

Exploring Two-Sided Business Models for Service Providers

Creating Profitability Through Innovation

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Cisco Internet Business Solutions Group (IBSG)

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Cisco's Internet Business Solutions Group (IBSG) has undertaken engagements with major service providers worldwide to explore new ways to create profitable revenue from the glut of digital media traffic currently flooding their networks. This is one of two new Point of View papers in which we discuss a "two-sided business model" to help service providers (SPs) derive new video revenue from both consumers and business customers. This paper provides an analysis of the incremental service opportunities available to innovative service providers offering a range of next-generation video and value-added services. In a complementary paper, "Internet Video: New Revenue Opportunity for Telecommunications and Cable Providers," we take a more focused look at the ways service providers can increase revenues from consumers and business customers by improving the quality of video delivery.

Executive Summary

The global service provider industry has experienced wave after wave of disruption, from the convergence of voice, data, and video, to the current explosion of digital media, which is devouring service provider capacity without contributing equivalent revenue. In this environment, SPs are faced with a choice: they must either evolve into the role of innovation provider, or be content simply to provide a utility service.

The proliferation of digital media offers fertile ground for service provider-led innovations. Increasingly, SPs are employing a two-sided business model—focused on both business customers/partners and consumers—to monetize new digital media opportunities.

On the business-to-consumer (B2C) side, this often means launching next-generation services that integrate web content with their traditional television or mobile services. Increasingly, these services are popular with consumers aged 30 or younger, and can positively differentiate service providers that offer them. Examples of these new services in the TV and mobile arena include user-generated videos, video-chat-enhanced social networking, and role-playing games.

On the business-to-business (B2B) side, providing high-quality content delivery is a good place for service providers to start turning video traffic into video revenue.¹ Additionally, they should explore value-added services targeting web and media companies. Examples of these services include media data centers, content transcoding, and targeted ad insertion. Since many of these services enable B2B customers to better address the needs of their own customers, they are often called B2B2C services. Based on customer engagements in Europe and Asia, Cisco IBSG estimates that these services can be worth more than service providers' content delivery network (CDN) business over a five-year period.²

The benefits of the two-sided business model are significant. Industry estimates put the potential of implementing this business model at US\$1.2 trillion in 2017 in Western Europe and North America alone.³

Realizing the full potential of the two-sided business model requires a tight partnership among service providers, web service providers, and technology providers, with each bringing a unique contribution:

- Service providers bring viewer base, media distribution, and traditional content, but they require web content for differentiation and next-generation solutions such as hybrid set-top boxes and CDN.
- Web service providers wish to capture greater share of living-room audience and mobile users, while also delivering a better user experience.
- Technology providers such as Cisco can provide not only the required solutions (content delivery network, data center, hybrid set-top box), but also broker the relationship between service providers and web service providers.

Digital Media: A Path Toward Service Provider Innovation

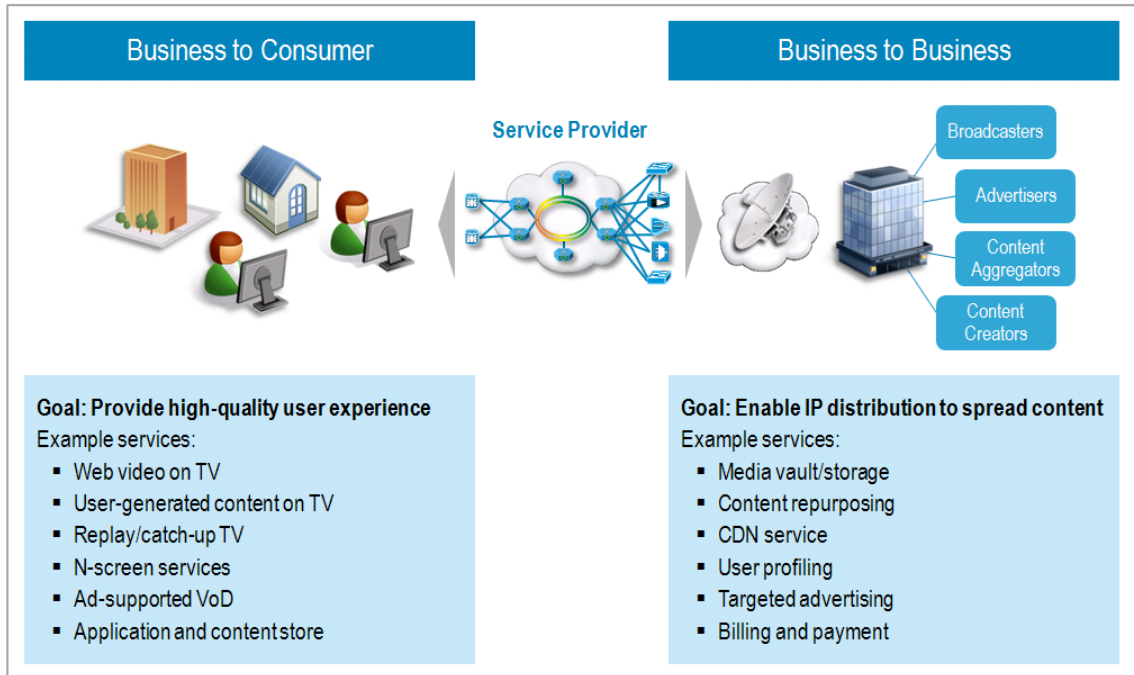
Today, the global service provider industry faces a fundamental transition, with growth determined by the ability to innovate.

Service providers that focus solely on maximizing economies of scale and driving operating expense (OpEx) improvements will assume the role of utility provider, maintaining the traditional model of providing high bandwidth and “big pipes.” They will focus on cost efficiency, with a minimum of service-level agreements, and will maximize their profits through the lowest possible cost structure.

