



Couch Potato Famine: Prospering Through an Era of Disruptive Change in Media

From FTI Consulting—A Four-Part Series on Media
By Bruce Benson

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Introduction

Pity the TV executive. Pity the managing editor, the movie mogul, and the guys on Madison Avenue. In just the past few years, media executives have seen the rise of 500 channels, falling newspaper subscriptions, the emerging dominance of search advertising, and a proliferation of disruptive technologies, including ad-skipping DVRs, video games, and video streaming. They've seen flattening DVD sales, the decline of prime time, the birth of new phenomena such as IPTV, iPods, Podcasts, blogs, YouTube, and MySpace – and movie and music pirating that now totals more than a billion files per month. These new technologies are diverting audiences, cannibalizing markets and fragmenting viewership. The phenomenon has prompted many pundits to declare that media is in a state of crisis, as *BusinessWeek* did in May of 2005 with its cover article entitled “The Vanishing Mass Market.”



Most media executives are not quite sure what's hit them. Some feel like they're wrestling with a black bear in a cave, grappling with a monolithic force of indiscernible shape and complexity. Others just wait fatalistically for an endless succession of innovations that will continue to pummel their businesses. Yet others like Rupert Murdoch and Jane Friedman, CEO of Harper Collins, are striving to adapt, and with some early successes. But one thing is certain: the dramatic shift in consumer behavior means that media companies are in for a rough ride. Some of today's companies will probably be marginalized. But just as there's nothing that guarantees today's companies will prosper, there is likewise nothing impelling them to fail. What is required to cope successfully is a clear understanding of what is happening, and a strategy for adaptation.

At FTI, we believe that understanding root causes is an essential step in developing viable long-term strategies. This white paper is the first in a four-part series on media. The goal of this series is to lay bare the fundamental forces reshaping media and to describe some strategies for adaptation.

This series has four parts:

- Part I: *Three Titanic Forces Converge*
- Part II: *Network Effects*
- Part III: *Managing in an era of Mass-Niche Duality*
- Part IV: *Strategies for Adaptation*

This white paper is Part I: *Three Titanic Forces Converge*. The other installments in this series will be issued once a month.

This first part deals with the underlying forces that have disrupted and will continue to plague the media industry. Part II outlines important concepts in network economics, a branch of microeconomics. Many of these concepts are not yet understood by media executives, but are vital in a world where networks form marketplaces where media and entertainment is traded or sold. Part III deals with what we and others have called the “mass-niche duality,” where we attempt to reconcile hits-driven economics with the emerging concept of “the long tail.” And finally, in Part IV we will lay out a set of broad strategic choices for several key segments of the media business.

Part I: Three Titanic Forces Converge

Despite the word converge in the title, this first part in our series on media is as much about divergence as convergence. Paradoxically, the convergence of some major forces in technology is now causing an extreme divergence in media and audience behavior.

What are these forces? We believe there are three, and they will continue to plague the media business throughout the decade. They are (1) the rise of “openness,” (2) broadband penetration and (3) the emergence of many-to-many networks. If these don’t seem to be the three that are currently changing your business, read on. There have of course been other important stage-setting innovations such as the PC and the internet itself, but this series of whitepapers will focus on digital media and its impact on the media and entertainment industry.

The Rise of Openness

Obviously, the invention of the internet was a seminal development for the media industry. But if its content had been locked up in walled gardens, or new internet-based services had been forced to pay the same high rents that cable networks require in order to launch a new TV channel, the extraordinary innovations the internet has fostered would not have happened. Instead, these quantum leaps in innovation were made possible by the simultaneous emergence of open standards and open internet access. Examples include cheap internet access, free internet browsers, and ubiquitous license-free technologies like TCP/IP, MP3, JPEG, HTML and HTTP. This “openness” of license-free standards and unfettered web access has had, and will continue to have, a huge impact on the rate of innovation on the web.

From an economist’s point of view, standards and open access reduce competitors’ barriers to entry. This is because standards ensure compatibility—and openness eliminates licensing agreements that hinder experimentation. Openness consequently fosters greater innovation, and thereby, consumer choice—or as economists like to say, it maximizes “social welfare.”

