



Web 2.0 Meets Telecom

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Contents

- 2 *Executive summary*
- 4 *Emerging business models*
- 7 *A framework for competitive advantage*
- 9 *State of Web 2.0 initiatives*
- 10 *User-generated applications—mashups*
- 13 *User-generated content—media management*
- 18 *User-generated insight—collaboration*
- 20 *Conclusion*
- 21 *For more information*

Executive summary

Communications service providers today continue to face the traditional challenges of reducing expense, finding new sources of revenue and profit, navigating the transition to next generation network technology and improving the customer experience. With the emergence of new Web 2.0 companies, service providers now face challenges that transcend the familiar threats of like-minded competitors.

The ecosystem of companies offering communications services is rapidly expanding—and innovation is frequently being driven by new market entrants. Web 2.0-focused companies think and act differently than traditional service providers, and unless these traditional service providers begin to transform their organizations, business models, processes and service delivery infrastructures, they run the risk of being reduced to network utilities with the more profitable value-added services provided by their new, more nimble competitors.

Communications service providers might not be able to become consummate Web 2.0 companies, but they can learn from them. Our analysis of these new entrants in the communications industry demonstrates that these innovators are typically characterized by the following attributes:

Agile Service Creation Practicing the Web 2.0 concept of perpetual beta, services are introduced through an iterative process of frequent enhancements with the goal of continuous improvement over time.

Collaboration By using a variety of Web 2.0 collaboration technologies such as wikis, blogs and forums, Web 2.0 companies harness collective intelligence by enlisting a broad spectrum of users, employees and partners to collaboratively create services. In addition, the community at large collaborates by adding value to Web 2.0 environments through user-generated content.

Highlights

The typical Web 2.0-focused company spends far more resources on service delivery platforms than the traditional telecom service provider

Web 2.0 companies recognize the value of data as a competitive advantage

User-friendly development By using lightweight programming models, Web 2.0 companies expand the use of their service capabilities to a broad developer ecosystem including the end-user community. Web 2.0 platforms typically support innovation in assembly by offering remixable components that can easily be joined together into innovative new services. The typical Web 2.0-focused company spends far more resources on service delivery platforms than the traditional telecom service provider, although the latter invests far more in network infrastructure.

Data-centric Web 2.0 companies recognize the value of data as a competitive advantage. They continuously improve their understanding of customers' wants and needs by purposefully collecting and correlating information about their customers from multiple sources. This information is also used to competitive advantage by improving the end customer experience—for example, incorporating product recommendations based on self-reported user ratings, related purchases or both.

Niche markets Web 2.0 companies extend their reach beyond high volume services to address the “long tail.” They successfully exploit the near-zero cost of digital distribution to deliver content and services to customers.

So, how can communications service providers with traditional service development and deployment times (in the range of 18-24 months) compete with Web 2.0 companies? How can traditional service providers expand their ecosystem of developers beyond the present day set of in-house programmers and Network Equipment Providers? And, how can they take advantage of the emerging Web 2.0 concepts and technologies to increase the funnel of innovative new service ideas, improve time-to-market for new services, extend reach to niche markets and enhance competitive posture in this challenging environment?

This paper is intended to provide the IBM® point of view on how applying the value of Web 2.0 concepts and technology can help transform traditional telecom business models and approaches to service delivery. While Web 2.0

Highlights

Service providers must embrace the power of Web 2.0 for their competitive advantage

for telecom is gaining momentum, there is still time for service providers who quickly and effectively embrace the power of Web 2.0 to apply it both internally and externally for their competitive advantage.

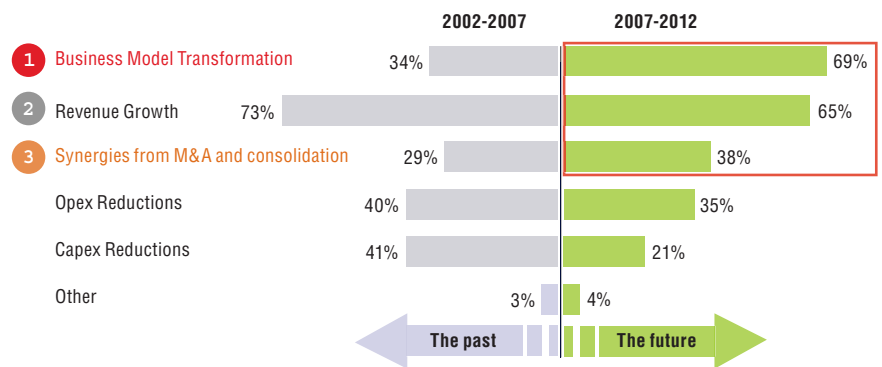
Emerging business models

In 2007, IBM completed a detailed survey of telecommunications industry executives that focused on future sources of value creation, distinct telecom capabilities, the potential role of advertising and customer service and revenue growth.¹

Business model transformation as a key driver for future growth was a significant new trend in this survey as compared to previous IBM survey results. Specifically, 69% of the executives said that business model transformation was critical, compared to half that percentage in previous surveys (Figure 1). As the chart also illustrates, revenue growth remains top of mind, while cost reduction is receiving less focus.

