pay to Society on or before the first day of the following month, a sum equal to 1/12th of the license fee for the preceding calendar year (annualized for any reported period less than a year), adjusted in accordance with any increase in the Consumer Price Index (National, all items) between the preceding October and the next preceding October. If the report required by Paragraph 6.A. for any calendar year is not received by Society when due, the monthly payments shall be in the amount of the monthly payments due for the preceding year, plus 24%, and payments at that rate shall continue until the late report is received by Society. If the station commenced broadcasting after January 1, 1991, Licensee shall furnish Society with a good faith estimate of its revenue for the first year of operation and the monthly payments during the first calendar year of broadcasting shall be 1/12th of the fee provided in Paragraph 5.A. for a station having such Revenue Subject to Fee.

C. Each report required by Paragraph 6.A. of this agreement for the preceding calendar year shall be accompanied by payment to Society of the license fee due over and above all amounts paid to Society for the preceding calendar year pursuant to Paragraph 6.B. If the amount paid by Licensee for the preceding calendar year exceeds the license fee due for the year, Licensee shall apply the excess payment against future monthly
payments. If the excess payment is greater than three monthly payments required by Paragraph 6.B., Society shall, upon written request of Licensee, refund the excess payment.

D. If any payment required under Paragraph 6.B. or 6.C. is not received by Society before the first day of the month following the date when the payment was due, Licensee agrees to pay Society a finance charge of 1½% per month from the date the payment was due.

E. License fee reports shall be made on a billing basis by all stations, except that any station may report on a cash basis if (1) its books have been kept on a cash basis and (2) it reported to Society only on a cash basis and at no time on a billing basis during the entire term of its agreement with Society ending February 28, 1977, and continuously thereafter. All billings made subsequent to the termination of this agreement with respect to radio broadcasts made during the term hereof shall be accounted for by Licensee as and when such billings are made by Licensee.

F. If a report required by Paragraph 6.A. of this agreement is not received by the Society within 30 days of the date that the report was due, Society may give notice to Licensee that Licensee has an additional 30 days within which to submit the report on either the “Adjusted Gross Revenue” or “Adjusted Gross Revenue less itemized deductions” basis. If Licensee fails to submit the report within the additional 30-day period, the report must be on the “Adjusted Gross Revenue” basis.

G. Licensee shall submit a single license fee report for:

(1) AM and FM stations owned by Licensee in the same city if the combined “gross revenue” for the stations is less than $75,000; or

(2) all stations owned by Licensee that simultaneously broadcast programs for 80% or more of the time the stations are on the air concurrently.

If Licensee acts as a time broker for one or more other radio stations that are licensed pursuant to this form of local station blanket radio license, Licensee shall include in its license fee reports for the Station all gross revenue relating to periods on such other station or stations that are simulcast or are sold in combination with the Station. All other stations owned by Licensee, or for which Licensee acts as a time broker, shall report and pay separately, and be treated for all purposes as separate stations.

7. Audits.

A. Society shall have the right by its duly authorized representatives, at any time during customary business hours, to examine the books and records of account of Licensee only to such extent as may be necessary to verify any report required by this agreement. Society shall consider all data and information coming to its attention as a result of any such examination of books and records as completely and entirely confidential.

B. The period for which the Society may audit shall be limited to the four calendar years reported preceding the year in which the audit is made; provided however, that if an audit is postponed at the request of the Station the Society shall have the right to audit for the period commencing with the fourth calendar year reported preceding the year in which notification of intention to audit was first given by the Society to the Station. This limitation shall not apply if the Station fails or refuses after written notice from the Society to produce the books and records necessary to verify any report or statement of accounting pursuant to the agreement.

C. The period for which Licensee may correct computational errors, or errors relating to deductions permitted under the agreement on its license fee reports shall be limited to four calendar years preceding the year in which such corrected reports were submitted. This provision shall not be construed to permit a station to submit a report on the “Adjusted Gross Revenue less itemized deductions” basis for a period previously reported on the “Adjusted Gross Revenue” basis.

D. In the event the Society’s audit of Licensee’s books and records discloses that Licensee has underpaid license fees due Society:

(1) Licensee shall pay a finance charge on such additional license fees of 1½% per month from the date(s) such fees should have been paid pursuant to this agreement if the underpayment is 5% or more, but not less than $1000.
(2) Licensee shall pay a finance charge on such additional license fees of 1\(\frac{1}{2}\)% per month beginning thirty (30) days after the date Society bills such additional license fees to Licensee if the underpayment is less than 5% or less than $1000.

(3) If Licensee disputes all or part of the Society’s claim for additional fees pursuant to an audit, Licensee shall, within thirty (30) days from the date Society bills such additional fees, (i) advise Society, in writing, of the basis for such dispute and (ii) pay to Society any fees indisputably owed together with any applicable finance charges on additional fees indisputably owed in accordance with subparagraph (1) above. If there is a good faith dispute between Licensee and Society with respect to all or part of the additional fees Society has billed pursuant to this Paragraph, no finance charges shall be billed with respect to such disputed fees for a period beginning on the date Society bills such disputed fees and ending sixty (60) days from the date Society responds to Licensee’s written notification of the existence of a dispute.

(4) Finance charges computed in accordance with this Paragraph and pertaining to additional fees which Licensee disputes in accordance with subparagraph (3) above shall be adjusted pro-rata to the amount arrived at by Licensee and Society in resolution of the dispute with respect to additional fees due.

8. **Breach or Default.** Upon any breach or default by Licensee of any terms herein contained relating to the reports, accounts or payments required to be made by Licensee, Society may give Licensee thirty (30) days’ notice in writing to cure such breach or default, and in the event that such breach or default has not been cured within said thirty (30) days, Society may then promptly terminate this license.

9. **Time Brokerage Arrangements.** If Licensee enters into a time brokerage arrangement as defined in Paragraph 2.F. above, the license granted by this agreement shall automatically terminate thirty (30) days after the commencement date of the time brokerage arrangement unless Licensee has furnished to Society a complete copy of the time brokerage agreement and Licensee and Time Broker have executed a letter to Society in the form annexed and made a part of this agreement requesting amendment of the license agreement to add Time Broker as a party. When such a letter has been fully executed by Licensee, Time Broker and Society, this agreement shall be deemed amended accordingly.