So here’s the really bad news for old media companies: *openness means no market equilibrium is possible*. The market players cannot settle into a comfortable steady state where each service has an optimal price and strategy and gets a dependable portion of the pie. For several decades, until the rise of cable, NBC, ABC and CBS had the TV broadcast market to themselves in the US, precisely because spectrum licenses were difficult to acquire, programming was expensive and the infrastructure costs to broadcast nationally were exorbitant. This was a very comfortable equilibrium for the networks, and no startups could apply. Today, however, because barriers to entry are now so low, the marketplace is unstable, with new entrants, new products, new forms of content, and new business models arriving daily. New entrants are now arriving faster than the market can absorb them. From a media company’s point of view, things can seem downright chaotic.

Equilibrium may temporarily return in an open environment, after consumers pick the services and features they want and dominant players emerge – but on the web, it will be short-lived. Such a temporary equilibrium arose after the first dot-com bubble, where, for example, Yahoo, AOL, and MSN emerged as the dominant portals, and each had a significant share of the market. But this equilibrium is now collapsing with the emergence of Google, social networks like MySpace, and video portals like YouTube. These new entrants are diverting consumer attention (and significant ad dollars) away from the portals.

Of course, it is possible to construct closed offerings within the open-standards environment of the internet. Any password-protected site, such as the *Wall Street Journal’s* Online Edition, is closed. Apple has also brilliantly mixed the open internet with its proprietary song format. Apple forces all iPod users to buy their legal songs through iTunes, since iTunes is the only site that sells songs that are compatible with the iPod. Apple’s song format is closed, since Apple will not license its song format or DRM to any other company.

However, Apple has cleverly designed the iPod so that it can also play MP3 files. Since MP3 is an open standard, consumers can get songs in this format by “ripping” their CDs or tapping into the illegal (and open) p2p networks. In this way, Apple captures the revenue-generating legal “white market” for songs, while helping the consumer also partake of the vastly popular black market for illegal songs and videos. We might call the strategic use of open and closed standards a “partially closed” strategy; and in Apple’s case this partially closed strategy has been quite successful.

Most of today’s media executives understand the basics of open and closed strategies and have a grasp of switching costs or barriers-to-exit. However, in the case of networked services and entertainment, a special branch of economics called network economics extends these concepts in important ways that are less well understood. We’ll explore these concepts in Part II – *Network Effects*.

Openness has another important consequence for internet services – namely that many services are *compelled* to be free. Some executives grouse that consumers are just used to free stuff on the web, but there is a deeper cause. Most new services, hoping to attract consumers, must eliminate all obstacles for trial or adoption. With barriers of entry so low, new competitors can imitate your service in a flash, so that there is a perpetual race to gain and keep market share. New sites who attempt to charge consumers for their services inhibit consumer adoption, and are vulnerable to lower-cost and zero-cost entrants.

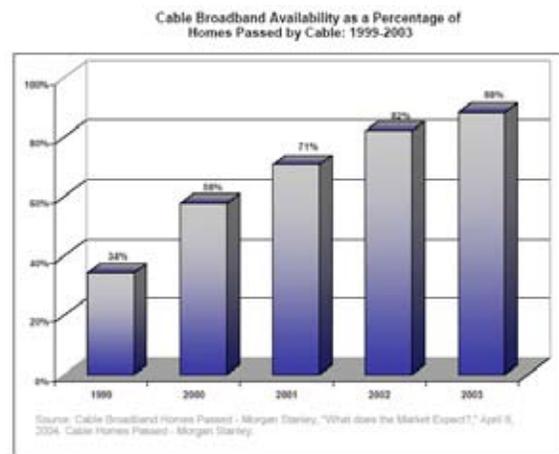
This openness has affected most of the media industry. National printed news, for example, has essentially been commoditized because the open HTML format allows anyone to publish text on the web. As a consequence, newspapers are in decline. As another example, the music industry’s revenue has fallen 30% with the advent of MP3 files, broadband and open p2p networks. But the effects of openness on media aren’t always bad. This same openness has also fostered new, profitable media industries such as portals and massively parallel video games.

The main point of this section is that the openness of the internet is a profound force. It creates a global market place with extremely low barriers to entry. This is good for consumers and startups, but chaotic for the market leaders. In an open environment, little equilibrium is possible. Temporary equilibriums may arise, but are short-lived. Any significant change, like the emergence of broadband, will bring new entrants, threats, and a raft of disruptive innovation. Like a judo master, companies can use this force of openness to their advantage, as Apple, eBay and Skype have done, but it requires a carefully thought-out strategy. Depending on a media company’s position in the value chain, partially closed strategies could mean the selective licensing of content, closed delivery systems, or encrypted delivery. Company’s can also choose totally open come-one-come-all strategies as most newspapers have done with their web sites. (I caution, however, that closed strategies can limit profits in competitive markets. I’ll discuss this further in Part II - Network Effects.)

