The Evolution of the IP Services Delivery Model

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The Vision: Dynamic IP Services

Imagine you are sitting at your desk at work, trying to complete a project or task that requires a business tool, application or service that your company does not own. You turn to your computer and surf to a Web site that provides a menu of applications and services. You click on an icon for the service or application you require, fill in some basic subscription and payment information and gain access to the service you need. When you have finished using the service, you "hang up".

The service you have just used has been delivered to your desktop with guaranteed levels of quality and security. You receive a single itemized bill for the service(s) that you have consumed, from a single service provider. You can pay for the service as a business expense and you are not required to engage in any complex or lengthy capital investment decisions.

You used an IP Service because it was quick and easy to access, and because it provided a tool or application which made you more effective, more efficient and which reduced time to market for your company. You continue to use IP Services because you do not need to concern yourself with the complexity of the business and technological infrastructure that delivers the services to your desktop. You use IP Services because they are as easy and productive as making a phone call.

This vision of secure, high quality IP Services that are delivered on-demand is how advanced IP Services will be delivered directly to business customers in 10 years time. More importantly, this is how services have begun to be delivered to business users today.

Overview

The Internet Protocol (IP) Services market is gaining momentum as business consumers, software vendors, value-added resellers (VAR), system integrators, application service providers and telecommunications service providers evolve their businesses to take advantages of the Internet. The Internet Protocol (IP) Services market includes all the services involved in delivering information and computing applications over an IP-based network.

With the emergence of the application service provider (ASP) marketplace during 1999 IP Services were largely equated with application services. This neglected the issue of how enterprises would access the application service, that is, the issue of networking or connectivity. The role of network services must also be considered, as they provide the foundation for delivery of these applications services and the successful growth of the IP Services market.

The IP Services market will continue to evolve in the first few years of the 21st century, and will be significantly influenced by the practices and business models of traditional telecommunications companies. While ASPs have focused on hosted application services, telecommunication companies will be approaching the IP Services market from a network and application services focus that emulates the quality and availability of voice services today. Today, incumbent and competitive service providers from the telecoms world will enter the IP Services market and create distribution channels with quality and performance guarantees beyond the current best-effort standard. These network-competent players will significantly impact the current IP Service delivery model.

As companies offering very different services and business functions all lay claim to the title ASP, players in this market can benefit from understanding the market drivers, competitor strengths, their own competencies and their best opportunities for success. Applying the familiar and well-understood wholesaler-retailer-consumer business model to the

IP Service delivery market and clearly identifying the different functions required to deliver IP Services helps to clarify the status of the market and assists players in defining their strategy for participating in the IP Services market.

ASPs have created a "proof of concept" using delivery of IP Services over the Internet. For widespread adoption, IP Services must be easy to use and provide expected security and quality. By partnering with network service providers (NSPs), ASPs can deliver services, tools and applications across managed network infrastructures with performance and security guarantees. Viewing IP Service delivery as an evolution to a wholesale-retail model also identifies opportunities for software vendors and system integrators to expand their markets and services. This evolution also presents the opportunity for a new player to emerge — a Service Portal, the one-stop-shop for advanced IP Services.

IP Services will evolve from flat-rate, monthly fee-based contracts for services to include dynamic subscription, one-time use, pay-as-you-go services whose cost can be justified as an expense in an individual manager's operating budget.

The IP Services market presents huge opportunities for traditional computing and telecommunications players, including software vendors, Value Added Resellers (VAR), system integrators, ASPs and telecommunication service providers. The IP Services market brings together computing and telecommunications capabilities to offer the enterprise flexible and dynamic connectivity and application services. IP connectivity services, such as Internet, full-service Internet Protocol Virtual Private Networks (IP VPN) and Transparent LAN services, link enterprise users to each other and to application service providers.

Connectivity services provide the foundation for a whole new category of IP Services, covering a broad spectrum of computing and information applications, from Web and application hosting to "renting" customer care, sales support, financial and enterprise management software. The desire and need to deliver these IP Services — connectivity and application — in a new, more flexible and more dynamic way, a way that lets customers use the services on demand and pay for them as they use them is radically changing how both the computing and telecommunications industries deliver services.