Service providers that do not want to be relegated to the utility role must focus on developing new services, expanding their partner ecosystem, and compressing time to market for new services. These companies will be the new “innovation providers” that create innovative user experiences, providing services beyond traditional telephony offerings to help retain their customer ownership. They will create and participate in new business and partnership models that will transform the global industry.

Cisco IBSG believes that digital media offers service providers the opportunity to jump on the path of innovation and avoid commoditization. Digital media content is being delivered across all distribution channels—the web, TV, and mobile. With a proliferation of new technologies and devices, and a growing community of web players, content providers, and developers, service providers are well positioned to enable the delivery of new, satisfying digital media experiences to their customers. Given service providers’ unique position facing both end users and media companies such as content providers, SPs are increasingly adopting a two-sided business model—B2C and B2B—to monetize new digital media opportunities.

Figure 1. Two-Sided B2C and B2B Business Model



Source: Cisco IBSG, 2010

Creating Value on Both Sides of the Business Model

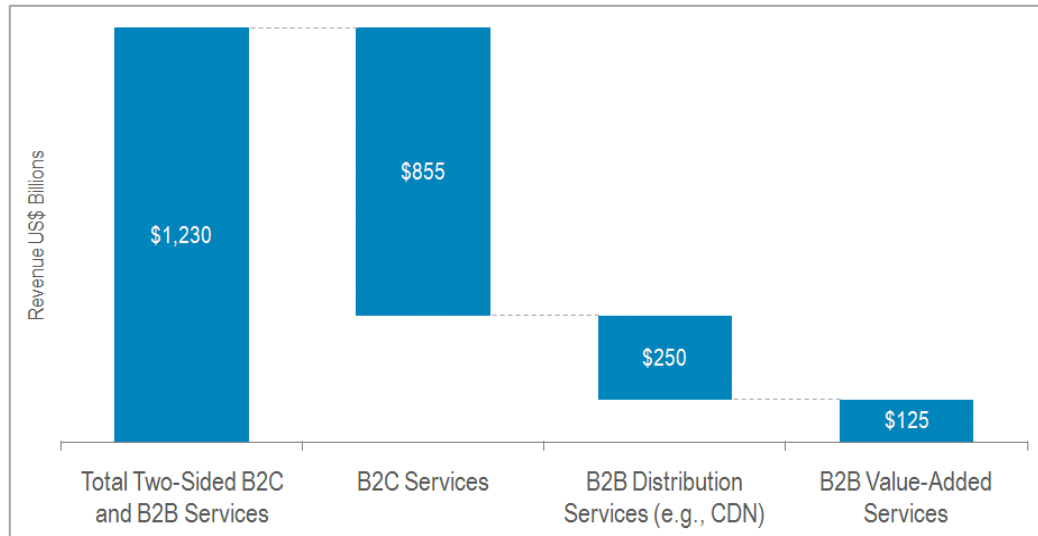
Innovative service providers can create value on both the consumer and business sides of this model. As Figure 1 illustrates, on the B2C side, the goal is to provide a high-quality user experience that is compelling enough to motivate users to pay a premium price for premium services. For example, 45 percent of U.K. broadband subscribers indicated in a recent survey that they would pay a reasonable price for a “web video to TV” service that would enable them to view Internet video content on their television sets.⁴ Service providers also have the opportunity to provide an enhanced viewing experience of user-generated content on TV, as well as replay and catch-up TV services for broadcast and cable TV content. With the addition of “N-screen” services that enable viewers to watch the same content on a wide variety of devices (TV, game console, computer, mobile device), service providers can complete the promise of “any content, anytime, on virtually any device.”

On the B2B side, service providers have the opportunity to work with broadcasters, web service providers, advertisers, and content aggregators to enable high-quality IP distribution of content. By providing CDN services on their own footprint, service providers can eliminate more potential congestion points than traditional CDN providers, since they are able to accelerate content delivery on their own networks as well as on the Internet.⁵

Beyond accelerated content delivery, telecommunications providers can supply high-value-added services to their B2B customers. For example, repurposing services open the possibility of delivering optimized content to mobile devices or set-top boxes, greatly expanding reach while minimizing configuration issues. Service providers may also offer other essential building-block types of services such as digital asset management, ad management, and personalization—where service providers provide detailed customer profiles and location information that can be used by media-oriented B2B customers to deliver highly relevant content and advertising.

The value of these new services is enormous. STL Partners predicts that, with the addition of these innovations, the combined revenue potential for B2C and B2B services will reach a staggering US\$1.2 trillion by 2017 in Western Europe and North America alone⁶ (see Figure 2).

Figure 2. B2C and B2B Business Model Revenue Potential for Western European and North American Telecommunications Providers (by 2017)



Source: STL Partners, 2007

Case Example: AT&T Offers Innovative Services to Both Consumers and Business Customers

AT&T is an example of a major service provider that has adopted this two-sided approach to innovative services.

On the consumer side, the AT&T U-verse IPTV service utilizes a broad B2C value-added service offering that includes integration between the web and TV to compel users to upgrade to more advanced set-top boxes and higher-tier broadband plans:

- **Web integration** includes integration with a user's online Flickr photo-sharing account. While this capability is part of U-verse, it offers additional revenue opportunities from ad insertions.
- **Device integration** includes the ability to program the DVR from a user's mobile phone or personal computer; TV-based call management of fixed voice line service; and photo and music media sharing from a PC. Media sharing among devices is available only to U-verse subscribers, encouraging additional subscriptions from users who value this service.
- **Interactive TV features** are also part of the U-verse package, including greater interactivity; customizable personal screens showing weather, stocks, traffic, or other user-specified information; Yellow Pages directory; video on-demand, and games. Most of these features are included free as part of the U-verse plan, but there may be ad-supported revenue in the future. An exception is on-demand video, which is charged on a per-channel or per-movie basis.

- **Upgraded hardware** includes an exclusive U-verse digital video recorder (DVR) that can act as a home media gateway to enable any-room DVR access and control, 4-screen multiview capabilities, and PC media sharing. Since these capabilities are available only to top-tier U-verse subscribers, the plan encourages users to upgrade broadband access from regular DSL to the fiber-based premium service.