The Rise of Broadband

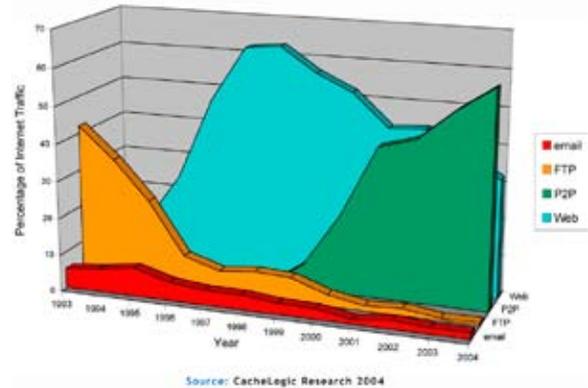
The second titanic force in media is the advent of broadband. To my way of thinking, this innovation is as gargantuan in its eventual impact as the shift from horse and buggy to the automobile. Sure, broadband ended the world-wide-wait, but that is the least of it.

As the chart at right shows, broadband was available to over 80% of US homes by 2003. Consumer adoption has been lower, but is now well above 60%, and growing fast. Broadband’s average speeds today are around 400 kilobits to 1 megabit per second in the US, and it is asynchronous, meaning the download speeds



are much faster than upload speeds. Other countries, who tolerate less interference from special interests, far surpass the US in this regard. South Korea today has 10 megabits to the home, and 2-5 megabits is common in Europe. At these speeds, television becomes possible on the web. And we can expect compression and ever-widening broadband pipes to dramatically improve these speeds over the next decade, while competition keeps prices in check.

Even at today's lower speeds in the US, broadband is having a major impact on media. Music file sharing is an obvious example. In 1997, web access speeds were 19 kilobits per second, and it took half an hour to download a song. Now an album can be downloaded in 5 minutes. Peer-to-peer technologies and music piracy arose so consumers could more stealthfully share song files, but it was broadband that made this file sharing an acceptably fast experience. As the chart at right shows, by 2004 peer-to-peer web traffic overtook conventional web traffic. Big Champagne, a company that monitors p2p traffic, estimates that there are now over a billion song and video files shared (i.e., stolen) on the web each month.



Broadband obviously has enabled other forms of media distribution. Video streaming could not exist without broadband, and the US streamed over 14 billion music videos in 2005. ABC, NBC and CBS are all now streaming episodes of their hit shows, sometimes even before they have run on TV. Equally, YouTube could not exist without broadband, and it is currently streaming over 100 million videos per day.

Over the next decade we can expect bandwidth to increase 10-fold and compression to at least double while delivering higher quality. At these rates, virtually anything can be moved around the web at consumer-acceptable speeds. In addition, most of the developed world will be connected, and many third-world countries will have slower but serviceable wi-fi broadband access.

It's impossible to predict the social and political changes this may bring about, but we can reasonably foretell some of the changes in media. Here is a strictly conservative list of probable innovations that I'll put forth just to spur the imagination:

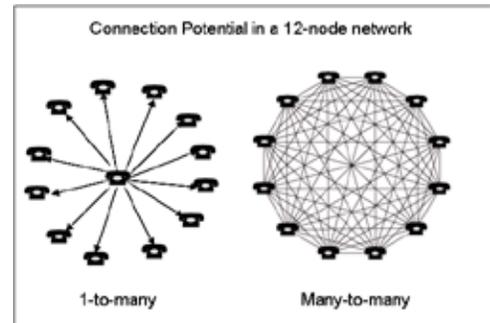
- Video will become far more "immersive" on the web as speed, quality and picture size improves.
- Every TV show and movie will be available on demand somewhere on the web.
- The browser and the TV will merge in the living room, creating a "cable bypass."
- Conventional TV networks and cable broadcasting will reduce to 1/3 of their current viewership and skew toward seniors, who are slower to adopt new technologies.
- DVD-based video games will disappear and be replaced by web-based distribution.
- Games may begin to seriously rival television audiences as they gain broader appeal.
- Advertising will remain the dominant financial model, but will be individualized, more flexible, more measurable and less intrusive.
- Peer-to-peer distribution will become the dominant legal transfer protocol on the web for video.