10. **Indemnity Clause.** Society agrees to indemnify, save and hold harmless and to defend Licensee, its advertisers and their advertising agencies, and its and their officers, employees and artists, from and against all claims, demands and suits that may be made or brought against them or any of them with respect to the performance under this agreement of any compositions in the Society’s repertory which are written or copyrighted by members of Society. Licensee agrees to give Society immediate notice of any such claim, demand or suit and agrees immediately to deliver to Society all papers pertaining hereto. Society shall have full charge of the defense of any such claim, demand or suit and Licensee shall cooperate fully with Society in such defense. Licensee however shall have the right to engage counsel of its own at its own expense who may participate in the defense of any such action. Society agrees at the request of Licensee to cooperate with and assist Licensee, its advertisers and their advertising agencies and its and their officers, employees and artists in the defense of any action or proceeding brought against them or any of them with respect to the performance of any musical compositions contained in the Society’s repertory, but not copyrighted or written by members of Society. This Paragraph 10 shall not apply to performances of any works that may be restricted under Paragraph 4 of this agreement.

11. **Rights of Termination.**

A. In the event of the termination or suspension of the governmental licenses covering the Station or any substantial alteration or variation of the terms and conditions thereof, or any major interference with the operations of the Station due to governmental measures or restrictions, Licensee shall have the right to terminate this agreement upon seven (7) days’ written notice.

B. In the event of:

(1) any major interference with the operation of Society in the state, territory, dependency, possession or political subdivision in which the Station is located, by reason of any law of such state, territory, dependency, possession or political subdivision; or

(2) any substantial increase in the cost to the Society of operating in such state, territory, dependency, possession or political subdivision, by reason of any law of such state, territory, dependency, possession or political subdivision which is applicable to the licensing of performing rights.

Society shall have the right to terminate this agreement on thirty (30) days’ written notice to Licensee.
12. **Notices.** All notices required or permitted to be given by either of the parties to the other under this agreement shall be duly and properly given if:

A. mailed to the other party by registered or certified United States mail; or

B. sent by electronic transmission (i.e., Mailgram, facsimile or similar transmission); or

C. sent by generally recognized same-day or overnight delivery service,

addressed to the party at its usual place of business.

13. **Successors and Assignees.** This agreement shall enure to the benefit of and shall be binding upon the parties and their respective successors and assignees, but no assignment shall relieve the parties of their respective obligations under this agreement.

14. **Per Program License.** The “local station per program license” for the term ending December 31, 1995 is being offered to Licensee simultaneously with this agreement. In accepting this agreement, Licensee acknowledges that it has a choice of entering into either this agreement or the per program license with Society; that Licensee has the opportunity to negotiate for separate licenses with the individual members of Society; and that Licensee is voluntarily entering into this agreement with Society. Licensee may substitute the per program agreement in place of this agreement by giving Society written notice at least 60 days prior to the commencement of any month during the term of this agreement. In such event, effective with the commencement of that month, the per program agreement shall be in full force and effect between Licensee and Society for the balance of the license term.

15. **Applicable Law.** The fees set forth in this agreement have been approved by the United States District Court for the Southern District of New York as reasonable and non-discriminatory in accordance with the Amended Final Judgment in *United States v. ASCAP*. The meaning of the provisions of this agreement shall be construed in accordance with the laws of the State of New York.

**In Witness Whereof,** this agreement has been duly executed by Society and Licensee this ____________ day of ________________, 199_

AMERICAN SOCIETY OF COMPOSERS,
AUTHORS AND PUBLISHERS

By ___________________________________________

LICENSEE

__________________________________________
(Full corporate or other name of station owner)

By __________________________________________

(a) If corporation, state corporate office held;
(b) If partnership, write word “partner” under signature of signing partner;
(c) If individual owner, write “individual owner” under signature.
TIME BROKERAGE AMENDMENT LETTER

(Letterhead of Licensee)

Date ________________

Dear ASCAP:

1. Radio station ____________________________ ["STATION"] has entered into a time brokerage agreement with ____________________________ ["BROKER"] for the period ____________________________ through ____________________________.

2. STATION and BROKER wish to add BROKER as a party to the Local Station Radio License Agreement in effect between STATION and ASCAP ("the license") with all of the rights and obligations of the Licensee as set forth in the license for the full period of the brokerage agreement referred to in (1) above.

3. We agree that for all periods that STATION simulcasts or is sold in combination with another radio station owned or operated by BROKER ["BROKER STATION"] that has an ASCAP Local Station Radio License we shall report all gross revenue of STATION as follows:

   a. All BROKER revenue relating to STATION will be included in BROKER’s license fee reports for BROKER STATION. If such revenue constitutes all gross revenue for STATION, no license fee or license fee reports will be required of STATION.

   b. All of STATION’s other revenue (as defined in the license) will be included in STATION’s license fee reports.

   c. Amounts payable by BROKER to STATION as consideration for the time brokerage agreement shall not be reportable by STATION or deductible by BROKER STATION.

   d. In the event that STATION and BROKER STATION have different forms of ASCAP license, all BROKER revenue relating to programs of STATION which simulcast or are sold in combination with BROKER STATION shall be apportioned between STATION and BROKER STATION in the same ratio as the adjusted gross revenue of STATION and BROKER STATION year to each other for the most recent year prior to the brokerage agreement reported by STATION and BROKER STATION to ASCAP (annualized for any period less than a year). Any such revenue apportioned to, and reported for, STATION pursuant to this paragraph shall not be reportable by BROKER on its license fee reports for BROKER STATION.

4. If STATION fully simulcasts programs broadcast by BROKER STATION and has no separate programs, STATION and BROKER agree to maintain the same form of ASCAP license (blanket or per program) for STATION as BROKER has for BROKER STATION. In the event that BROKER STATION has a different form of license for BROKER STATION at the time this agreement is executed, this letter shall constitute our notice in accordance with the license agreement (Paragraph 14 of the blanket license or Paragraph 15 of the per program license) to substitute the other form of license in place of our current agreement. In the event that STATION and BROKER STATION have the same form of license at the time this agreement is executed, and BROKER STATION subsequently provides notice pursuant to its license agreement to substitute the other form of license, said notice shall be deemed to apply as well to STATION.

5. For all periods that STATION has a per program license agreement, BROKER STATION shall submit the reports required by Paragraph 5 of the per program license for all programs provided by BROKER STATION which are broadcast by STATION, and STATION shall submit such reports for all other programs broadcast by STATION. If STATION fully simulcasts programs broadcast by BROKER STATION and has no separate programs, and if all revenue relating to STATION is included in BROKER’s license fee reports for BROKER STATION in accordance with Paragraph 3.a. above, STATION shall not be required to submit separate reports pursuant to Paragraph 5 of the per program license.