On the business side, the Digital Media Solutions portfolio from AT&T helps digital media B2B customers such as web players and media companies manage, repurpose, and deliver content globally, delivering video and rich media on multiple screens and in multiple formats. Capabilities include:

- **Intelligent content distribution services**, offering web, file, and video acceleration via global CDN for both live and prerecorded on-demand video
- **Broadcast video services**, offering broadcasters, film studios, and production houses full-motion video transport services for video, news, and advertising content
- **Ancillary services**, such as content management, digital rights management, digital asset management, advertising, and transcoding. These are offered through partnerships with third-party solutions providers such as ExtendMedia, Qumu, and Stratacache.

Significant Upside to Service Provider Economics

A recent Cisco IBSG engagement with a leading Japanese service provider on this topic demonstrated how the two-sided B2C/B2B business model could provide significant economic benefits to the service provider over a five-year period. In a market where mobile penetration is one of the highest in the world and half of the population under 30 watches one or more hours of web video per week,⁷ the portfolio under consideration, detailed below, displays a strong interplay among web, TV, and mobile.

B2C services include the following **integrated web-TV** services:

- Replay TV: ability to view the last seven days of TV programs
- User-generated content (UGC) TV: ability to view and interact with web video on TV
- Social network TV: social networking on TV, enhanced with consumer telepresence
- TV gaming: play highly interactive role-playing games on TV

The service provider is also considering extensions of the above services into mobile and PC platforms (**n-screen** services):

- Mobile replay: ability to view the last seven days of TV programs on mobile devices
- Mobile UGC: ability to view (and interact with) web video on mobile devices
- Mobile social network: social networking applications on mobile devices
- PC replay: ability to view the last seven days of TV programs on PCs

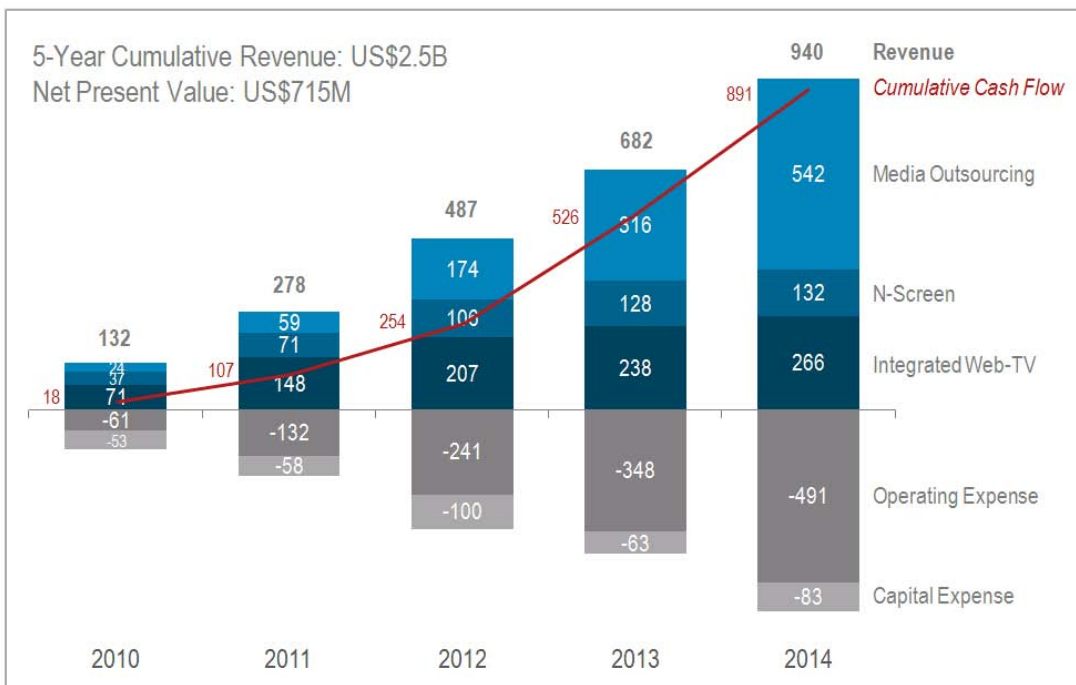
Finally, a suite of B2B **media outsourcing** services is also being planned as a follow-on play after the successful launch of the B2C services:

- Media streaming: accelerated streaming of rich-media content (video, music) requiring sustained high bandwidth and storage
- Transcoding: format conversion into non-PC platforms (such as mobile and TV)

- Personalization: use of user profiling to support targeted a web offering; involves creation of a user database and an analytics and recommendation platform
- Targeted ad insertion: insertion of ads into video content (pre- and post-roll, in-stream)
- Metadata search: search of nontextual web objects (e.g., video, music, image) via metadata

As shown in Figure 3, Cisco IBSG estimates that US\$2.5 billion of cumulative incremental revenue can be generated from the above services over five years. Low acquisition cost for user-generated content, coupled with the fact that no upgrade to the network infrastructure is required by the client to launch the services, means that potential net present value of the business model is also significant at US\$715 million.