Business model transformation is emerging as one of the key drivers of future value

Sources of Value in Global Telecommunications 2002 - 2012



Source: The 2007 IBM Institute for Business Value (IBV) and Economist Intelligence (EIU) Telecom Industry Executive Survey (n=252)

Figure 1 2007 IBM Telecom Executive Survey

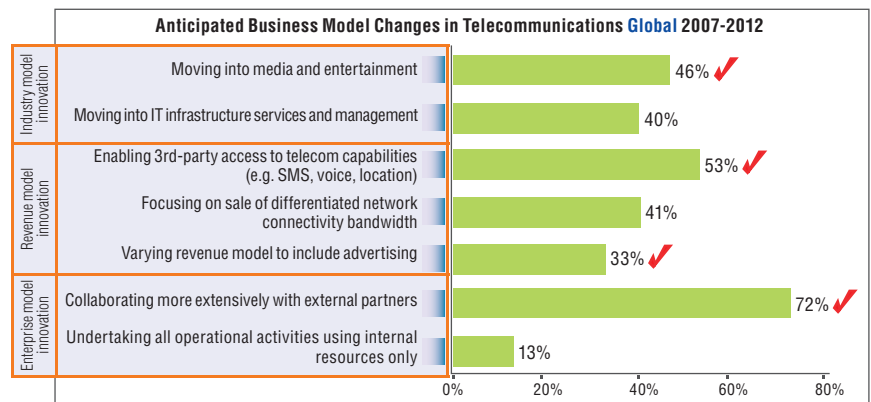
¹Telecom Industry Executive Survey, IBM Institute of Business Value, 2007

Highlights

The survey also included responses to more detailed questions about what initiatives telecom executives currently had underway or anticipated launching in the near future to drive business-model innovation. More significant initiatives included moving into media and entertainment, enabling third-party access to telecom capabilities, adapting revenue models to include advertising, and collaborating more extensively with external partners (Figure 2). These initiatives closely match the evolving business models enabled by Web 2.0 concepts and technology.

Changes foreseen by telecom industry executives

Which of the following initiatives do you have underway or anticipate for your company over the next five years?
Choose as many as apply.



Source: The 2007 IBM Institute for Business Value (IBV) and Economist Intelligence (EIU) Telecom Industry Executive Survey (n=252)

Figure 2 Telecom initiatives

Telecom service providers typically focused on the retail marketplace by offering mass-market voice and connectivity services to consumers and targeted services to enterprises

Traditional telecom business models have been mostly straightforward, with service providers focusing on the retail marketplace by offering mass-market voice and connectivity services to consumers and targeted services to enterprise customers. In addition, many service providers also offer wholesale services to partners who can address niche markets (usually targeting the enterprise) that cannot be addressed by the service providers' own sales force. Services are typically all developed and managed the same way and adhere to the service providers' legacy five nines—99.999% uptime—quality of service

Highlights

principles. But this traditional approach has become insufficient for effective competition in the Web 2.0 world.

In the Web 2.0 world, service providers must substantially extend their development of, and participation in, partner ecosystems. In addition, service providers must transform their concept of what constitutes a “service.”

Service concept extensions include:

Componentization of services Communications service providers must move beyond traditional self-contained services like voice mail and hosted PBX to offer services as components. By using service-oriented architecture (SOA) principles and Web 2.0, service providers can adopt and apply the principal of data as a competitive advantage by using network capabilities (such as presence, location, etc.) and subscriber information (identity, usage information, device information, preferences). Access to this information, with the appropriate privacy considerations, can be made available to strategic partners via easy programming interfaces and a library of re-mixable widgets to enhance their assets with telecom capabilities. In this scenario, the service provider is the primary channel to the subscriber delivering partner content with their own industry value additions. With this business model, the service provider has the opportunity to participate in subscription, transaction and advertising revenue with the affiliated partner. In addition, this content can be provided in context, thus taking advantage of industry value-added information from the network and subscriber databases.