It has been 40 years now since Marshall McLuhan, in his book *Understanding Media – The Extensions of Man*, coined the famous phrase, "the medium is the message." In an earlier work, *The Mechanical Bride*, he espoused the concept of hot and cold mediums. Though some of his ideas about hot and cold mediums were a bit wacky, he rightfully declared that video was a hot medium because it involves more of our senses and with far less work than, say, reading a book. This makes video more engaging, and probably ensures its

dominance as a medium for a long time to come. This may be somewhat reassuring to video content owners, but the means of distribution and the underlying economic models that have funded their development will change radically.

Many-to-Many Networks

The last of the Web's three titanic forces is the rise of what are called many-to-many networks. In a many-to-many network, many people can share and interact. These networks are in stark contrast to broadcast networks, where one publisher pushes its content to a receiving audience, none of whom can interact with each other. Network topologists symbolize these as 1:N, meaning a one-to-many broadcast model and N:N, meaning a many-to-many network model.



The difference in potential between these two topologies can be seen mathematically and in the diagram at right, which illustrates the principle known as Metcalf's Law: A 1:N network supports N connections, whereas an N:N network supports $N \times N$ (or N^2) connections.¹ Hence a broadcast network of a million people supports a million connections, while an N:N network supports a trillion connections. Some of the more important principles of a networked market place are taught in MBA school and business books, and we won't dwell on them here. Part II of this series of white papers explores network economics in relation to media, and breaks some new ground regarding a new notion I call "network goods." In this section, however, we want to focus on why it is that the power of many-to-many networks is just now being put to use on the web, and what it means for media.

The internet has actually always had a many-to-many network topology, but most services don't use it this way. The first use of the internet was email, which is really one-to-one, or at best one-to-few. Equally, Skype today is really primarily one-to-one. You can call a friend (one-to-one) or conference together with a few friends (few-to-few). Instant messaging also has this same narrow capacity. Portals have a different topology, as they are really broadcast models (one-to-many). Consumers visit Yahoo, which serves up content to each of them individually. Similarly, all shopping sites and conventional websites are 1:N. So to-date, most services on the web have not used the full many-to-many capacity of the web.

However, eBay, Grokster, MySpace and YouTube are examples of many-to-many services. All of these are fairly new, except for eBay. In eBay's case, many people offer goods or services to all others who bid to acquire them. At YouTube, many people serve up amateur video to many others. Grokster is a p2p music service where content is shared among all members anonymously and (usually) illegally. MySpace allows many friends to find and communicate with many other friends.²

Many-to-many services have special powers that are only now being fully understood. YouTube, for example, is a service that has grown at an exponential rate in only one year and has over 60 million users in many countries. It now serves over 100 million video streams a day – more than the viewership of all the major networks combined during a prime-time hour. Accustream has estimated recently that user-generated

¹ As network economics have received more attention, Metcalf's Law has fallen into disfavor. There are two basic complaints: first, it includes a consumer communicating with himself, and it double-counts the number of connections because it counts a connection from member A to member B and B to A as two connections. Nowadays, the preferred formula is $(N(N-1))/2$ which eliminates both problems. In the case of a phone network, this double counting should be eliminated, because the *physical line* can be used in both directions. However, I believe that on the internet the *access* the connection provides from member A to B is different than from B to A and should be separately counted. Even the access to one's self on the internet is valuable, such as storing one's own files or photos online. So for the purposes of this discussion, N^2 is the right formula.

² Social networks are really "few-to-few" networks, but we'll lump them in as N:N for now. In Part II, we'll discuss the differences in potential between few-to-few and many-to-many network services.

content streams will hit 31 billion by the end of 2006. Grokster and a few other p2p services ship over a billion songs per month, and have more than 6 million participants every hour of the day.

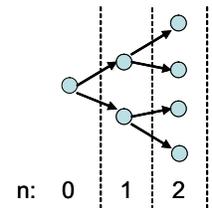
There are three reasons for the power of many-to-many networks: (1) unbounded size, (2) efficient search, (3) viral super-distribution. Let's examine each.