Figure 3. Five-Year Two-Sided Business Model Potential for Leading Japanese Service Provider

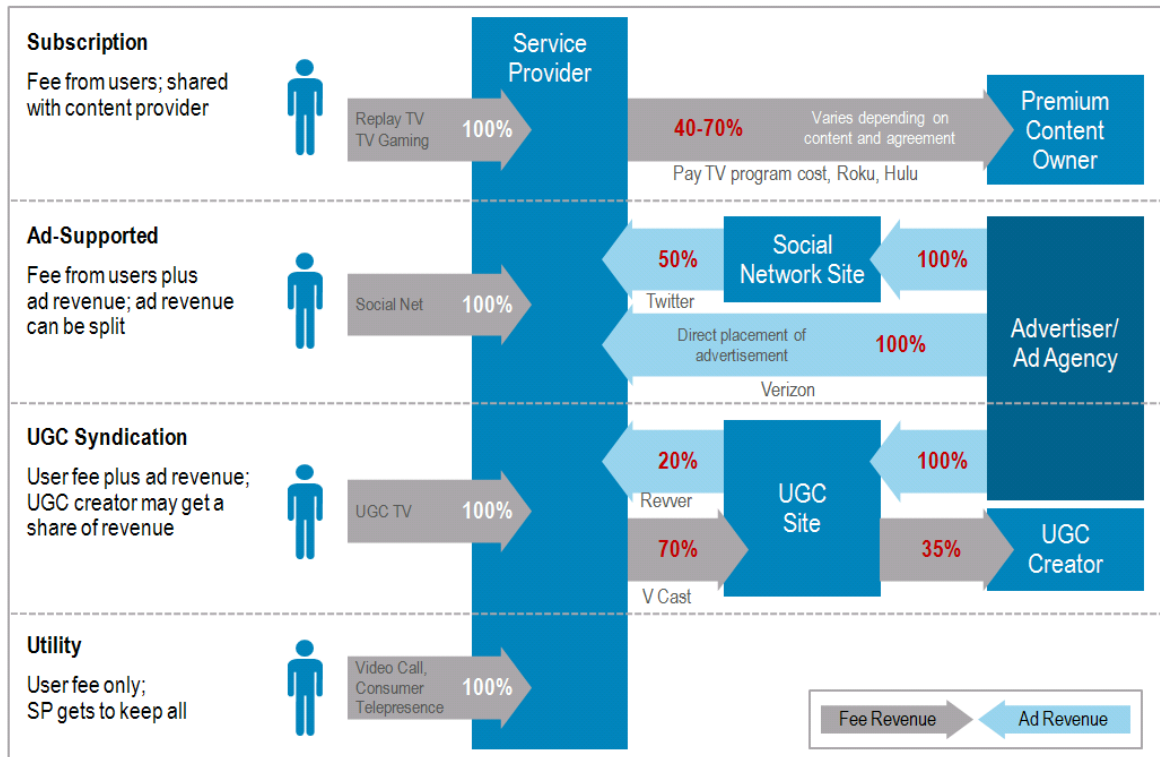


Source: Cisco IBSG, 2010

B2C Business Model Insight: Revenue Models for Consumer Media

There are many models for generating revenue from service innovation, some of which are highlighted in Figure 4. For consumer media, in addition to subscription and utility models where revenue comes only from end users, service providers must also consider advertising-supported models, including those that flow the money back to individual content creators in the case of user-generated content (UGC) syndication. Figure 4 also shows examples of how revenues are split between service providers and essential external parties such as content contributors and ad agencies.⁸

Figure 4. Money Flows to the Service Provider from Both Users and Advertisers



Source: Cisco IBSG, 2010

Given that web video services are typically available for free to users, service providers embarking on next-generation integrated web-TV initiatives should build an ad-supported business for those services, including the necessary infrastructure and mechanism for external revenue sharing. Beyond recognizing the high-level duality (or “two-sidedness”) between B2C and B2B businesses, it is also essential for service providers to understand a duality that is subtler but nonetheless important: the interplay between **subscription-based** and **advertising-based** business models.

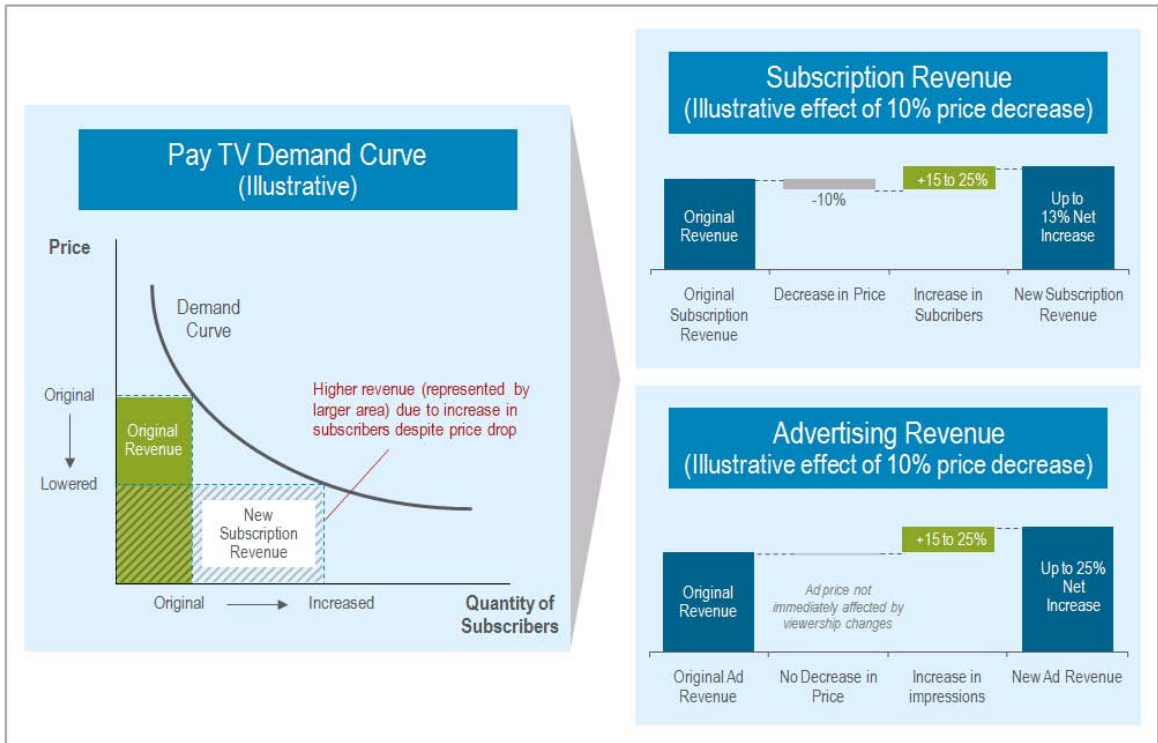
B2C Business Model Insight: Subscription Versus Ad Revenue

While a subscription-based model works well in monetizing the early-adopter user segment, service providers need to be prepared to lower their subscription price to gain broader penetration and capture the rest of the market, while supplementing income with eyeball-driven advertising revenue. Figure 5 illustrates how lowering the subscription price can actually drive increases in revenue from both subscriptions and ads (and therefore the total revenue of the business). The demand characteristic of the subscription model is represented by the downward, sloping line of the demand curve: as subscription price is lowered, demand from potential subscribers increases.