User-generated content and applications As service providers enhance their service delivery capabilities to support componentized services, the opportunity arises to extend current portal capabilities to include user-generated content and user-generated applications. Through this Web 2.0-style portal, service providers can increase revenue by efficient user access to network and subscriber information, management of commercial and user-generated content, and advertising.

With SOA principles and Web 2.0, service providers can adopt and apply the principal of data as a competitive advantage

Service providers can increase revenue through management of commercial and user-generated content

Highlights

Service providers need to implement a common platform for service innovation and extend it externally

Web 2.0 collaboration To support movement toward Web 2.0 style services, service providers must embrace increased collaboration—both internally and externally. As large companies, service providers need to implement a common platform for service innovation to gather, use and manage the ideas of their employees. In addition, for maximum advantage, this platform should be extended externally to embrace partners, the developer community and subscribers in the co-creation of new services.

To support these emerging business models and new service concepts, service providers need to rethink their approach to service delivery and examine the impact of Web 2.0 on their existing and planned communications infrastructure. A framework for service delivery, based on industry and IT standards, must now be able to support the requirements of a Web 2.0 world.

A framework for competitive advantage

As acknowledged by leading industry analysts such as Gartner², IBM is a leading supplier of service delivery platforms (SDPs) to the communications industry. Most recently, IBM implemented the SDP for Bharti, one of the fastest-growing mobile operators in the world (adding several million new subscribers/month). IBM SDP implementations, including Bharti, are based on an open, flexible, integration framework called the Service Provider Delivery Environment, or SPDE. SPDE is derived from IBM best practices in SDP implementations and is supported by a comprehensive set of middleware offerings.

The Service Provider Delivery Environment is a clearly defined set of domains that are based on industry and IT standards

The Service Provider Delivery Environment is made up of a clearly defined set of domains that are based on industry and IT standards (Figure 3). The SPDE domains are described as follows:

- **Service Creation Domain** to manage the end-to-end life cycle of revenue generating services
- **Service Delivery Domain** to support the deployment of industry, Internet and converged applications, and to provide subscriber and partner portal integration

² Dataquest Insight: Next-Generation Service Delivery Platform Vendors Market Overview and Strategic Scorecard (October, 2007)

Highlights

- **OSS/BSS Domain** for integration with OSS/BSS systems
- **Network Delivery Domain** for core network functions
- **Device Domain** for integration with a variety of devices
- **User Domain** for segmentation of different types of users and communities

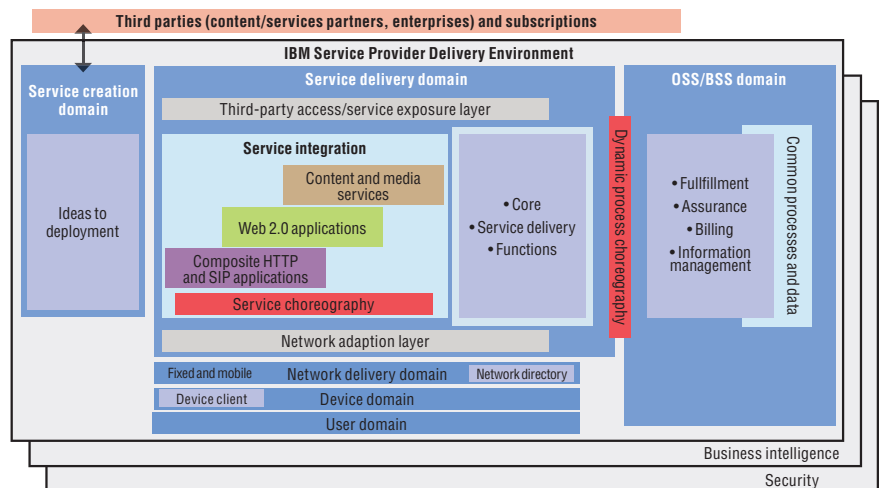


Figure 3 IBM SPDE Framework

Also incorporated into the SPDE framework are technologies for business intelligence (BI) and security, both of which are relevant to all domains.

The SPDE framework is at the core of IBM communications service provider engagements

The SPDE framework is at the core of IBM communications service provider engagements, including instantiations of SDPs. In some cases, these implementations are very broad and include a complete service delivery infrastructure. In other cases, a service provider might need to address a specific business problem which only requires a component of the SDP. For example, a content management system or a partner portal might be needed. In these cases, a specific entry point to a broader SDP is implemented in a manner consistent with the SPDE framework to facilitate incremental, future enhancements to the customer’s SDP while addressing current needs.