Understanding influences on the evolution of the IP Services delivery model will be crucial to success in the IP Services market. This paper examines the functions and market drivers of the IP Services market and proposes the future evolution of the market to a wholesale-retail-consumer model.

This paper provides insight into:

- the drivers influencing the market for IP Services
- how IP Services are delivered today and who the players are who deliver them
- how today's IP Service delivery model will change to make on-demand IP Services a reality, and
- how the IP Services market will evolve to a traditional wholesale-retail business model and the effects this will have on today's market players.

IP Services Market Drivers

Six major factors are influencing the adoption of IP Services:

- New technology development
- Outsourcing trend — Enterprises' desire to outsource
- Enterprise resource planning (ERP) software mid-market growth
- Opportunity to rent instead of buying information technology and software
- Network service providers' (NSPs) need for add value added services, and
- Shortage of IT expertise

New Technology Development

Technological changes in a number of different arenas are influencing the rise of the IP Service delivery model.

Internet: The Internet and Internet Protocol (IP), coupled with the World Wide Web and Hyper-Text Markup Language (HTML), have shown the world the advantages of ubiquitous, easily accessible networks where information is readily available and new content can be published quickly and easily. This ease of use is reflected in the number of users now online — estimated at 275 million in February 2000 [1] — and by the number of Web sites on the Internet — estimated at 10 Million in February 2000 [1] (compared with only 1million in April 1997). [2]

Network Infrastructure: The technologies of the infrastructure which supports the Internet are also changing to support faster transport of more information. Key changes in the infrastructure arena are:

- the roll-out of fiber-optic networks—the capacity of fiber switching is increasing at a rate of 40Mbps per hour; [3]
- the maturing of dense wave division multiplexing (DWDM) technologies has increased fiber-optic carrying capacity from two wavelengths to 40-plus wavelengths at Gigabit speeds through the development of fiber amplifiers and opto-electronic add/drop multiplexers; [4]
- the development of gigabit and terabit routing — the latest generation of high speed routers can handle more than 5 terabits of traffic per second; and [5]
- network switch capacity is increasing at a rate of 10 times per year. [6]

All of these developments continue to increase the capacity of the Internet — and the capacity of managed networks.

XML: HTML (Hyper-Text Markup Language) was designed to simplify publication and layout of information on the Internet. Building on the success and strengths of HTML, eXtensible Markup Language, or XML, has been developed to standardize the sharing of different types of information between systems. Using flexible tagging, XML can minimize integration issues between different components in the IP Service value chain. XML is the language of choice for many industry initiatives in the service and e-commerce arena such as Microsoft's Biztalk, Hewlett Packard's e-services initiative and the billing and metering industry's Metered Service Information eXchange (MSIX) initiative. [7]

IP Network Security: Concerns about maintaining the security and integrity of information being passed across the Internet have made security, encryption and authentication high priority topics for research and industry in the 1990s. Security solutions are now maturing, being standardized and being accepted and adopted by traditional "brick and mortar"

companies. For example, IPSec, which has been in development since the 1980s, was ratified as a standard by the IETF in 1999 and is in use in large networks such as the US car industry's Automotive Network eXchange (ANX). [8, 9]

Outsourcing Trend

Since the early 1980s, there has been a strong trend in North American industry towards outsourcing information services. This reflects the economies of scale and scope which can be achieved by focusing on a particular business solution and the growth of e-commerce, of the World Wide Web and of Internet applications which fall outside established business' traditional core competencies and are easy and logical to outsource. The growth in outsourcing is expected to continue. In 1998, US companies spent $51.5 billion on outsourcing — a figure that is expected to grow to $81 billion in 2003. Information systems services are expected to be the highest growth area for outsourcing, with a compound annual growth rate of 12.2%. [10]

Rent vs. Buy

Small and medium-sized enterprises have a strong desire to gain access to high-end business tools and to use a single solution that does not need to be replaced as their companies grow. They want access to a wider range of quality software solutions for their businesses. Until now, the limiting factor in accessing these solutions has been the constraint on cash flow available for capital investments inherent in managing the financial resources of a small or medium-sized enterprise. A hosted IP Service model allows high-end applications and the associated data management to be outsourced and paid for on an expense basis — rather than as a capital investment. This model is also attractive to local and national government which have limited IT budgets and cannot easily accommodate large capital investments.