6. STATION and BROKER jointly designate the following single address for billing and other regular correspondence, and the following single address for any notices in accordance with the license agreement (Paragraph 12 of the blanket license or Paragraph 13 of the per program license):

   Billing Address: ____________________________  Notice Address: ____________________________
   __________________________________________  ____________________________
   __________________________________________  ____________________________

   Please indicate your consent to the amendment of our license agreement in accordance with this letter by countersigning the letter in the space provided below and returning a copy to us.

Very truly yours,

(LICENSEE)

By __________________________________________

(BROKER)

Dated: ________________  By __________________________________________

The undersigned, American Society of Composers, Authors and Publishers, hereby consents and agrees to the amendment of the above mentioned license agreement.

American Society of Composers, Authors and Publishers

Dated: ________________  By __________________________________________
### PART 1 Account Information

- **Call**: 
- **Licensee**: 
- **Address**: 

### PART 2 Fee Computation

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gross Revenue (excluding non-cash payments in goods and/or services) (Lic. 12G)</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>Advertising Agency Commissions (Lic. 12H(11))</td>
<td>2.00</td>
</tr>
<tr>
<td>3</td>
<td>Revenue for Political Broadcasts (Lic. 12H(2))</td>
<td>3.00</td>
</tr>
<tr>
<td>4</td>
<td>Less: Agency Comm. included in 2 above.</td>
<td>4.00</td>
</tr>
<tr>
<td>5</td>
<td>Net Revenue for Political Broadcasts</td>
<td>5.00</td>
</tr>
<tr>
<td>6</td>
<td>Bad Debts (Lic. 12H(3))</td>
<td>6.00</td>
</tr>
<tr>
<td>7</td>
<td>Less: Bad Debt Recoveries</td>
<td>7.00</td>
</tr>
<tr>
<td>8</td>
<td>Net Revenue for Bad Debts</td>
<td>8.00</td>
</tr>
<tr>
<td>9</td>
<td>Rate Card Discounts (Lic. 12H(4))</td>
<td>9.00</td>
</tr>
<tr>
<td>10</td>
<td>Total Adjustments to Gross (Add lines 2, 5, 8, and 9)</td>
<td>10.00</td>
</tr>
<tr>
<td>11</td>
<td>Adjusted Gross Revenue/Revenue Subject to Fee (Subtract line 10 from line 1)</td>
<td>11.00</td>
</tr>
<tr>
<td>12</td>
<td>Total Itemized Deductions from line 24 below (Subtract line 13 from line 11)</td>
<td>12.00</td>
</tr>
<tr>
<td>13</td>
<td>License Fee (Subtract line 13 from line 12)</td>
<td>13.00</td>
</tr>
<tr>
<td>14</td>
<td>Total Itemized Deductions (Subtract line 14 from line 15)</td>
<td>15.00</td>
</tr>
<tr>
<td>15</td>
<td>Revenue Subject to Fee (Subtract line 14 from line 12)</td>
<td>16.00</td>
</tr>
<tr>
<td>16</td>
<td>License Fee (% of line 11 or line 15 but not less than $5)</td>
<td>16.00</td>
</tr>
</tbody>
</table>

### License Fee Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1.575%</td>
</tr>
<tr>
<td>1992</td>
<td>1.585%</td>
</tr>
<tr>
<td>1993</td>
<td>1.600%</td>
</tr>
<tr>
<td>1994</td>
<td>1.605%</td>
</tr>
<tr>
<td>1995</td>
<td>1.615%</td>
</tr>
</tbody>
</table>

### Minimum Fee

<table>
<thead>
<tr>
<th>Year</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>$400</td>
</tr>
<tr>
<td>1992</td>
<td>$400</td>
</tr>
<tr>
<td>1993</td>
<td>$400</td>
</tr>
</tbody>
</table>

Note: Adjusted = Gross Revenue \* License Fee Rate (as of line 11)

### PART 3 Complete Only If You Itemize Deductions

- **Amount Non-Deductible (See Table at right)** | 17.00 |
- **Deductible Compensation (Lic. 12H(11)) (Subtract 18 from 17)** | 19.00 |
- **News Ticker and Audio (Lic. 12H(2))** | 20.00 |
- **Remote Pickups (Lic. 12H(3)(a))** | 21.00 |
- **Broadcast Rights (Lic. 12H(3)(b))** | 22.00 |
- **Other, Specify License Paragraph** | 23.00 |
- **Total Itemized Deductions (Add lines 19 through 23. Enter on line 12)** | 24.00 |
Appendix B - ASCAP Experimental License Agreement for Computer Online Services, Electronic Bulletin Boards, Internet Sites, and Similar Operations

The following document is a copy of an experimental musical content license agreement created by ASCAP to apply typical ASCAP licensing structures to the electronic content industries.
1. **Parties:** This is an agreement between the American Society of Composers, Authors and Publishers ("We," "Us" or "ASCAP"), located at One Lincoln Plaza, New York, New York 10023 and

(“You” or “Licensee”), located at

2. **Experimental Agreement:** This is an experimental agreement which applies for its term only and is entered into without prejudice to any position you or we may take for any period subsequent to its termination.

3. **Computer Service Defined:** Your “Computer Service” is a computer online service, electronic bulletin board, Internet site or similar operation.

<table>
<thead>
<tr>
<th>known as</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>with the Internet Protocol (IP) address of</td>
<td></td>
</tr>
<tr>
<td>the Universal Resource Locator (URL) of</td>
<td></td>
</tr>
<tr>
<td>the primary telephone dial-up (modem) number of</td>
<td></td>
</tr>
<tr>
<td>or which may otherwise be accessed by the public as follows:</td>
<td></td>
</tr>
</tbody>
</table>

4. **Computer Service Users Defined:** “Computer Service Users” are all persons, firms or corporations who access your Computer Service.

5. **Reperatory Defined:** Our “Reperatory” consists of all copyrighted musical compositions written or published by our members or by the members of affiliated foreign performing rights societies, including compositions written or published during the term of this agreement, and of which we have the right to license non-dramatic public performances.

6. **Grant of License:** We grant you a license to publicly perform, or cause to be publicly performed, by means of transmissions on your Computer Service, non-dramatic renditions of the separate musical compositions in our Repertory.

7. **Term of License:** The license granted by this agreement commences on **January 1, 1996** (the "Effective Date"), and ends on December 31 of the same calendar year, and continues after that for additional terms of one year each unless you or we terminate it by giving the other party notice at least thirty days prior to the end of a calendar year.
8. Limitations on License:

(a) This license extends only to you and your Computer Service and is limited to performances presented by means of transmissions on your Computer Service, and by no other means, to Computer Service Users.