Highlights

As an open framework for SDP implementations, SPDE lends itself to extensions supporting industry-based implementations of Web 2.0 business models and technology

With the growing momentum behind Web 2.0, service providers are looking to use these technologies to improve service delivery and collaboration with partners. As an open framework for SDP implementations, SPDE lends itself to extensions supporting industry-based implementations of Web 2.0 business models and technology. For example:

- The *Service Creation Domain* is extended with middleware components to support Web 2.0 style service innovation.
- The *Service Execution Domain* is extended with middleware components to provide an expanding set of telecom enablers to support innovative composite services.
- The *Service Management Domain* is enhanced with dynamic SOA to improve the automation and execution of business processes including integrating with OSS/BSS systems.

State of Web 2.0 initiatives

From numerous discussions with communications service providers over the past 12 months, it is apparent that strong consideration is being given to using Web 2.0 technologies across a range of opportunities. However, many of the current initiatives tend to be rather fragmented and driven by specific groups within the organization. For example, a product management team may be utilizing a wiki internally as a group publishing site for new products, while another group is using a blog to get some feedback on products from internal users or end subscribers.

Service providers need to make a strategic commitment to Web 2.0, focused on transforming service delivery

To make a more significant impact with Web 2.0 concepts and technology, service providers need to make a strategic commitment, focused on transforming service delivery, by emulating some of the important traits of their new competitors. To support new initiatives, the IBM SPDE framework and supporting middleware has been extended with additional capabilities as follows (Figure 4):

- *User-generated applications*: A rich platform for mashup assembly, management and ecosystem development.

Highlights

- *User-generated content:* Injection of core communication capabilities into content offerings and extensions to SOA middleware to support the dynamic management of digital media assets.
- *User-driven insight:* A solution based on Web 2.0 collaboration technologies to support the development of a service innovation community with employees, partners, software developers and subscribers.

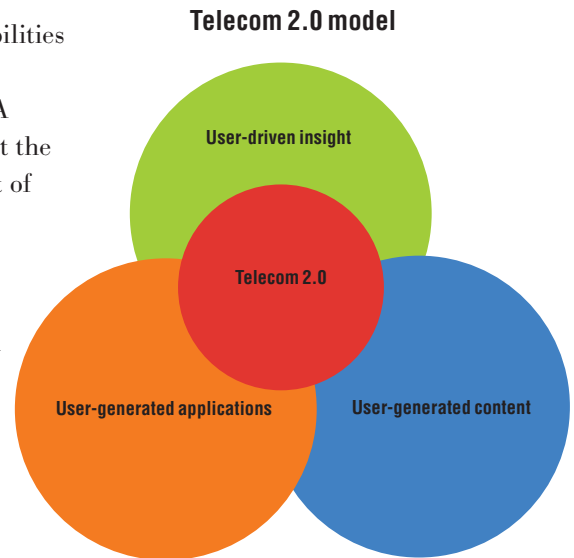


Figure 4 Telecom Web 2.0 initiatives

User-generated applications—mashups

Over the last several years, communications service providers have explored giving third-party developers secure, controlled access to network capabilities by providing an abstraction layer for network enablers and open application programming interfaces to the network. The current state of the art for these implementations typically provides access to network capabilities via Web Services. The service provider implements a Web Services Gateway to provide secure, controlled access to network resources with the service delivery infrastructure masking the complexity of underlying telecom protocols.

Enabling non-IT users to construct applications helps capitalize on innovative solutions and expand usage

While this type of solution is based on SOA principles and is very valuable in attracting skilled IT developers, it does not let new classes of users construct their own personal applications. Enabling non-IT users to construct

Highlights

applications lets service providers capitalize on innovative solutions and expand usage, while being highly responsive to emergent business opportunities. Nevertheless, the Web Services Gateway does provide a strong foundation for moving forward to support user-generated applications (Figure 5).