Many-to-many networks are unbounded in the number of participants. Within its category, such as amateur video in the case of YouTube, each many-to-many network can become a massive aggregator. In such a marketplace, the only reasonable thing for consumers to do who want their video to be seen is to put it on YouTube, because that's where everyone else is. This becomes so efficient that it literally crowds out other entrants. In fact, *the market doesn't want two of them*. This is because it is neither convenient nor beneficial to the consumer to have to go to multiple web sites for new amateur video, nor is it beneficial for the video creators to have to upload their videos to multiple sites. This was demonstrated over the previous six months before Google bought YouTube. Google had announced a free video upload and sharing service, as did Yahoo and MSN, but consumers shunned them for YouTube. Equally, eBay enjoys this impervious position: the US market doesn't need or want two eBays. However, these virtual monopolies might turn out to be quite fragile. Small changes in these services may have big impacts on consumer loyalty. For example, It will be interesting to see if YouTube maintains its dominant position as it becomes more aggressive in taking down copyright-infringing videos and mash-ups. Consumers may flee to underground networks like they do today for p2p music and video. We'll have more to say about these types of services in Part II - Network Effects.

The second aspect that gives many-to-many networks their power is efficient search. Google taught the world the basics of search conducted against an unprecedentedly large database of websites. Equally, pioneering work by Amazon regarding recommendation engines, and the tagging technology pioneered by Del.icio.us and various rating engines, has made it possible for consumers to easily cope with the vast marketplace of a many-to-many network. This, coupled with the vertical nature of the site itself, such as YouTube for video, eBay for personal sales, or Grokster for music, allows consumers to go to a single destination and find what they want. Search in all of its forms will probably continue to improve and become even more efficient.

The third aspect that empowers many-to-many networks is what can be called viral super-distribution. This phrase is meant to imply something more powerful than just viral distribution.³ Let's look at simple viral distribution first. Most people are familiar with the form of distribution illustrated at right, where one person tells two friends, each of whom tells two friends, etc. This has the general formula k^n , where k is the number of original participants, 2 is the number each person tells, and n is the number of iterations of the transmission. In the diagram at right k is 1, because it all starts with one person – like a chain letter.

Simple Viral Distribution: 2^n



Now, any time n appears as an exponent, be prepared for really big numbers and fast growth. Below is a table showing the total number of copies of an email sent by each person to two new people successively over 50 times. The table also shows what happens if each person sends the email to three people instead of just two.

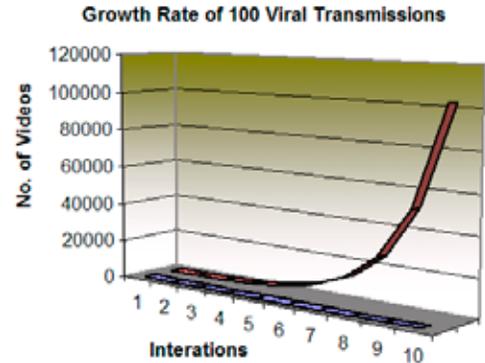
n	2^n	3^n
0	1	1
5	32	243
10	1,024	59,049
15	32,768	14,348,907
20	1,048,576	3,486,784,401
25	33,554,432	847,288,609,443
30	1,073,741,824	205,891,132,094,649
35	34,359,738,368	50,031,545,098,999,700
40	1,099,511,627,776	12,157,665,459,056,900,000
45	35,184,372,088,832	2,954,312,706,550,830,000,000
50	1,125,899,906,842,620	717,897,987,691,853,000,000,000

Of course, viral distribution cannot actually achieve numbers this unimaginably large. This

³ For people already following digital media, the phrase “viral super-distribution” will seem redundant because some use the term viral and super-distribution interchangeably. Many-to-many networks, however, create a viral distribution on steroids, as the math in the rest of this discussion illustrates. Consequently I've combined the two terms to mean something more powerful than regular viral distribution.

chart is meant to illustrate the enormous volumes that can be generated quickly through viral distribution. In practice, the online population is not that big; language barriers intrude; and at some point, the number of people willing to pass on a piece of information peters out. Hence, in practice, there is a bubble effect where something is passed on very quickly and the volume grows at the rates shown in the table, but distribution eventually dies out. In p2p distribution, this is sometimes called a *swarm*.

YouTube also allows people to send videos virally to both members and non-members. In this way, it links the many-to-many aspects of its service with viral distribution. The many-to-many nature of the site creates an even more powerful form of super-distribution. For example, 100 people could find and distribute a newly added YouTube video to their friends on the first day. In doing so, they start not one but 100 simultaneous viral chains. When 100 viral chains for the same video start at the same time, the growth rate is amplified by 100. This has an enormous effect, as the purple curve in the chart at right illustrates.



Just as I finished this article and was proofing it for publication, Saddam Hussein was hanged in a secret execution in Beirut. Video footage of his execution was captured by one of the guards on a cell phone and was quickly leaked onto the Web. Within 5 days, more than 19 million people viewed it on YouTube via a combination of visits to YouTube and people emailing the footage from YouTube to their friends.