(b) This license may not be assigned without our written consent.

(c) This license is limited to the United States, its territories and possessions, and the Commonwealth of Puerto Rico.

(d) Nothing in this agreement grants you, or authorizes you to grant to any Computer Service User, or to anyone else, any right to reproduce, copy or distribute by any means, method or process whatsoever, any of the musical compositions licensed by this agreement, including, but not limited to, transferring or copying any such musical composition to a computer hard drive, or otherwise downloading the composition onto any other storage medium.

(e) Nothing in this agreement grants, or authorizes you to grant, to any Computer Service User, or to anyone else, any right to perform by any means, method or process whatsoever, any of the musical compositions licensed under this agreement.

(f) This license is limited to non-dramatic performances, and does not authorize any dramatic performances. For purposes of this agreement, a dramatic performance shall include, but not be limited to, the following:

   (i) performance of a "dramatico-musical work" in its entirety;

   (ii) performance of one or more musical compositions from a "dramatico-musical work" accompanied by dialogue, pantomime, dance, stage action, or visual representation of the work from which the music is taken;

   (iii) performance of one or more musical compositions as part of a story or plot, whether accompanied or unaccompanied by dialogue, pantomime, dance, stage action, or visual representation; and

   (iv) performance of a concert version of a "dramatico-musical work."

The term "dramatico-musical work" includes, but is not limited to, a musical comedy, opera, play with music, revue, or ballet.

9. License Fees: For each year during the term of this agreement you agree to pay us the license fee applicable to your "Amount Subject to Fee" as defined in the Rate Schedule applicable for that year.

10. Rate Schedules: There are four alternative Rate Schedules attached to and made a part of this agreement. Rate Schedule "A" contains rates based on your Computer Service's gross revenue; Rate Schedule "B" contains rates based on your Computer Service's total music revenue; Rate Schedule "C" contains rates based on your Computer Service's total ASCAP music revenue; and Rate Schedule "D," which only applies to non-profit corporations, contains rates based on the total budget for your Computer Service. Each Rate Schedule includes a specific definition of "Amount Subject to Fee" applicable to that Rate Schedule and a Statement of Account for providing required reports. Rate Schedules "B" or "C" may only be used if (a) you maintain your books and records in a manner which enables you to furnish the required information, (b) your Annual License Fee Report is submitted when due, and (c) you are current in payment of license fees. In all other instances, the rates contained in Rate Schedule "A" apply.
11. **Reports and Payments:** You agree to furnish license fee reports and payments to us as follows:

(a) **Annual License Fee Reports.** You will submit an Annual License Fee Report for each year of this agreement, by the first day of April of the following year, by fully completing the Statement of Account form on the applicable Rate Schedule.

(b) **Initial License Fee Report.** Within thirty days after you and we execute this agreement, you will submit an Initial License Fee Report based on a good faith estimate of your Computer Service's "Amount Subject to Fee" for the first full year of operation from the Effective Date of this agreement.

(c) **Quarterly License Fee Payments.** You will submit license fee payments quarterly on or before the first day of January, April, July and October of each year. The payments due by April 1, July 1 and October 1 of each year, and by January 1 of the following year, are each equal to one-fourth of the license fee for the preceding calendar year (annualized for any reported period less than a year).

(d) **Late Report Payments.** If we do not receive your Annual License Fee Report when due, you will submit quarterly license fee payments that are 24% higher than the quarterly payments due for the preceding year, and payments will continue at that increased rate until we receive the late report.

(e) **Annual Adjustment.** With each annual report you will submit payment of any license fees due over and above all amounts that you paid for that year. If the fee is less than the amount that you paid, we will apply the excess to the next quarterly payment due under this agreement. If the excess is greater than one quarterly payment, we will refund it to you at your written request.

(f) **Late Payment Charge.** You will pay a finance charge of 1-1/2% per month, from the date due, on any required payment that is not made within thirty days of its due date.

12. **Report Verification:**

(a) We have the right to examine your books and records in order to verify any required report. We may exercise this right by giving you thirty days notice of our intention to conduct an examination. We will consider all data and information derived from our examination as completely confidential. You agree to furnish all pertinent books and records, including electronic records, to our authorized representatives, during customary business hours.

(b) If our examination shows that you underpaid license fees, you agree to pay a finance charge of 1-1/2% per month on the license fees due from the date we bill you for that amount or, if the underpayment is 5% or more, from the date or dates that the license fees should have been paid.

(c) You may dispute all or part of our claim for additional fees. You may do so by advising us in writing within thirty days from the date we bill the additional fees to you of the basis for your dispute, and by paying the undisputed portion of our claim with the applicable finance charges. If there is a good faith dispute between us concerning all or part of our claim, we will defer finance charges on the disputed amount until sixty days after we have responded to you, and will pro-rate finance charges based on our resolution of the dispute.
13. Breach or Default: If you fail to perform any of the terms or conditions required of you by this agreement, we may terminate your license by giving you thirty days notice to cure your breach or default. If you do not do so within that thirty day period, your license will automatically terminate at the end of that period without any further notice from us.

14. Interference With ASCAP's Operations: We have the right to terminate this license effective immediately, if there is any major interference with, or substantial increase in the cost of, our operation as a result of any law in the state, territory, dependency, possession or political subdivision in which you or your Computer Service is located which is applicable to the licensing of performing rights.

15. Indemnification: We will indemnify you from any claim made against you with respect to the non-dramatic performance under this agreement of any composition(s) in our Repertory, and will have full charge of the defense against the claim. You agree to notify us immediately of any such claim, furnish us with all the papers pertaining to it, and cooperate fully with us in its defense. If you wish, you may engage your own counsel, at your expense, who may participate in the defense. Our liability under this paragraph is strictly limited to the amount of license fees that you actually paid us under this agreement for the calendar year(s) in which the performance(s) which are the subject of the claim occurred.

16. Notices: We or you may give any notice required by this agreement by (a) sending the notice to the other party's last known address by United States Mail or by generally recognized same-day or overnight delivery service, or (b) transmitting the notice electronically to the other party's last known facsimile number or e-mail (or similar electronic transmission) address. We each agree to inform the other in writing of any change of address.

IN WITNESS WHEREOF, this Agreement has been duly executed by ASCAP and Licensee this ______ day of ______________ , 19____.