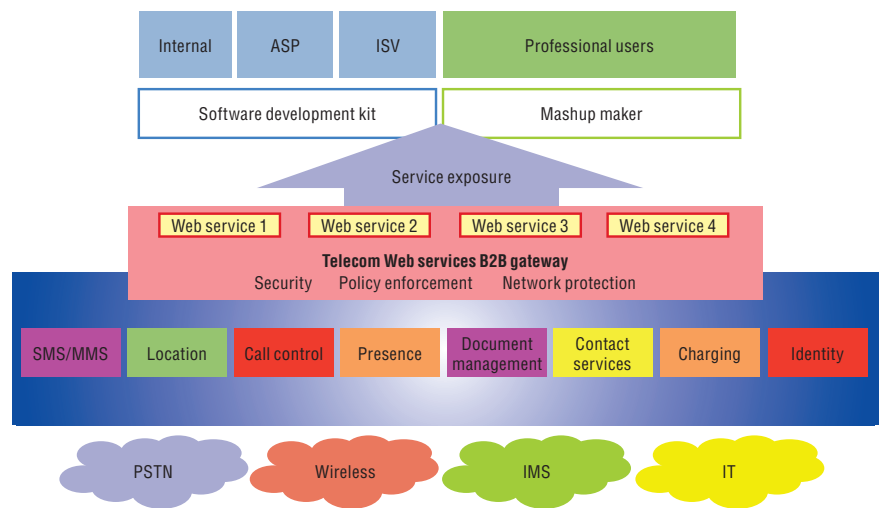


Figure 5 Infrastructure for user-generated applications

To provide support for professional users lacking programming skills, another layer of abstraction is required. To meet these requirements, service providers need to enable an ecosystem with a new type of service creation tool—a mashup platform. A mashup platform enables professional users to create, modify and share Web applications by assembling customized solutions from multiple services and content sources without programming. To support the required ecosystem that includes developers of component services (widgets), mashup assemblers and subscribers who simply want to use mashups, the mashup platform requires the following features:

Mashup Maker A browser-based graphical assembly tool to rapidly combine widgets into interesting new services. To maximize the value of mashups, the widgets need to be able to pass events to each other to promote the assembly of innovative new services. We refer to this type of widget as

Mashup platforms enable professional users to create, modify and share Web apps by assembling customized solutions from multiple services and content sources

Highlights

The mashup platform should include common and consistent tools to ease the development of widgets

an interactive, “mashable” widget. For example, a widget that supports a network address book should be able to pass a buddy list to a location widget with the information then used by an Internet map service to plot locations of buddies on a map. The IBM tool for mashup assembly is called Lotus® Mashups.³

Widget Development The mashup platform should include common and consistent tools to ease the development of widgets. A variety of widget development tools can be made available to support a range of developers with different skill levels. For example, the IBM mashup portfolio includes template driven tools (Widget Factory), graphical tools for data feed generation (Data Mashup Maker) and a rich development environment for Web 2.0 programmers (WebSphere® Smash).

Widget Palette A standard set of widgets should be packaged with the platform. From an industry perspective, this set of widgets should include telecom widgets to access network information (such as location, presence) and other industry value-added data (usage information, billing information).

Mashable Content Generator The richness of the mashup environment relies on having ready access to information (data feeds) that can be easily combined with mashable services. Therefore, it is necessary to unlock content from various data sources and surface it in a “mashable” format. IBM InfoSphere™ Mashup Hub has facilities to address this requirement, including the discovery and transformation of enterprise data.

Catalog A repository for publishing, documenting, sharing and rating of mashups and widgets. With this type of rich infrastructure, a service provider can support an ecosystem of widget developers, mashup assemblers and mashup users. In the spirit of software as a service, the environment could be hosted, including the catalog system for sharing

³ See ibm.com/software/lotus/mashups for more information

Highlights

Another value-added component of the mashup platform is a tool that lets LOB users unlock enterprise, departmental and Web information into feeds that can be assembled rapidly into new applications

Mashups augment, not replace, traditional methods of service creation

mashups and widgets (with the appropriate security) and development tools that are accessed using a simple browser. IBM Mashup Center, a key component of the SPDE Service Innovation portfolio, is a Web 2.0 software bundle that combines the tools referenced above for mashup assembly, widget development and mashup management.⁴

One of the most interesting variations of the notion of personalized applications is focused on the enterprise: user-driven productivity. While many enterprise IT organizations have a backlog of applications, line-of-business (LOB) users increasingly need real-time access and remixing of information from their Web sites, databases and even spreadsheets. Therefore, another value-added component of the mashup platform is a tool that enables LOB users to unlock enterprise, departmental and Web information into feeds that can be assembled rapidly into new applications. Combined with network information, enterprise mashups is a new value-added capability service providers can offer their business customers.

While there is a good deal of excitement focused on mashups, it is important to recognize that mashups augment traditional methods of service creation, not replace them. For mass-market carrier-grade services, life-cycle management tools for requirements capture, service design and service development like Rational® Unified Service Creation Environment are still appropriate and necessary. In this scenario, a mashup platform can be used as a rapid prototyping tool to get subscriber feedback before proceeding with commercial service implementation. The bridge between the prototyping environment and commercial service implementation can be an “idea repository” to capture feedback and manage the workflow of transitioning subscriber feedback from the prototypes to approved technical requirements (such as Rational ClearQuest®).