Shortage of IT expertise

The explosive growth of the Internet and of high tech and dot.com startups is placing major pressures on the availability of skilled IT managers to manage enterprise IT resources. [11] Implementation of Internet and e-commerce strategies, coupled with competitive pressures which compel businesses to repeatedly upgrade to provide new applications for their corporate users are combining to make the role of an IT manager ever more demanding — and ever more strategic to the success of many businesses. IT departments are facing a shortage of skills, large application development backlogs, reduced budgets, demands for shorter delivery times, and increased business case scrutiny. The pressure on these IT departments is increasing, and they need a way out.

ERP Mid-Market Growth

Large enterprise resource planning solutions can cost millions of dollars to implement and maintain. This has made them the preserve of Fortune 5000 companies. Gradual saturation of the F5000 market has lead large ERP solutions vendors to look for ways to continue to grow their businesses aggressively. One solution is to make their applications more accessible to midsize companies through a delivery model that requires less initial capital investment, without undermining the pricing models used for larger customers. An application "rental" model achieves this goal.

Network Service Providers Selling Value-Added Services

Telecom companies have traditionally provided voice and data services to business and domestic customers in a regulated monopoly or oligopoly. Over the last two decades the business landscape for network service providers has been dramatically changed by:

- Deregulation of voice services markets [12]

- The advent and mainstream adoption of the Internet
- Development of higher capacity networking using new technologies [13]
- Increasing amounts of data traffic on network service provider networks; and
- Increasing competition from new entrants to the voice and data services market in North America and worldwide.

These changes have reduced the revenue and margins from voice and data communications services, turning voice and data transport services into commodities.

Network service providers (NSPs) are now looking for new ways to leverage their networking investment to achieve higher revenues and higher margins. As a result of the attractiveness of offering high quality, premium priced services across their networks, mainstream NSPs have begun to enter the IP Services market — for example, Qwest, Sprint, and AT&T all launched IP Service initiatives in late 1999 and early 2000.

Today's Market

The majority of the application services available today are either outsourced IT services (data hosting, data backup) or "rented" applications (e.g., Enterprise resource planning, Customer Relationship Management, Microsoft Office,) delivered to enterprise customers over the Internet or dedicated networks. To gain access to an application, a subscriber must often deal separately with the application service provider (ASP), network service provider (NSP) and representative of the independent software vendor (ISV) delivering the application. Once the service relationship is established, a single billing and service contact point may be provided. However, gaining initial access to a hosted service is not a straightforward process.

Application services are delivered to business customers across dedicated telecommunications links or across a thin-client architecture over the Internet. In both cases, there are no explicit performance, security or service guarantees relating to network delivery of the services.

- The Internet provides a best-effort delivery mechanism that cannot guarantee application performance or support flexible billing models. ASPs attempt to mitigate the inconsistencies of Internet delivery by using thin client technology to deliver applications to the user and by "co-locating" their delivery facilities on the Internet backbone. However, without a managed network solution for service delivery from the network service provider, the high quality of service provided by an ASP in its data centers cannot be matched with comparable service delivery levels across the network.
- Dedicated links are secure and private but are costly and must be paid for whether they are in use or not. A 56kbps or 1.544 Mbps (T1) connection makes a known amount of bandwidth available to a company. However, beyond the bandwidth, it provides no method to manage the performance of individual applications, to prevent contention from impacting mission critical traffic, or to provide an IT manager visibility of traffic behavior where multiple applications are provided across a single link. Frame Relay or ATM-based Virtual Private Networks (VPNs) can provide a more cost-effective option, but again provide no explicit control, guarantees, or visibility at the application level for IT managers.