<table>
<thead>
<tr>
<th>AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS</th>
<th>Licensee Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>By ___________________________________________________</td>
<td>By</td>
</tr>
<tr>
<td>___________________________ ___________________________</td>
<td>___________________________ ___________________________</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
</tbody>
</table>

| ___________________________ ___________________________ | Signature |
| ___________________________ ___________________________ | Print Your Name |
| ___________________________ ___________________________ | ___________________________ ___________________________ |
| Title |

(Fill in capacity in which signed: (a) If corporation, state corporate office held; (b) If partnership, write word “partner” under printed name of signing partner; (c) If individual owner, write “individual owner” under printed name.)
PART I. ACCOUNT INFORMATION

LICENSEE:

ADDRESS:

COMPUTER SERVICE NAME:

FACSIMILE NUMBER: __________________ PHONE NUMBER: __________________

PART II. DEFINITIONS

NOTE: Definitions of Licensee’s “Computer Service” and “Computer Service Users” are contained in paragraphs 3 and 4 of the license agreement. All “Revenue” definitions include all specified payments whether made directly to Licensee, any entity under the same or substantially the same ownership, management or control as Licensee, or to any other person, firm or corporation as directed or authorized by Licensee or any of Licensee’s agents or employees.

1. “COMPUTER SERVICE USER REVENUE” means all payments made by or on behalf of Computer Service Users for the Computer Service including, but not limited to, subscriber fees and connect time charges.

2. “SPONSOR REVENUE” means all payments made by or on behalf of sponsors, advertisers, program suppliers, content providers, or others for the use of the facilities of the Computer Service including, but not limited to, payments made for “hotlinks.”

3. “ADJUSTMENTS TO SPONSOR REVENUE” means: (a) advertising agency commissions not to exceed 15% actually allowed to an advertising agency that has no direct or indirect ownership or managerial connection with Licensee or the Computer Service; and (b) bad debts actually written off and discounts allowed or rebates paid.

4. “NET SPONSOR REVENUE” means all Sponsor Revenue less Adjustments to Sponsor Revenue.

5. “PROMOTIONAL REVENUE” is the reasonable value of the facilities of the Computer Service for promotion of any product(s) or service(s), other than the Computer Service, offered by Licensee or any entity under the same or substantially the same ownership, management or control as Licensee.

6. “AMOUNT SUBJECT TO FEE” is the total of Computer Service User Revenue, Net Sponsor Revenue and Promotional Revenue.
PART III. AMOUNT SUBJECT TO FEE COMPUTATION

1. Computer Service User Revenue ........................................ $
2. Net Sponsor Revenue (from Part IV, line 9) ......................... $
3. Promotional Revenue .................................................. $
4. Amount Subject to Fee (add lines 1, 2 and 3) ..................... $

PART IV. NET SPONSOR REVENUE CALCULATION

5. Sponsor Revenue.......................................................... $
6. Advertising Commissions ...........................................$
7. Bad Debts..........................................................................$
8. Total Adjustments to Sponsor Revenue (add lines 6 and 7) ...... $
9. Net Sponsor Revenue (line 5 minus line 8) ....................... $

PART V. LICENSE FEE

10. The annual license fee under this Rate Schedule “A” is the applicable fee based on Amount Subject to Fee (from Part III, line 4), as shown in the Table below (pro-rated for partial year) $

<table>
<thead>
<tr>
<th>Amount Subject to Fee</th>
<th>Annual License Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $ 31,000.00</td>
<td>$ 500.00</td>
</tr>
<tr>
<td>$ 31,000 to $ 39,999.99</td>
<td>$ 575.00</td>
</tr>
<tr>
<td>$ 40,000 to $ 49,999.99</td>
<td>$ 725.00</td>
</tr>
<tr>
<td>$ 50,000 to $ 59,999.99</td>
<td>$ 890.00</td>
</tr>
<tr>
<td>$ 60,000 to $ 69,999.99</td>
<td>$ 1,050.00</td>
</tr>
<tr>
<td>$ 70,000 to $ 79,999.99</td>
<td>$ 1,210.00</td>
</tr>
<tr>
<td>$ 80,000 to $ 89,999.99</td>
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</tr>
<tr>
<td>$ 90,000 to $ 99,999.99</td>
<td>$ 1,535.00</td>
</tr>
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</tr>
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<td>$120,000 to $139,999.99</td>
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</tr>
<tr>
<td>$140,000 to $159,999.99</td>
<td>$ 2,423.00</td>
</tr>
<tr>
<td>$160,000 to $179,999.99</td>
<td>$ 2,745.00</td>
</tr>
<tr>
<td>$180,000 to $199,999.99</td>
<td>$ 3,068.00</td>
</tr>
<tr>
<td>$200,000 to $224,999.99</td>
<td>$ 3,432.00</td>
</tr>
<tr>
<td>$ 225,000 or More</td>
<td>$3,432.00 plus 1.615% of the Amount Subject to Fee in excess of $225,000</td>
</tr>
</tbody>
</table>

PART VI. CERTIFICATION

We certify that all books and records necessary to verify this report are now and will continue to be available for your examination in accordance with the terms of the license agreement.

______________________________  ____________________________
Signature                        Date

Print Name and Title

A - 2
PART I. ACCOUNT INFORMATION

LICENSEE:

ADDRESS:

COMPUTER SERVICE NAME:

FACSIMILE NUMBER: __________________ PHONE NUMBER: __________________

PART II. DEFINITIONS

NOTE: Definitions of Licensee's "Computer Service" and "Computer Service Users" are contained in paragraphs 3 and 4 of the license agreement. All "Revenue" definitions include all specified payments whether made directly to Licensee, any entity under the same or substantially the same ownership, management or control as Licensee, or to any other person, firm or corporation as directed or authorized by Licensee or any of Licensee's agents or employees.

1. "COMPUTER SERVICE USES" means the total number of "hits" or "accesses" of the Computer Service by Computer Service Users.

2. "MUSIC SERVICE(S)" means any area(s) offered by Licensee, or otherwise available to Computer Service Users as part of the Computer Service, which contain(s) music.

3. "MUSIC SERVICE USERS" means all Computer Service Users who access any Music Service(s).

4. "MUSIC SERVICE USES" means the total number of "hits" or "accesses" of the Music Service(s) by Music Service Users.

5. "COMPUTER SERVICE USER REVENUE" means all payments made by or on behalf of Computer Service Users for the Computer Service including, but not limited to, subscriber fees and connect time charges.

6. "MUSIC SERVICE CONNECTION REVENUE" means all payments made by or on behalf of Music Service Users for access to the Music Service(s).

7. "NON-MUSIC COMPUTER SERVICE USER REVENUE" means all Computer Service User Revenue that is not Music Service Connection Revenue.
8. "SPONSOR REVENUE" means all payments made by or on behalf of sponsors, advertisers, program suppliers, content providers, or others for the use of the facilities of the Computer Service including, but not limited to, payments made for "hotlinks."