Based on customer engagement experience, Cisco IBSG has noted that the increase in demand from these potential subscribers can more than offset the decrease in price, thereby lifting overall subscription revenue. The effect on advertising revenue is even stronger. The increase in viewership does not typically lead to reduced advertising unit

prices; indeed, such an increase has been known to lift unit prices. The net effect is that advertisers enjoy the upside of increased viewership with no perceived downside.

Figure 5. Subscription Pricing Significantly Affects Advertising Revenue



Source: Cisco IBSG, 2010

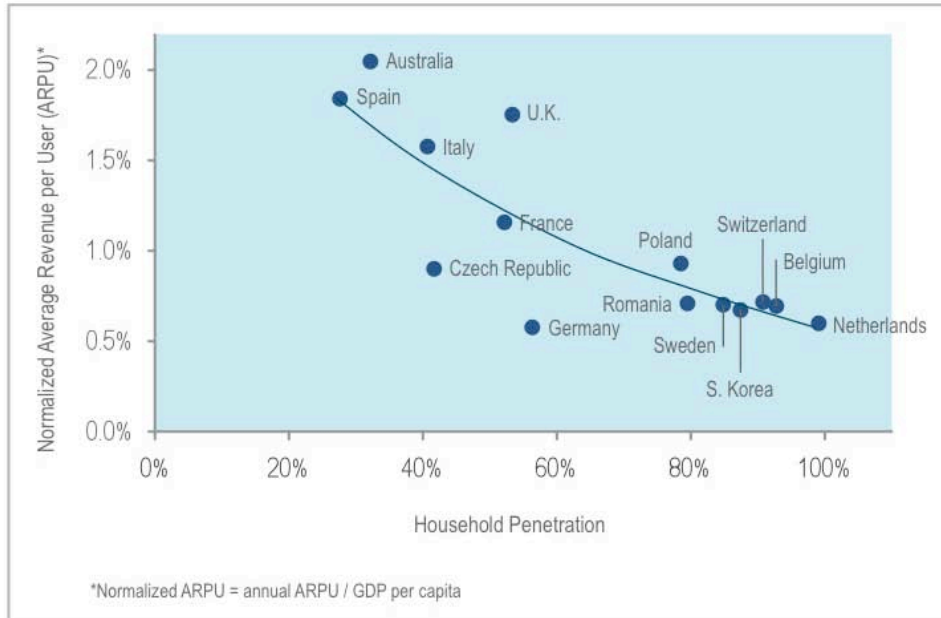
In researching the various price points at which users purchase pay-TV services around the world, Cisco IBSG has observed that a 10 percent reduction in TV subscription price in developed markets can result in a 15 percent increase in demand, and that a 20 percent reduction in price can result in up to a 35 percent increase in demand. In developing markets where a TV subscription is almost a luxury, a 10 percent price reduction can result in a 25 percent demand increase and a 20 percent price reduction can result in an increase in demand of up to 60 percent.⁹ Another illustration of price-based elasticity of demand is provided in Figure 6, which shows that pay-TV penetration across countries in Europe and Asia does increase as revenue per user (normalized against income in respective countries) decreases.

The expected increase in user base is critical to service providers' ability to realize the full potential of the new generation of integrated services. With most of the services' value dependent on a "network" of users, Metcalfe's Law¹⁰ suggests that the value of these services will increase not just linearly, but as a square to the growth of the user base. With this dramatic increase in value, we expect those who previously would not have consumed paid services to join the "network," bolstering eyeball-driven ad revenue and potential service providers' bargaining power with advertisers.

The "freemium" model understands the power of network-supported ad revenue. It works by offering basic ad-supported services for free while charging a premium for advanced features. For example, Nico Nico Douga, the leading Japanese web video provider, offers, in

addition to a YouTube-like free service, a premium tier giving subscribers the ability to customize their own video channel.

Figure 6. Pay-TV Penetration Increases as Price Drops



Source: Screen Digest, 2009; International Monetary Fund World Economic Outlook, 2009; Cisco IBSG, 2010

In addition to direct revenue sharing with media companies, service providers can also provide new ad-related services like user profiling to help those companies better understand the preferences of the diverse new groups of users. This provides yet another way for service providers to participate in the ad revenue stream.

B2C Business Model Insight: Profitability of User-Generated Content

Much has been said about the lack of profitability of UGC sites. For instance, reluctance of a few brands to advertise on UGC content may limit demand for UGC ad inventory. With lower content acquisition cost, and by providing targeted advertising and high quality of service, however, service providers have the potential to turn UGC TV into a viable service with profitability exceeding that of regular TV programs.