The IP Services market must take the strengths and benefits of the Internet — distributed IP networks with affordable, easy access and easy publication of information — and combine them with the reliability, security and service ethos of

traditional telecommunications services. These elements, coupled with an ability to provision and track specific application services to individual users will enable the IP Service delivery market to blossom.

IT managers and business users need to be provided with IP Service solutions which address a host of problems such as selecting best of breed ASPs, controlling the cost of outsourced services and protecting sensitive corporate data. In addition to these issues, a key factor in the acceptance of IP Services by mainstream businesses is the availability of per application security, performance and service guarantees, one-time service subscriptions and pay-as-you-go service subscriptions.

Players in Today's IP Service Delivery Market

The key functions that make up the infrastructure for delivery of IP Services to businesses are;

- providing an application, tool or service — by an independent software vendor;
- hosting data and applications — by an application service provider;
- delivering the service — across the public Internet or across a network service provider's managed network; and
- Systems integration work — by a systems integrator or value added reseller.

The following sections examine each of these roles.

Independent Software Vendor (ISV)

The ISV holds both software (programming) and application or functional expertise. ISVs create tools, services or applications which businesses can use to operate more efficiently and which individual business users want access to in their day-to-day jobs. Examples of these tools services or applications are Enterprise Resource Planning applications, accounting applications, word processing and spreadsheet programs, design and graphics tools, document sharing applications, and unified messaging applications. In the past, the ISV has combined these software, application and functional talents to provide tools or applications that have been sold to businesses through value added resellers, system integrators and retail channels. For ISVs, the ASP business model offers a new distribution and delivery paradigm in which their traditional products or applications can be transposed into services and delivered direct to the business users desktop.

Opportunity

The IP Service delivery model presents ISVs the opportunity to reach a much wider market and to sell services or tools directly to business users. This model also has the potential to provide ISVs with an ongoing revenue stream, rather than a one-time block of revenue. Many ISVs may initially resist the change from a single cash payment to an ongoing revenue stream that this new model represents. However, the business benefits to customers of expense-based monthly payments will quickly create significant market demand for outsourced services. And, once a per-use model is adopted by some ISVs, the competitive pressure to adapt to the new pricing paradigm will be strong.

Challenges

The challenges this model poses for ISVs include:

- Network-enabling existing applications to support remote application use and to safeguard content security
- Ensuring the service is delivered to the end-user with optimal security, quality and performance
- Transitioning from a product and product upgrade philosophy to a service delivery, maintenance and support philosophy, and
- Revising pricing models, product bundling and marketing to fit a rental payment model

ISVs are reliant on their ASP and NSP partners to ensure that their service is delivered to the customer in the intended manner. To ensure consistent service delivery and performance, ISVs must look for service level guarantees from their ASP and NSP partners on network delivery as well as on data center performance.

Application Service Provider (ASP)

The core competence of an ASP is the management of IT capital and resources. The precursor to today's ASPs is IT outsourcing and hosting. ASPs host services that are typically delivered to end users across the public Internet, or which are part of a managed service delivery paradigm where business customers purchase dedicated or virtual network links to provide secure transport of the service or application. The IP Service business model extends the traditional hosting business model to allow services to be subscribed to dynamically, paid for on a per-use basis and delivered over a managed IP network which provides security, performance and quality guarantees for the delivery of the application or service.

This business model gives ASPs the opportunity to take advantage of the beneficial characteristics of IP networks: ubiquity, ease of use and access, quick and easy publication of content and information — while at the same time removing the disadvantages of the Internet's best effort delivery or the alternate, costly use of leased or dedicated communications links for the network delivery infrastructure. Instead, services are delivered across business quality, managed IP networks which are equipped to provision services on demand and to support service delivery with per-application service level agreements.

Opportunity

The IP Service delivery model dramatically increases the customer base for ASPs by removing the geographical constraints of customer location — across an IP network, the customer can be located anywhere. ASPs can offer secure services backed by service guarantees to customers who could not afford dedicated connectivity, making a hosted IP Service delivery solution more attractive to customers.