9. "TARGETED SPONSOR REVENUE" means all Sponsor Revenue that is targeted for specific area(s) offered by Licensee, or otherwise available to Computer Service Users as part of the Computer Service, and that are only available to Computer Service Users who access those area(s).

10. "TARGETED MUSIC SERVICE SPONSOR REVENUE" means all Targeted Sponsor Revenue for the Music Service(s).

11. "NON-TARGETED SPONSOR REVENUE" means all Sponsor Revenue that is not Targeted Sponsor Revenue.

12. "PROMOTIONAL REVENUE" is the reasonable value of the facilities of the Computer Service for promotion of any product(s) or service(s), other than the Computer Service, offered by Licensee or any entity under the same or substantially the same ownership, management or control as Licensee.

13. "TARGETED PROMOTIONAL REVENUE" means all Promotional Revenue that is targeted for specific area(s) offered by Licensee, or otherwise available to Computer Service Users as part of the Computer Service, and that are only available to Computer Service Users who access those area(s).

14. "TARGETED MUSIC SERVICE PROMOTIONAL REVENUE" means all Targeted Promotional Revenue for the Music Service(s).

15. "NON-TARGETED PROMOTIONAL REVENUE" means all Promotional Revenue that is not Targeted Promotional Revenue.

16. "ATTRIBUTABLE REVENUE" is that portion of the total of (a) Non-Music Computer Service User Revenue, (b) Non-Targeted Sponsor Revenue, and (c) Non-Targeted Promotional Revenue which bears the same ratio to that total as the total number of Music Service Uses bears to the total number of Computer Service Uses.

17. "MUSIC REVENUE/AMOUNT SUBJECT TO FEE" is the total of Music Service Connection Revenue, Targeted Music Service Sponsor Revenue, Targeted Music Service Promotional Revenue and Attributable Revenue.

PART III. AMOUNT SUBJECT TO FEE COMPUTATION

1. Music Service Connection Revenue ........................................ $ 
2. Targeted Music Service Sponsor Revenue ................................ $ 
3. Targeted Music Service Promotional Revenue ....................... $ 
4. Attributable Revenue (from Part IV, line 13) ............................. $ 
5. Amount Subject to Fee (add lines 1, 2, 3 and 4) ....................... $ 

PART IV. ATTRIBUTABLE REVENUE CALCULATION

6. Non-Music Computer Service User Revenue ........................... $ 
7. Non-Targeted Sponsor Revenue ........................................... $ 
8. Non-Targeted Promotional Revenue ..................................... $ 
9. Total (add lines 6, 7 and 8) .............................................. $ 
10. Total Music Service Uses .................................................. $ 
11. Total Computer Service Uses ............................................. $ 
12. Ratio (divide line 10 by line 11)(to 3 decimals) ...................... $ 
13. Attributable Revenue (multiply line 9 by line 12) ................... $
PART V. LICENSE FEE

14. The annual license fee under this Rate Schedule “B” is the applicable fee based on Amount Subject to Fee (from Part III, line 5), as shown in the Table below (pro-rated for partial year) ................................ $

<table>
<thead>
<tr>
<th>Amount Subject to Fee</th>
<th>Annual License Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $20,650</td>
<td>$500.00</td>
</tr>
<tr>
<td>$20,650 to $25,999.99</td>
<td>$565.00</td>
</tr>
<tr>
<td>$26,000 to $31,999.99</td>
<td>$702.00</td>
</tr>
<tr>
<td>$32,000 to $39,999.99</td>
<td>$871.00</td>
</tr>
<tr>
<td>$40,000 to $49,999.99</td>
<td>$1,089.00</td>
</tr>
<tr>
<td>$50,000 to $62,999.99</td>
<td>$1,367.00</td>
</tr>
<tr>
<td>$63,000 to $78,999.99</td>
<td>$1,718.00</td>
</tr>
<tr>
<td>$79,000 to $99,999.99</td>
<td>$2,166.00</td>
</tr>
<tr>
<td>$100,000 to $125,999.99</td>
<td>$2,735.00</td>
</tr>
<tr>
<td>$126,000 to $159,999.99</td>
<td>$3,461.00</td>
</tr>
<tr>
<td>$160,000 to $199,999.99</td>
<td>$4,356.00</td>
</tr>
<tr>
<td>$200,000 to $249,999.99</td>
<td>$5,445.00</td>
</tr>
<tr>
<td>$250,000 to $299,999.99</td>
<td>$6,655.00</td>
</tr>
<tr>
<td>$300,000 or More</td>
<td>$6,655.00 plus 2.42% of the Amount Subject to Fee in excess of $300,000</td>
</tr>
</tbody>
</table>

PART VI. CERTIFICATION

We attach to this report a written statement of the method used to identify and track Computer Service Uses, Music Service Uses, and that portion of the revenue of the Computer Service that is derived from, or in connection with, or is attributable to, performances of music on the Computer Service. We certify that all books and records necessary to verify this report are now and will continue to be available for your examination in accordance with the terms of the license agreement.

_________________________  ____________________
Signature                        Date

_________________________
Print Name and Title
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PART I. ACCOUNT INFORMATION

REPORT PERIOD: ___________ THRU ___________

LICENSEE:

ADDRESS:

COMPUTER SERVICE NAME:

FACSIMILE NUMBER: ___________________ PHONE NUMBER: ___________________

PART II. DEFINITIONS

NOTE: Definitions of Licensee’s “Computer Service” and “Computer Service Users” are contained in paragraphs 3 and 4 of the license agreement. All “Revenue” definitions include all specified payments whether made directly to Licensee, any entity under the same or substantially the same ownership, management or control as Licensee, or to any other person, firm or corporation as directed or authorized by Licensee or any of Licensee’s agents or employees.

1. "COMPUTER SERVICE USES" means the total number of “hits” or “accesses” of the Computer Service by Computer Service Users.

2. "MUSIC SERVICE(S)" means any area(s) offered by Licensee, or otherwise available to Computer Service Users as part of Licensee’s Computer Service, which contain(s) music.

3. "MUSIC SERVICE USERS" means all Computer Service Users who access any Music Service(s).

4. "MUSIC SERVICE USES" means the total number of “hits” or “accesses” of the Music Service(s) by Music Service Users.

5. "MUSIC USES" means the total number of “hits,” “accesses,” “downloads,” “plays” or other transmissions on the Computer Service of musical works.

6. "ASCAP MUSIC USES" means the total number of “hits,” “accesses,” “downloads,” “plays” or other transmissions on the Computer Service of works in the ASCAP repertory.