User-generated content—media management

Communications service providers have been participants in providing professionally generated content to wireless and wireline customers. In the

⁴ See ibm.com/software/info/mashup-center for more information

Highlights

A new Web 2.0 business opportunity has emerged: helping subscribers manage and share content that they have acquired or created

Millions of subscribers and strong brand recognition give telecom service providers a strong foundation to support social networking and user-generated content services

wireless world, this has included wallpapers, music, games and ring tones, which alone have accounted for more than \$1 billion in content services revenue. Their broadband networks deliver both Internet Protocol Television (IPTV) and allow subscribers to access content directly from content providers through their televisions or personal computers. Now, a new Web 2.0 business opportunity for service providers has emerged: helping subscribers manage and share content that they acquired or created from both professional and user-generated content sites, along with the content they have created themselves.

The personal digital media opportunity is very large. With more than 10 billion digital photos taken every year, thousands of videos uploaded to YouTube every day, 184 million bloggers on the Internet and more than \$100 billion spent on personal digital devices each year, the opportunity for service providers to assist their subscribers in managing and sharing content across these platforms is very significant.

Today, Web 2.0 companies control most of the sites that support user-generated content. So, how can service providers inject themselves into the digital value chain and provide value? IBM believes the answer is to focus on their core telecom strengths to provide differentiation. For example, service providers have:

Large subscriber bases With a subscriber base in the millions and strong brand recognition, telecom service providers have a strong foundation to support social networking and user-generated content services. In most cases, the relationship with the subscriber transcends a single platform with a household or individual obtaining their telephone, wireless, broadband and television services from the same provider.

Trusted brand A brand that is still frequently associated with trust and security conveys a reputation that is extremely important when personal content is involved. Social networks, in particular, are built on the mutual trust of the participants, yet most Web 2.0 companies do not have

Highlights

Service providers can become a preferred Web destination for user-generated content by providing a more welcoming environment

the trusted brand status that communications service providers have developed over many years. By providing a more welcoming environment for user-generated content, service providers have an opportunity to become a preferred destination on the Web for user-generated content.

Billing relationship The right-to-bill and the infrastructure to bill subscribers for services in a variety of ways. The billing relationship also enables the service provider to promote loyalty and deliver special promotions for customers that subscribe to multiple services.

Service assurance The ability to deliver quality of service (QoS) and to measure the quality of experience (QoE) in the delivery of digital content. These systems can be automated to provide billing adjustments if quality metrics are not maintained.

Hosting Established expertise in hosting and storage management.

Context The ability to add value to content services with user context like location and presence. In addition, revenue can be generated by augmenting content with promotional and advertising material based on network and subscriber information.

Messaging infrastructure The proven ability to reliably and securely transport multimedia messages.

Network and devices Control over broadband network connectivity with multiple channels and knowledge of devices to support successful delivery of content based on specific network and device characteristics.

These core strengths by themselves will not enable the service provider to be the preferred content destination for their subscribers. The value-add will be in the integration of these elements—through their SDP—to simplify the identification, purchase and management of the professionally produced

Highlights

content, and the integration of this content in a common portfolio with user-generated content.

To enable this capability and take advantage of this opportunity, the SDP must be extended to effectively support media objects and create a platform for managing digital content. This platform must support a variety of capabilities including:

- A digital locker for supporting user-generated content such as photos, videos and music. A key element of the digital locker is support for storage services and backup.
- Easy creation of focused social communities with Web 2.0-style communications such as blogs, as well as extensions for messaging, presence and location.
- Support for device independent delivery—PC, IPTV, mobile.
- Multiple quality-of-service levels.

IBM has extended the SPDE framework with dynamic SOA middleware to manage digital assets

To support a value-added platform for managing digital content, IBM has extended the SPDE framework with dynamic SOA middleware to manage digital assets. The IBM Media Hub is a flexible, dynamic framework for service integration and business process choreography optimized to solve the problems associated with ingesting, managing and publishing digital content across multiple platforms. To address this complexity, the multitude of formats and the issues around assigning and managing the rights to digital content, the Media Hub framework enables the workflows that automate the process of managing and delivering digital content.