With per-user, per-application service provisioning in place, ASPs also have the opportunity to move away from flat-rate monthly pricing models to per-use pricing models.

Challenges

The main challenge facing ASPs is managing large and scalable data center solutions to deliver services with consistent service and security levels, so that business users' expectations of service availability, performance and delivery are met. If customer expectations are not consistently met, business users will not pay for the services received. ASPs control the

service levels of their own data centers, but typically partner for provisioning of network resources. ASPs need to secure service level guarantees from their networking partners and to demand performance and security guarantees on a per-use application basis.

Network Service Provider (NSP)

Network service providers (NSPs) have traditionally been telecommunications service providers, selling local and long distance voice and data services to domestic and business customers. Deregulation has allowed a multitude of new service providers — competitive local exchange carriers, wholesale carriers, next generation network service providers (NSPs) and Internet Service Providers — to enter this market. The core competency of all of these companies is the ownership and management of large networks and the operation of these networks with a high degree of reliability.

The NSP's role in IP Service delivery to date has been to provide "plain vanilla" transport services for applications — either as a data service or by providing public Internet infrastructure. In the new IP Service delivery paradigm, the NSP becomes an integral part of the IP Service delivery solution, providing, a high quality, managed IP delivery infrastructure for IP Services, which supports per-application service, performance and security guarantees and dynamic, pay-as-you-go service subscriptions.

Opportunity

As deregulation, competition and technology advances erode the traditional revenue base and margins of network service providers, NSPs need to leverage their infrastructure investment by providing value-added IP Services directly to their existing customer base and by offering premium quality (and premium-priced) connectivity services for other application service providers offering IP Services to business users.

This IP Service delivery model positions NSPs to provide integrated, value-add, service-oriented connectivity with application and network services, rather than simply providing a commodity transport service for IP data. The more granular the service guarantees which the NSP can provide, the greater its ability to offer differentiated services and the more flexible its pricing models. Once the infrastructure to support dynamic subscriptions, pay per-use billing and service level agreement monitoring is in place, the NSP becomes a new channel to market for a plethora of services and applications — including new services which cannot be provided today.

Challenges

The main challenge facing network service providers is to adapt their networks to combine the flexibility and ubiquity of the Internet with the quality and security customers have become accustomed to for voice and dedicated data services. To meet these challenges NSPs must adapt both their networks and their back office systems — statistics collection, billing, customer care and support — to support IP Service delivery.

Value Added Reseller (VAR) & Systems Integrators (SI)

VARs are sales channels for many software packages and applications used by businesses today. They do two things: resell and add value. They have built an expertise in packages such as enterprise resource planning (ERP) tools and, in addition to reselling the packages, they make money by leveraging their integration expertise and knowledge of the application to provide systems integration and training for new users. System integrators may advise business users on the purchase of a software tool or application and integrate that application or service into existing information technology solutions and business processes.

VARs and SIs play an integral role in the implementation of complex packages such as ERP and customer relationship management (CRM) applications, but may play no role in a business customer's ad hoc use of services such as document sharing or videoconferencing.

Opportunity

The opportunity that the delivery of IP Services offers for SIs and VARs is increased integration work resulting from an increase in the customer base for service and application delivery and from and increase in the number and type of services that are available to business users. The party engaging the SI or VAR may be the end customer or may be the ASP hosting the service or application or the NSP delivery of the service.

Challenges

The challenge a VAR faces is the competitive threat to its traditional resale business. This is particularly significant because barriers to entry into the application or service resale business are low and the IP Service delivery model creates a new channel to the business customer market — the NSP. An NSP sales force may become the primary point of contact for resale of services and applications to business customers. However, lacking detailed integration or application expertise, the NSP will bring VARs and SIs into the relationship to provide systems integration and training services for business users.

Business Customer

Today's IP Service business consumers are companies using hosted applications. They are:

- Small companies — for whom the purchase of a service or application as a capital acquisition item and/or the cost of in-house information technology resources and management are prohibitively expensive;
- Companies already using data hosting — so that application rental is a logical extension of the hosting services they are already purchasing; and
- Start-up businesses where the opportunity cost of time-to-market is critical and can be accelerated by outsourcing Information Technology, Web hosting, e-commerce, service, support, call center and other functions to an ASP.