7. "ASCAP MUSIC USE CONNECTION REVENUE" means all payments made by or on behalf of Music Service Users for ASCAP Music Uses.

8. "COMPUTER SERVICE USER REVENUE" means all payments made by or on behalf of Computer Service Users for Licensee’s Computer Service including, but not limited to, subscriber fees and connect time charges.

9. "MUSIC SERVICE CONNECTION REVENUE" means all payments made by or on behalf of Music Service Users for access to the Music Service(s).

10. "NON-MUSIC COMPUTER SERVICE USER REVENUE" means all Computer Service User Revenue that is not Music Service Connection Revenue.
11. "SPONSOR REVENUE" means all payments made by or on behalf of sponsors, advertisers, program suppliers, content providers, or others for the use of the facilities of the Computer Service including, but not limited to, payments made for "hotlinks."

12. "TARGETED SPONSOR REVENUE" means all Sponsor Revenue that is targeted for specific area(s) offered by Licensee, or otherwise available to Computer Service Users as part of Licensee's Computer Service, and that are only available to Computer Service Users who access those area(s).

13. "TARGETED MUSIC SERVICE SPONSOR REVENUE" means all Targeted Sponsor Revenue for the Music Service(s).

14. "NON-TARGETED SPONSOR REVENUE" means all Sponsor Revenue that is not Targeted Sponsor Revenue.

15. "PROMOTIONAL REVENUE" is the reasonable value of the facilities of the Computer Service for promotion of any product(s) or service(s), other than the Computer Service, offered by Licensee or any entity under the same or substantially the same ownership, management or control as Licensee.

16. "TARGETED PROMOTIONAL REVENUE" means all Promotional Revenue that is targeted for specific area(s) offered by Licensee, or otherwise available to Computer Service Users as part of the Computer Service, and that are only available to Computer Service Users who access those area(s).

17. "TARGETED MUSIC SERVICE PROMOTIONAL REVENUE" means all Targeted Promotional Revenue for the Music Service(s).

18. "NON-TARGETED PROMOTIONAL REVENUE" means all Promotional Revenue that is not Targeted Promotional Revenue.

19. "ATTRIBUTABLE REVENUE" is that portion of the total of (a) Non-Music Computer Service User Revenue, (b) Targeted Music Service Sponsor Revenue, (c) Non-Targeted Sponsor Revenue, (d) Targeted Music Service Promotional Revenue, and (e) Non-Targeted Promotional Revenue which bears the same ratio to that total as the total number of Music Service Uses bears to the total number of all Computer Service Uses.

20. "ATTRIBUTABLE ASCAP MUSIC REVENUE" is that portion of Attributable Revenue that bears the same ratio to that amount as the total number of ASCAP Music Uses bears to the total of all Music Uses.

21. "ASCAP MUSIC REVENUE/AMOUNT SUBJECT TO FEE" is the total of ASCAP Music Use Connection Revenue and Attributable ASCAP Music Revenue.

PART III. AMOUNT SUBJECT TO FEE COMPUTATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCAP Music Use Connection Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Attributable ASCAP Music Revenue (from Part V, line 18)</td>
<td>$</td>
</tr>
<tr>
<td>Amount Subject to Fee (add lines 1 and 2)</td>
<td>$</td>
</tr>
</tbody>
</table>

PART IV. ATTRIBUTABLE REVENUE CALCULATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Music Computer Service User Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Targeted Music Service Sponsor Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Non-Targeted Sponsor Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Targeted Music Service Promotional Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Non-Targeted Promotional Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Total (add lines 4, 5, 6, 7, and 8)</td>
<td>$</td>
</tr>
<tr>
<td>Total Music Service Uses</td>
<td></td>
</tr>
<tr>
<td>Total Computer Service Uses</td>
<td></td>
</tr>
<tr>
<td>Ratio (divide line 10 by line 11)</td>
<td>(to 3 decimals)</td>
</tr>
<tr>
<td>Attributable Revenue (multiply line 9 by line 12)</td>
<td>$</td>
</tr>
</tbody>
</table>
PART V. ATTRIBUTABLE ASCAP MUSIC REVENUE CALCULATION

14. Attributable Revenue (from Part IV, line 13) .............................................. $ 
15. Total ASCAP Music Uses ............................................................................ 
16. Total Music Uses ......................................................................................... 
17. Ratio (divide line 15 by line 16)(to 3 decimals) .............................................. 
18. Attributable ASCAP Music Revenue (multiply line 14 by line 17) ............... $ 

PART VI. LICENSE FEE

19. The annual license fee under this Rate Schedule "C" is the applicable fee based on Amount Subject to Fee (from Part III, line 3), as shown in the Table below (pro-rated for partial year) .................. $ 

<table>
<thead>
<tr>
<th>Amount Subject to Fee</th>
<th>Annual License Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $ 11,200</td>
<td>$ 500.00</td>
</tr>
<tr>
<td>$ 11,200 to $ 14,999.99</td>
<td>$ 584.00</td>
</tr>
<tr>
<td>$ 15,000 to $ 19,999.99</td>
<td>$ 780.00</td>
</tr>
<tr>
<td>$ 20,000 to $ 26,999.99</td>
<td>$ 1,048.00</td>
</tr>
<tr>
<td>$ 27,000 to $ 35,999.99</td>
<td>$ 1,405.00</td>
</tr>
<tr>
<td>$ 36,000 to $ 47,999.99</td>
<td>$ 1,873.00</td>
</tr>
<tr>
<td>$ 48,000 to $ 63,999.99</td>
<td>$ 2,498.00</td>
</tr>
<tr>
<td>$ 64,000 to $ 84,999.99</td>
<td>$ 3,323.00</td>
</tr>
<tr>
<td>$ 85,000 to $ 112,999.99</td>
<td>$ 4,415.00</td>
</tr>
<tr>
<td>$ 113,000 to $ 149,999.99</td>
<td>$ 5,865.00</td>
</tr>
<tr>
<td>$ 150,000 to $ 199,999.99</td>
<td>$ 7,805.00</td>
</tr>
<tr>
<td>$ 200,000 to $ 264,999.99</td>
<td>$ 10,392.00</td>
</tr>
<tr>
<td>$ 265,000 to $ 349,999.99</td>
<td>$ 13,714.00</td>
</tr>
<tr>
<td>$ 350,000 or More</td>
<td>$ 13,714.00 plus 4.46% of the Amount Subject to Fee in excess of $350,000</td>
</tr>
</tbody>
</table>

PART VII. CERTIFICATION

We attach to this report a written statement of the method used to identify and track Computer Service Uses, Music Service Uses, Music Uses, ASCAP Music Uses, and that portion of the revenue of the Computer Service that is derived from, or in connection with, or is attributable to performances on the Computer Service of music in the ASCAP Repertory. We certify that all books and records necessary to verify this report are now and will continue to be available for your examination in accordance with the terms of the license agreement.