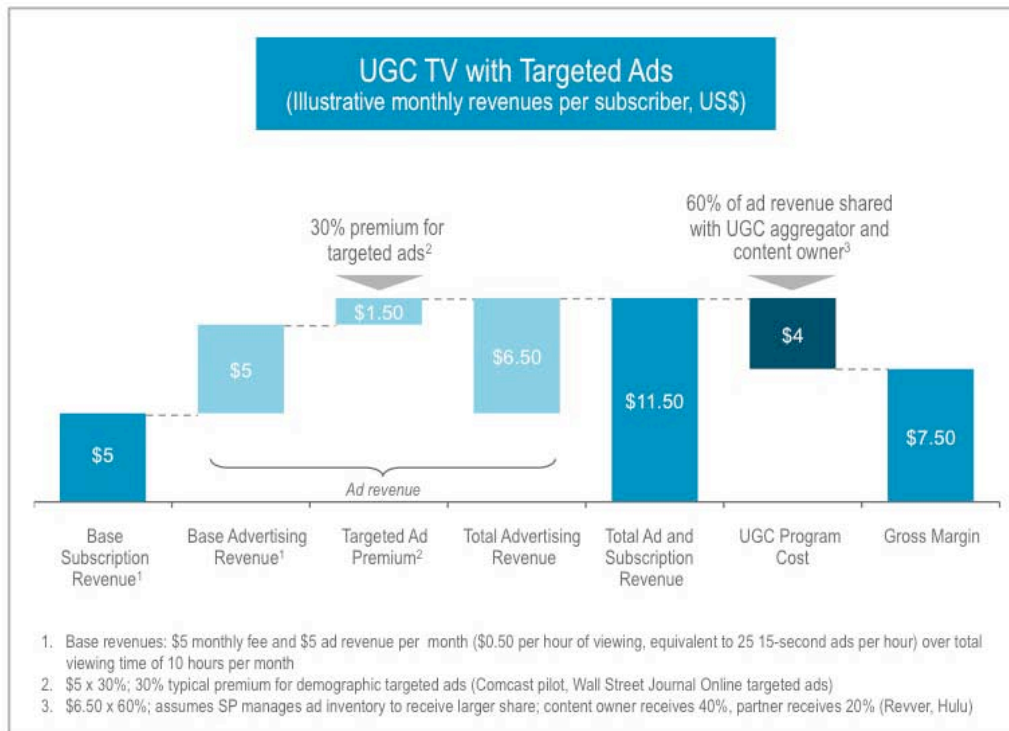
Let's compare how UGC TV is typically implemented today, and how service providers can improve revenue flow by adding value to the process of video content delivery.

In the traditional model, the UGC hosting site sends its standard PC-formatted content to end users' TV screens via a pay-TV provider. Users see essentially the same image as they would see on a computer, but without the same resolution and quality of experience they are used to on a TV screen. The service provider may collect a "subscription" fee from users. The UGC site collects revenue from advertisers, who place generic ads on the site and may share it with the service provider if there is a revenue-sharing agreement in place.

In the value-added model, the UGC site acts as a content provider, supplying a library of raw videos to the service provider. The service provider inserts targeted ads based on user profiles, ensures quality of service (QoS), and optimizes the video format for TV viewing and

control. The user enjoys a high-quality, TV-like experience, and the service provider collects a share of the ad revenue. The content acquisition cost of user-generated videos is comparable to, if not lower than, that of professional created video—typically about 30 percent of total revenue.¹¹ Add to that the 30 percent premium¹² advertisers pay for contextual or demographic targeting, and this type of fully integrated, user-generated video-on-TV service can be quite profitable for the service provider. Figure 7 illustrates the economics of this next-generation UGC TV approach based on Cisco IBSG experience in Japan—one of the leading service provider media markets in the world.

Figure 7. UGC TV Economics (Illustrative Example Based on Engagement with Major Japanese Service Provider)



Source: Cisco IBSG, 2010

B2B Business Model Insight: Not Just a Content Delivery Network

To profitably deliver web video to TVs and mobile devices, service providers need to build new competencies in digital media. These capabilities include not only media streaming and storage, but also the ability to repurpose web content to TVs and mobile devices, insert and localize advertisements, and personalize the user experience.

These new digital media capabilities can also be offered as outsourced services to interested media companies, web service providers, and advertising agencies, thus serving as the foundation of the B2B side of the service provider's two-sided digital media play.

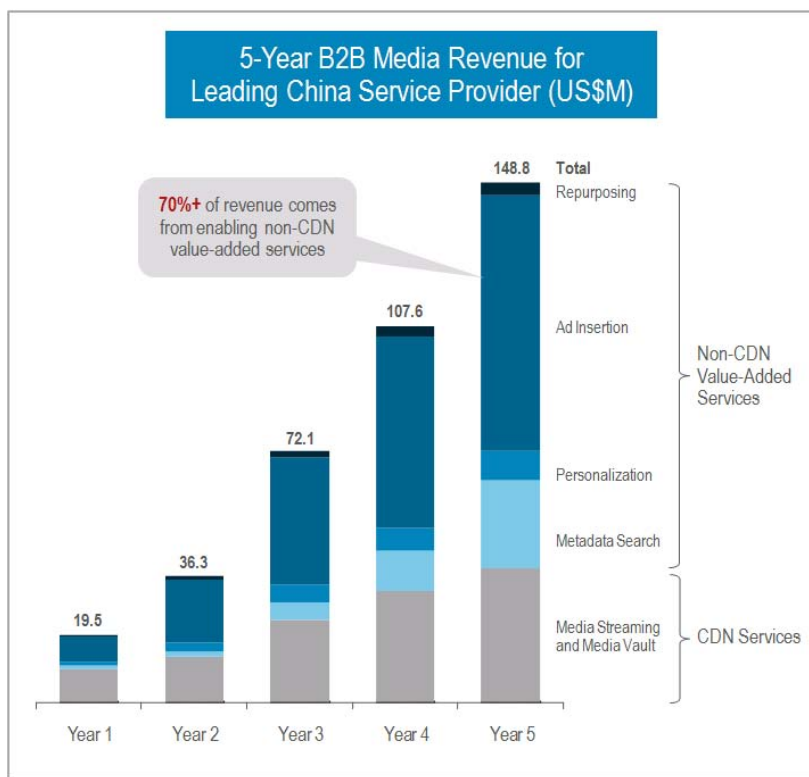
Service providers can derive significant incremental revenues from their business customers and partners via these B2B opportunities:

- **Content delivery:** Content providers are willing to pay for accelerated delivery of video content, with guaranteed QoS. They are actually doing so already by buying content

delivery services from traditional CDN providers such as Akamai, Limelight, and Level 3. By offering CDN services on their own networks, service providers can gain a share of this business.¹³

- **Media value-added services:** Service providers are uniquely positioned to provide enabling services that are of value to web players and media companies. These are lower-level services that prepare digital content for distribution. They include content ingestion; encoding and transcoding content to fit various devices, stream sizes and qualities; and metadata tagging for search purposes.
- **Advertising management:** This includes storing, distributing and inserting ads into electronic program guide/user interface, broadcast, and on-demand content. Service providers can also offer targeted advertising services that match user profiles with ads to be inserted.
- **Content management:** There is an opportunity to provide facilities and services to store and manipulate digital assets. Media vault services provide secure storage for all kinds of digital content. Digital rights management can ensure the protection of intellectual property as content is distributed to the end consumer, controlling access based on geographical entitlement, end-device capabilities, or version control.
- **Billing and micropayment:** Provide billing and micropayment capabilities, mainly for content owners and aggregators.

Figure 8. Non-CDN Business Can Rival a Service Provider’s CDN Business



Sources: Morgan Stanley, Thomas Weisel, Nico Nico Douga website, Cisco IBSG

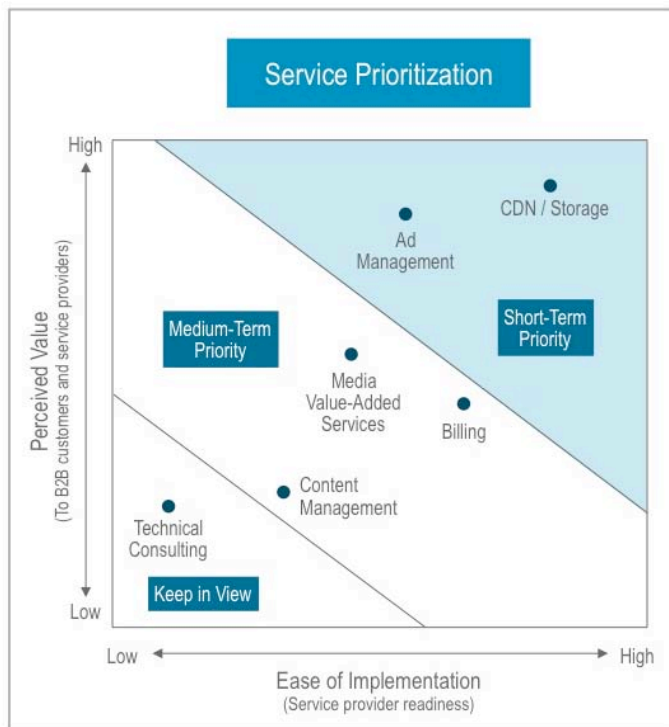
- **Technical consulting:** With the proliferation of all these new services, SPs also have the opportunity to help web and media companies choose the most appropriate services for their needs, provide the application-level interfaces, and perform necessary customization so that the customers can fully benefit from services they buy.

In an engagement with a premier service provider in Japan, Cisco IBSG projects that the value of non-CDN B2B services has the potential to rival the value of the CDN business in the next three to five years (see Figure 8). With CDN transport pricing likely to continue the decline it has experienced in last three years, and advertising revenue powering the growth of web video, non-CDN B2B business may become bigger than the CDN business in the not-so-distant future.

B2B Business Model Insight: Focus on Differentiated Services of Greatest Value to Business Customers and SPs

Services such as content storage and accelerated delivery are a good place to start, but as time goes by, they will become increasingly commoditized. Service providers should continue to climb the value ladder to provide the services that have the greatest potential differentiation and value to web service providers and media companies.

Figure 9. B2B Media Services Can Be Prioritized in Three Categories



Source: Cisco IBSG, 2010

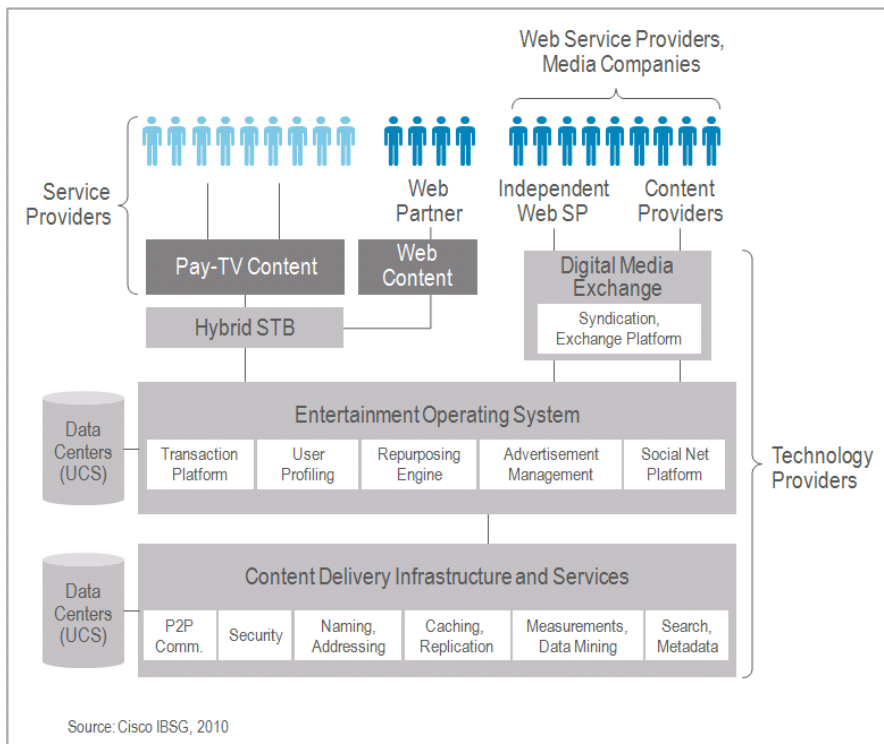
By evaluating the value of the services we have discussed—not only to service providers but, more important, to their B2B customers—and the ability of the typical service provider to deliver them, we have identified three levels of priority. This categorization should give a sense of where and when service providers should focus their efforts:

- **Short-term priority—CDN and ad management:** It should come as no surprise that these two services should be the short-term priority for service providers. CDN service, while becoming commoditized in some segments of the market, remains the most-needed service by media and web companies. Because advertising is the lifeline of many media and web companies, any service provider strategy in the B2B/B2B2C space should prioritize advanced advertising plays such as targeted ads.
- **Medium-term priority—media value-added services, billing, and content management:** These services are also greatly valued by web and media companies, but are not typically part of a service provider's core competency. Service providers considering a move into the B2B media space should have these services in their portfolio, and start developing skills with an eye toward launching the services in the medium term.
- **Keep in view—technical consulting:** As their B2B media business grows, service providers may consider developing a technical consulting arm to help web and media companies that are not as technically savvy as their more established peers.

Partnership Is Key to Success

The two-sided B2C and B2B business model we have described can be successful only when accompanied by a new and broad partnership model. Service providers, media companies, web service providers, and technology companies all have a part to play in creating a win-win-win proposition.

Figure 10. New Partnership Model Needed for Success



Source: Cisco IBSG, 2010

- **Service providers** bring an established viewer base; media distribution capabilities via TV, mobile, and broadband; and traditional TV content. By partnering with web service providers to create integrated web-TV services, they can capture the next generation of viewers brought up in the Internet era. By creating B2B services that suit the needs of web service providers and media companies, they broaden their participation in the digital media space and ride the rising tide of advertising revenue. They need to work with technology providers to come up with new solutions to monetize both sides of the business models.
- **Media companies** and **web service providers** offer a wealth of digital media content. Web service providers, in particular, want to capture the living-room audience and mobile users, and provide them with a better viewing experience on the television than they can have on a computer. By embracing B2B media services offered by service providers, media companies can focus on their core competencies of content creation and marketing while outsourcing the more technical aspects of storing, formatting, and delivering content to those who know how best to do it best—service providers.
- **Technology companies** provide the underlying data center and CDN infrastructure. They also provide next-generation media solutions such as hybrid set-top boxes, digital media “middleware” such as Cisco’s Entertainment Operating System (EOS), and Digital Media Exchange, a platform that allows content creators, content licensors, and advertisers to connect, facilitating completion of transactions and revenue sharing.¹⁴

Conclusion

The traditional business models for fixed and mobile service providers are under pressure in all core products: voice, messaging, and broadband access. Developed markets are becoming ever more competitive, and developing-market growth will slow in the next few years. Digital media seems to be a new area for service provider-led innovation and growth. A new business approach—the two-sided business model—is required for service providers to fully monetize the digital media opportunity. In this model, service providers make money from business customers such as media companies and web service providers, as well as from end users.

Cisco IBSG believes that the two-sided business model is strategically important to service providers. Representing more than US\$1.2 trillion in value by 2017 for Western European and North American service providers, the business model opens up new market opportunities for service providers. It addresses top-of-mind issues of multiple stakeholders in the web economy, thereby creating significant value for all of them.

The two-sided market concept is gaining a strong following. Leading service providers around the world are taking steps to implement this business model by developing the strategy, business case, and organization for new retail and wholesale media businesses. They are building the necessary B2C and B2B capabilities, and establishing partnerships with various web service providers, media companies, and technology providers. For service providers that have not started to embark on this journey, it is not too late; the future promises to be full of exciting opportunities.

For more information about developing a two-sided business model, please contact:

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Endnotes

1. See "Internet Video: New Revenue Opportunity for Telecommunications and Cable Providers," Cisco IBSG, July 2010, for a discussion on video content delivery.
2. Cisco IBSG engagement experience with China and Japan service providers, 2008-2010.
3. STL Partners, "Telco 2.0 Analysis," 2007. Includes the entire range of two-sided opportunities beyond digital media, including voice, messaging, and fixed access on the B2C side, and security, commerce, and customer support on the B2B side.
4. Cisco IBSG, "Connected Life Market Watch: Transitions in U.K. Video Entertainment," 2010.
5. For a more detailed discussion of the benefits of service provider CDN services, see "Internet Video: New Revenue Opportunity for Telecommunications and Cable Providers," Cisco IBSG, July 2010.
6. STL Partners, "Telco 2.0 Analysis," 2007.
7. Nikkei Research, "Japan Online Video Viewing Behavior," 2009.
8. Cisco IBSG research based on published annual and financial reports, 2010.
9. Cisco IBSG research of U.S., South Korea, and China pay-TV prices and corresponding user base, 2010.
10. According to Metcalfe's Law, the value of a network increases in proportion to the square of the number of nodes on a network. The nodes in this case can represent computers, fax machines, or even members of a social network.
11. Web video sites Hulu and Revver share 40 to 60 percent of advertising revenue with content contributors who do not own stakes in the video sites, according to press releases of the respective sites.
12. Wall Street Journal Online and Comcast charge 30 percent more for demographic-targeted advertisements.
13. See "Internet Video: New Revenue Opportunity for Telecommunications and Cable Providers," Cisco IBSG, July 2010.
14. See "Digital Media: The Next Web Frontier," Cisco IBSG, November 2008.

More Information

Cisco Internet Business Solutions Group (IBSG), the company's global consultancy, helps CXOs from the world's largest public and private organizations solve critical business challenges. By connecting strategy, process, and technology, Cisco IBSG industry experts enable customers to turn visionary ideas into value.

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