A feature of the services and applications which are offered over a hosted architecture today is that the business customer is tied in to a one, three or even five year relationship, and pays a flat rate monthly fee for the service. One-time, pay as you go subscriptions to services are not widely available, although the convenience of such a pricing model is attractive to business users.

Ultimately the success of IP Services market hangs on the acceptance of IP Services by

ordinary business users. Once a user's concerns about the security and reliability of a hosted service delivery model have been addressed satisfactorily, uptake of service will be dependent on ease of use, reliability of service, service pricing, and flexibility of the service offering.

Tomorrow's Delivery Model

As the IP Service delivery model becomes more established, the range and type of services that are delivered to business users' desktops will expand. Most of the services on offer today — ERP, CRM, rental of desktop productivity tools, data backup, data hosting — represent a long-term service relationship between the application service provider and the business user. The long-term nature of the relationship justifies the setup costs of installing the application. Today's hosted IP Services are almost exclusively billed on a monthly flat-rate basis.

As the infrastructure to support guaranteed service delivery becomes more widely adopted, a new range of services and applications will be developed for use by business customers. These services will include, for example, video conferencing, secure document sharing, differentiated e-commerce applications, mail and messaging services that any user can subscribe to through the Web. Other services and applications for long-term use by a business will also become available — for example IP Centerx services and computer telephony integration (CTI) applications. Similarly, application rental will evolve so that, for example, complex, high-end tools for engineering or design will be available for sporadic use by small design or engineering houses.

Although many services may involve a long-term relationship between the business user and the ISV, ASP and NSP who provide the service delivery infrastructure, a key characteristic of these new IP Services is dynamic service subscription, involving no prior relationship between the application service provider and the service user or subscriber. Coupled with dynamic subscription will be a pay-per-use billing paradigm. Service use will be monitored and metered (on an hourly, per-bit, per-transaction or other billing basis) and users will be charged only for the services they consume.

A New Player for Tomorrow's Market — The Service Portal

As the market for IP Services matures and develops, specialization will occur within the business functions required to deliver IP Services. This, and the active entry of network service providers (NSPs) into the IP Service delivery market, will lead to the emergence of a new function: that of the Service Portal.

A Service Portal is a retail storefront for IP Services. Its Web-based customer interface is supported by traditional "back office" systems such as call centers providing customer care, help desk troubleshooting and e-commerce support. The Service Portal is the single point of customer contact with the ASP and network infrastructure that delivers the tools, services or applications to the business customer's desktop. The Service Portal provides a single itemized bill, a customer care and support service and a one-stop, technical troubleshooting service to customers, as well as providing marketing and brand-management functions for the rest of the service delivery components. A Service Portal deals with the customer interface and brand-management for its ASP, NSP and ISV partners and hides the complexity of the delivery components from the business customer.

Service Portals as described here do not really exist today. Instead, elements of the service portal function are being provided by different players in the value chain. Many ASPs and ISVs fulfill their own customer care, troubleshooting and billing functions. Service Portal functions are an administrative necessity, not a core competence for ASPs and ISVs, and are functions that are likely to be contracted out as specialist Service Portals emerge.

Opportunity

The opportunity which IP Service delivery offers for Service Portals is the ability to focus on their core competencies of marketing, customer attraction, management and retention and brand management, while partnering with NSPs, ASPs and ISVs to care for the technically complex elements such as network connectivity, data center management and content creation or applications for sale.

Challenge

The challenge that Portals will face is marketing a new delivery paradigm to business customers and finding services that will attract and retain more customers.

Service Portals will emerge from four different arenas.