Signature

Date

Print Name and Title
NOTE: This Rate Schedule “D” applies only if (a) the Computer Service is owned or operated by a not-for-profit entity recognized under Title 26, United States Code, § 501(c)(3); and (b) "Computer Service Budget," as defined below, is greater than the Amount Subject to Fee which would otherwise apply under Rate Schedules “A,” “B” and “C.”

PART I. ACCOUNT INFORMATION

LICENSEE:

ADDRESS:

COMPUTER SERVICE NAME:

FACSIMILE NUMBER: ______________ PHONE NUMBER: ______________

NOTE: If you identify and track "Computer Service Uses" and "Music Service Uses," each as defined below, you may complete either Parts III and IV or Parts V and VI. Otherwise, you must complete Parts III and IV, and omit Parts V and VI.

PART II. DEFINITIONS

NOTE: Definitions of Licensee's "Computer Service" and "Computer Service Users" are contained in paragraphs 3 and 4 of the license agreement.

1. "COMPUTER SERVICE BUDGET" means the total operating budget of the Computer Service.

2. "COMPUTER SERVICE USES" means the total number of "hits" or "accesses" of the Computer Service by Computer Service Users.

3. "MUSIC SERVICE(S)" means any area(s) offered by Licensee, or otherwise available to Computer Service Users as part of Licensee’s Computer Service, which contain(s) music.

4. "MUSIC SERVICE USES" means the total number of "hits" or "accesses" of any Music Service(s) by Computer Service Users.

5. "AMOUNT SUBJECT TO FEE" under Part III below is your Computer Service Budget, and "Amount Subject to Fee" under Part V below is that portion of your Computer Service Budget which bears the same ratio to that amount as the total number of Music Service Uses bears to all Computer Service Usage.
PART III. AMOUNT SUBJECT TO FEE

1. Computer Service Budget/Amount Subject to Fee ................................................ $ __________

PART IV. LICENSE FEE

2. The annual license fee is the applicable fee based on Amount Subject to Fee (from Part III, line 1), as shown in Table I below (pro-rated for partial year) ................................................ $ __________

<table>
<thead>
<tr>
<th>Amount Subject to Fee</th>
<th>Annual License Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $31,000</td>
<td>$500.00</td>
</tr>
<tr>
<td>$31,000 to $39,999.99</td>
<td>$575.00</td>
</tr>
<tr>
<td>$40,000 to $49,999.99</td>
<td>$725.00</td>
</tr>
<tr>
<td>$50,000 to $59,999.99</td>
<td>$890.00</td>
</tr>
<tr>
<td>$60,000 to $69,999.99</td>
<td>$1,050.00</td>
</tr>
<tr>
<td>$70,000 to $79,999.99</td>
<td>$1,210.00</td>
</tr>
<tr>
<td>$80,000 to $89,999.99</td>
<td>$1,370.00</td>
</tr>
<tr>
<td>$90,000 to $99,999.99</td>
<td>$1,535.00</td>
</tr>
<tr>
<td>$100,000 to $119,999.99</td>
<td>$1,777.00</td>
</tr>
<tr>
<td>$120,000 to $139,999.99</td>
<td>$2,100.00</td>
</tr>
<tr>
<td>$140,000 to $159,999.99</td>
<td>$2,423.00</td>
</tr>
<tr>
<td>$160,000 to $179,999.99</td>
<td>$2,745.00</td>
</tr>
<tr>
<td>$180,000 to $199,999.99</td>
<td>$3,068.00</td>
</tr>
<tr>
<td>$200,000 to $224,999.99</td>
<td>$3,432.00</td>
</tr>
<tr>
<td>$225,000 or More</td>
<td>$3,432.00 plus 1.615% of the Amount Subject to Fee in excess of $225,000</td>
</tr>
</tbody>
</table>
PART V. AMOUNT SUBJECT TO FEE COMPUTATION

1. Computer Service Budget ................................................ $ 
2. Total Music Service Uses .................................................  
3. Total Computer Service Uses ...........................................  
4. Ratio (divide line 2 by line 3) (to 3 decimals) .......................  
5. Amount Subject to Fee (multiply line 1 by line 4) .................. $  

PART VI. LICENSE FEE

6. The annual license fee is the applicable fee based on Amount Subject to Fee (from Part V, line 5), as shown in Table II below (pro-rated for partial year) .......................................................... $ 

<table>
<thead>
<tr>
<th>Amount Subject to Fee</th>
<th>Annual License Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $20,650</td>
<td>$500.00</td>
</tr>
<tr>
<td>$20,650 to $25,999.99</td>
<td>$565.00</td>
</tr>
<tr>
<td>$26,000 to $31,999.99</td>
<td>$702.00</td>
</tr>
<tr>
<td>$32,000 to $39,999.99</td>
<td>$871.00</td>
</tr>
<tr>
<td>$40,000 to $49,999.99</td>
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<td>$50,000 to $62,999.99</td>
<td>$1,367.00</td>
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<tr>
<td>$63,000 to $78,999.99</td>
<td>$1,718.00</td>
</tr>
<tr>
<td>$75,000 to $99,999.99</td>
<td>$2,166.00</td>
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<tr>
<td>$100,000 to $125,999.99</td>
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<tr>
<td>$126,000 to $159,999.99</td>
<td>$3,461.00</td>
</tr>
<tr>
<td>$160,000 to $199,999.99</td>
<td>$4,356.00</td>
</tr>
<tr>
<td>$200,000 to $249,999.99</td>
<td>$5,445.00</td>
</tr>
<tr>
<td>$250,000 to $299,999.99</td>
<td>$6,655.00</td>
</tr>
<tr>
<td>$300,000 or More</td>
<td>$6,655.00 plus 2.42% of the Amount Subject to Fee in excess of $300,000</td>
</tr>
</tbody>
</table>

PART VII. CERTIFICATION

If our annual license fee is based on the Amount Subject to Fee from Part V, line 5, we attach to this report a written statement of the method used to identify and track Computer Service Uses and Music Service Uses. In all instances, we certify that all books and records necessary to verify this report are now and will continue to be available for your examination in accordance with the terms of the license agreement.

__________________________________________
Signature

__________________________________________
Date

Print Name and Title