What does the emergence of many-to-many services mean for media companies? Quite a bit. First, as the world has witnessed in peer-to-peer music distribution, they are remarkably efficient at distributing content. Using those services, anyone can put up a new song and it will be distributed within hours across the globe. It is not the technology that should be criticized for this theft, but the use of it by services that invite infringement. (At the moment there is an uneasy standoff on these legal issues in the courts, and there is pending legislation in many countries with uncertain outcomes.) P2p technology itself is remarkably robust, cheap and stable. As predicted in our list of media innovations above, most video content will probably be distributed this way in the future as media companies befriend this technology. Below is a snapshot of the top-10 movie downloads and volumes taking place in *one week* on the p2p networks, as tracked by Big Champagne.

YouTube also demonstrates that what consumers consider video entertainment is actually quite elastic. A wide variety of formats, lengths and languages all get enormous exposure on YouTube. While much of this amateur video is criticized as “stupid people tricks,” there are millions of people watching it who find it very entertaining. Almost certainly the Web will end the tyranny of the 30-minute and one-hour TV format and give producers more creative options.

Movies Top Ten File Share Downloads, Global		
Week ending June 15, 2006		
Ranking	Movie	Number of Downloads
1	X-Men: The Last Stand (unchanged)	1,398,185
2	The DeVinci Code (unchanged)	1,395,704
3	Over the Hedge + #4	1,358,584
4	Mission Impossible III - #3	1,337,342
5	The Break Up + #10	1,333,760
6	R.V. - #5	1,322,433
7	Cars (new)	1,314,354
8	Big Momma's House 2 - #6	1,284,050
9	Just My Luck (new)	1,274,967
10	The Wild - #6	1,270,605

Many-to-many services could evolve to be more of a friend than a foe to media companies. Today media companies have practically grown two heads because of these networks. The marketing department loves the attention a new movie trailer gets on YouTube while the legal department is demanding that it be taken down. These services are hyper-efficient, and could be used to test new ideas; get pre-release consumer ratings; penetrate markets where, say, cable rents are too high; and reduce marketing costs by harnessing the word-of-mouth propagation rates of viral super distribution. In Part IV will explore some of the more promising revenue alternatives for each type of media.

Conclusion to Part I

The purpose of this four-part series in media is to lay out some of the strategies available to media companies as they strive to adapt to the swiftly changing world of digital distribution. In this first part, I've hoped to make clear that any long-term strategy must address how your business is going to cope with and prosper from the three titanic forces described above.

We'll have a lot to say about strategies for adaptation in Part IV of this series, but two potential strategies for dealing with openness are to develop partially closed services for your business like Apple has done, or perhaps to employ a free ad-supported model that will allow content owners to trade off vastly higher volumes for lower revenue per song or video. Some companies may also try to attack the openness of the web through legislation. This is happening now with legislation that was proposed by the cable lobby seeking to charge content distributors such as YouTube a "tax" on the files they send. Such legislation was defeated in the House of Representatives, where there is strong support for so-called net-neutrality. The SEC has also wrangled a two-year moratorium from AT&T on attacking net neutrality as part of its approval of AT&T's merger with Cingular.

Broadband speeds will continue to increase, and the TV in the living room will merge or will become compatible with the internet through a robust PC connection. Many large companies are working on this, and we will see several products on shelves by 2007. This is the last 10 feet toward the completion of a cable bypass. All that remains is access to legitimate ubiquitous content.

As far as many-to-many networks go, one could argue that it's about time. The world has not advanced much beyond the radio and TV broadcast model developed shortly after World War II. In this section we've shown that many-to-many networks are much more powerful, but the media industry has not yet figured out how to harness them.

Finally, while many are loath to admit it, it's probably also true that copyright law and current licensing structures in the US are simply unable to adapt to these new phenomena. While beyond the scope of this white paper, it's sufficient to note that the current mechanisms were never designed for these levels of openness. In the long run, attempts to tuck in corrections to existing law probably will not work (except as a weak means of forestalling innovation), and a significant overhaul of US copyright mechanisms is probably required.

In the remaining three parts of this series, we will focus on network economics (Part II) and mass-niche duality (Part III) then lay out some broad strategies for adaptation (Part IV).

FTI will be happy to help your company with your strategic issues or to make a presentation of this material to a wider audience at your company. You may contact:

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