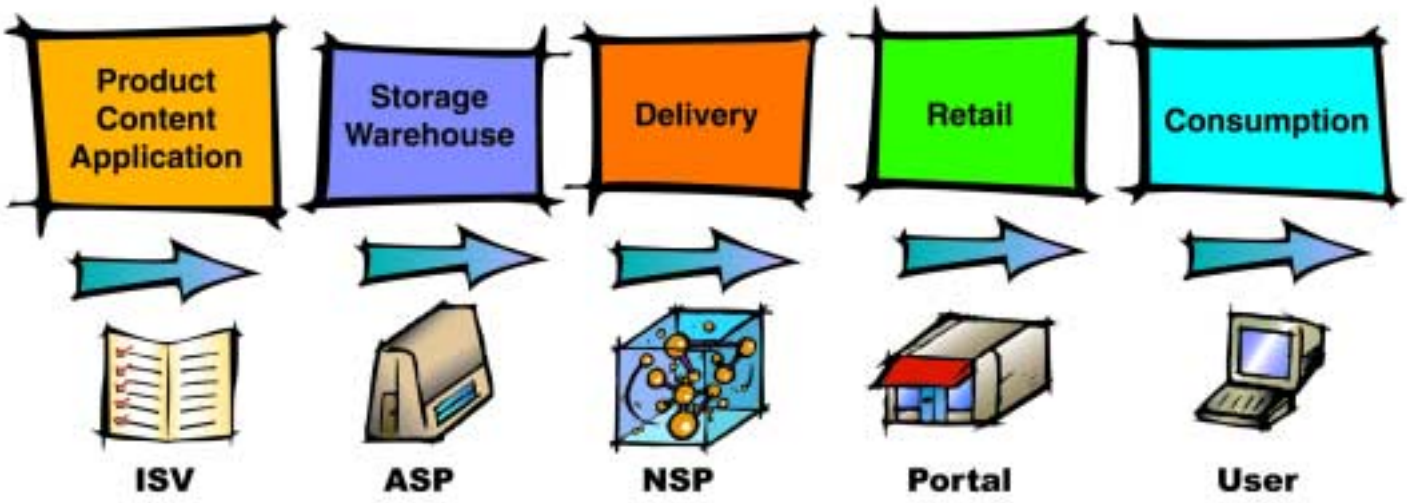
NSPs: Within network service providers, the existing customer care, support, billing, call center and customer facing functions of marketing and brand management that have been created to market, support and bill for voice services will expand their functionality to support market and bill for IP Services.

ISPs: Although many industry observers contend that Internet Service Providers who provide Internet access and Web hosting services to a large customer base will migrate their businesses to become ASPs, a more likely migration path is for ISPs to become Service Portals. The technology requirements for providing Internet access and hosting Web sites are far less demanding than those for managing industrial quality data centers. ISPs' competencies lie not in application management skills, but in their marketing ability to attract and retain a customer base in a highly competitive and fluid market.

Internet Portals: Internet "information" portals such as WebMD and Yahoo! have also built a core competence in marketing, customer attraction and customer retention. A natural extension of their existing information and e-commerce functions is to provide portal functions for the retail of services to their communities of interest.

E-Startups: As the role of a Service Portal emerges more clearly, entrepreneurs seeking to take advantage of the arbitrage opportunities of retailing IP Services will create independent Service Portal startups.

IP Service Delivery Value Chain–Figure 1



IP Services Value Chain and Business Model

There is a lot of confusion in the marketplace today around the way that using IP networks to deliver services to businesses will operate. Debate centers on how the business and market paradigms of service delivery will change, and what impact this will have on traditional businesses and growth strategies.

Some confusion also arises because the application service provider (ASP) acronym is being used as a synonym for IP Service delivery and as a label for companies that provide a variety of different elements of the service delivery value chain. This term is being used today with equal confidence by data center companies, networking companies, server companies and hardware and software providers.

Building an understanding of an emerging business by comparing it to an existing, well-known and well understood business model enables the roles and functions in a new business arena to be better understood and managed. In addition, an established business model can provide a shorthand for moving beyond the basic building blocks of the value chain to examine the subtleties and detail of opportunities for growth within the business arena.