IBM Media Hub manages the process flows for digital content with an architecture designed for the movement of large media files and their integration with applications required for data transformation and enrichment (Figure 6). Examples of integration points with Media Hub include:

- OSS/BSS Integration
- Content Management

Highlights

- Encoding
- Transcoding
- Metadata
- Watermarking
- Categorization
- Parental Controls

IBM's flexible, dynamic framework for service integration, business process choreography for digital media businesses

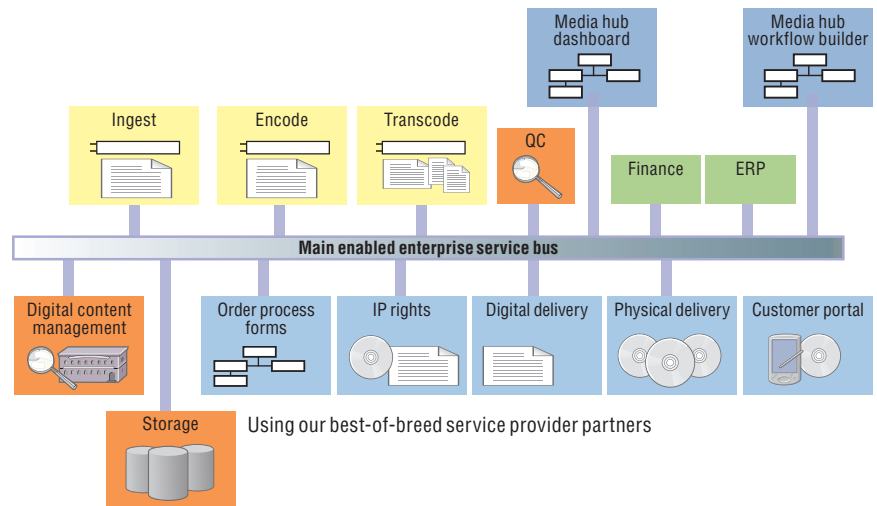


Figure 6 IBM Media Hub architecture

IBM Media Hub delivers content into a compelling portal environment for a rich customer experience

With IBM Media Hub, communications service providers can deliver both user-generated and professionally created content into a compelling portal environment, resulting in a rich customer experience.

By using their core strengths, service providers have the opportunity to participate in the digital value chain beyond transport. By extending their SDP to support digital media management, service providers can more distinctively differentiate their service offerings from those of their competitors.

Highlights

Companies committed to collaboration outperform their competitors in the marketplace

Although 80% of telecom executives believe external collaboration is critical to business success, there is a “collaboration gap” in execution

User-generated insight—collaboration

Web 2.0 companies are adept at harnessing collective intelligence through blogs, wikis and communities, a collaborative environment where users actively participate in adding value. As service providers utilize Web 2.0 technology for service innovation, they also have the opportunity to strengthen the bond with their subscribers by enlisting them in the co-creation of services.

IBM studies have shown that companies committed to collaboration outperform their competitors in the marketplace. However, when IBM surveyed telecom executives, the data showed that while 80% of them believed external collaboration is critical for business success, there was a considerable gap in execution—a “collaboration gap” (Figure 7).⁵ The adoption of Web 2.0 concepts and technologies might help bridge this gap.

Collaborative importance vs. extent

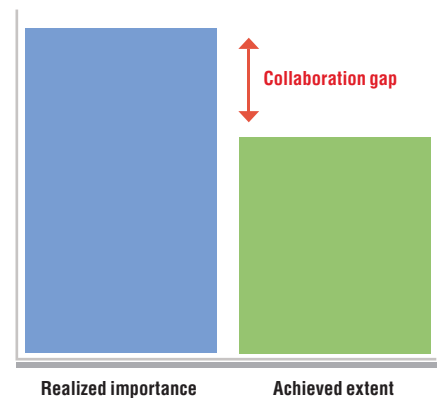


Figure 7 Collaboration gap

By implementing a Web 2.0 platform for collaboration, communications service providers can:

- Increase the funnel of new service ideas
- Reduce the cost of innovation
- Validate market assumptions prior to commercial launch of new services
- Determine whether subscribers are interested in specific services and experiment with pricing options
- Support communities targeting specific focused services or interests, such as mobile gaming, bowling leagues or IPTV
- Create an environment for iterative service development—similar to the perpetual beta style of Web 2.0 competitors

Highlights

The IBM Idea Factory collaboration platform organizes Web 2.0 components to provide a seamless portal interface for communities

To support the environment of Web 2.0 collaboration targeting service innovation, IBM has extended SPDE with a solution called the IBM Idea Factory. This collaboration platform organizes a set of Web 2.0 components through a portal interface that provides a consistent and seamless interface for communities focused on service innovation. As depicted in Figure 8, components integrated into the Idea Factory platform include:

Self-service portal A Web-based interface for a community of employees, partners, software developers and subscribers, including role-based administration

Idea Factory: functional overview

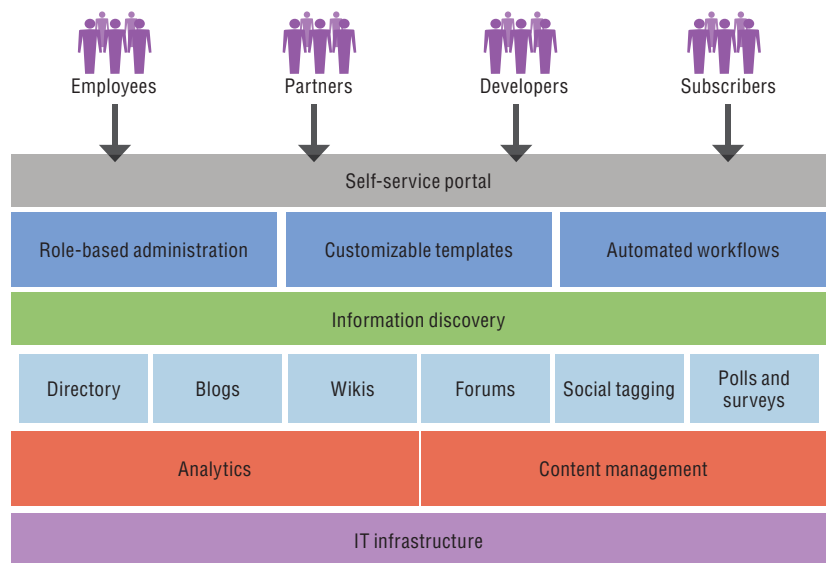


Figure 8 IBM Idea Factory

Profiles Directory for members of the innovation community with social tagging so product managers can identify people with particular skills and interests

⁵ IBM CEO Study, 2006

Highlights

Blogs Web journals that allow product managers to communicate the latest news about market trials

Wikis Group publishing sites for technical documentation about new services supporting content creation in collaboration with partners

Forums Site for discussion and support of new service trials

Online polls and surveys Facilities for subscriber feedback on new services

Service providers can tap into the knowledge of employees, partners, developers and subscribers to validate assumptions before making significant investments in OSS/BSS integration

With Idea Factory, communications service providers can launch trials of new services quickly and cost-effectively. The trials are supported through the Web, eliminating the requirement for costly call centers. Feedback on the design, features and functions of the trial services is also facilitated via the Web. As a result, service providers can effectively tap into the knowledge of a broad innovation community of employees, partners, developers and subscribers to validate their market assumptions prior to making significant investments in OSS/BSS integration. If the service proves viable, the service provider can commit to the investment required for commercial launch. If the service proves to be of little or no value, the project can be stopped.

As service providers look to mashups and user-generated content for service innovation, Idea Factory represents an important component in the service delivery landscape to ensure that Web 2.0 initiatives are truly meeting subscriber expectations.

Conclusion

Service providers have core strengths that can be used to take advantage of the opportunities enabled by Web 2.0

Web 2.0 can be viewed as both a threat and opportunity to communications service providers. Increasingly, new Web 2.0 companies are more nimble in delivering new types of communication services that over time can force service providers into a being just a commodity network provider. Still, service providers have core strengths that can be used to take advantage of the opportunities enabled by Web 2.0 and can participate fully in this value chain.

While it would be difficult for traditional industry service providers to completely transform themselves into Web 2.0 companies, they can selectively emulate some of the best practices of these companies and adopt Web 2.0 technologies in order to create more value and drive new revenue opportunities.

IBM believes there are three key areas that communications service providers must focus on in the very near future in order to best use Web 2.0:

1. Extend current initiatives to open up networks to a higher level of abstraction by supporting user-generated applications with a mashup platform.
2. Enhance content services initiatives by including user-generated content and supported by advanced digital media management as a differentiator.
3. Implement a common collaboration platform to enlist employees, partners, software developers and subscribers in the co-creation of innovative new services.

IBM has already extended our SPDE service delivery framework to support Web 2.0 and is working with service providers worldwide in support of a variety of Web 2.0 initiatives. As service providers look to embrace Web 2.0 concepts and technology, the time to act is *now*.

For more information

To learn more about Web 2.0 for telecom, contact your IBM representative or IBM Business Partner, or visit:

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