Figure 1 depicts a functional model that sets out the functions discussed in this paper. The value chain begins with the business customer who wants to consume an IP Service, tool or application to complete a task or meet a deadline. The tool or application is provided by the ISV—at the opposite end of the chain. It is hosted—or warehoused—by the application service provider and delivered across the NSP's IP network. The service is made accessible to the business user through a Service Portal—the retail storefront for IP Services.

The financial model for Figure 2 model reflects a

traditional wholesaler-retailer-consumer business model. It is also a functional model, not an organizational one. This means that the different elements of the value chain may represent individual organizations, or may represent parts of larger organizations. Some ASPs are pure data centers; others are data centers coupled with a high quality IP backbone. Many new ASPs provide their own Service Portal functions in the absence of any other company to fill that role at the moment. Similarly, some software companies are currently acting as their own Service Portal to maintain control over their software brand. As NSPs enter the IP Service delivery space, it is likely that they will provide their own NSP and Service Portal functions and partner with ASPs and ISVs. Applying this wholesale-retail-consumer business model to the IP Services market demonstrates that the function of a retailer has not been clearly articulated in this market today. This role—the Service Portal—will evolve rapidly to facilitate customer and brand management for IP Services. A key consideration in the emergence of the IP Service delivery paradigm is the financial incentives driving the market participants to adopt this business model, rather than any competing business opportunity or paradigm. The HTRC Group, in collaboration with Abatis Systems Corporation, has developed a quantitative model that explores the revenues and margins available to three components of the value chain articulated here. This detailed model reviews the investment required for each of an ASP, an NSP and a Service Portal to enter the IP Service delivery market. It examines the investment and operational costs for each of these players over a three-year period to create a view of revenues and margins for established IP Service players. [14]

The key finding of the HTRC Group's work is that, assuming adoption of an IP Service delivery model supported by per-application service, security and performance guarantees and allowing on-demand subscription and pay-as-you-go billing (where appropriate), the following gross margins can be achieved:

Financial Model for IP Services Delivery–Figure 2

	Core Competency	Investment Magnitude	Revenue Magnitude	Gross Margins
Application Service Provider	Information Technology	Medium	Medium	52%
Service Portal	Marketing	Medium/Small	Large	23%
Network Service Provider (Access Services)	Networking	Large	Medium	38%
Network Service Provider (IP Services)	Networking	Large	Large	63%

The difference in the revenue and margin levels established by this model reflects the different business roles fulfilled by each function and the differing competencies and levels of risk and investment required for each function.

The establishment of a positive business revenue and margin model for IP Service delivery, coupled with the competitive and market drivers and pressures on network service providers traditional revenue generating models completes the picture required to justify adoption of the new business model presented in this paper.

Network service providers are looking for ways to change their business model to earn higher revenues and margins; application service providers need a mechanism to make service delivery highly reliable and business users are waiting for security and performance issues to be resolved before fully embracing application rental and IP Service delivery. Once per-application service, security and performance can be guaranteed and paired with an automatic service subscription, delivery and billing and support infrastructure, the IP Services market will fulfill its potential.

Conclusion

The IP Services market is an emerging market in a state of turmoil. This market began to be identified and articulated in 1999.The ASP acronym and discussions of outsourced services exploded onto the public scene the same year. In short, 1999 was “the year of the ASP”.

Although it is tempting to think that the period of turmoil in this developing market is over, the business model which ASPs began to articulate in 1999 will be adopted and adapted by network Service Providers in 2000 and beyond, and a great deal of change can be expected by all players in the value chain.

IP Services will evolve from flat-rate, monthly-fee-based contracts for services which are well-integrated into companies infrastructure, to include dynamic subscription, one-time use, pay-as-you-go services whose cost can be justified as an expense in an individual manager’s operating budget.

Application service providers (ASPs) are leading the charge into the new world of IP Service delivery. It will not be possible to steer acceptance of this new business model exclusively from the data center. ASPs have created a “proof of concept”, using delivery of IP Services over the Internet to the innovators and early adopters of the IP Services market. To foster widespread adoption of IP Services, ASPs must remove the variability of best-effort delivery from their service offerings by working with network service providers to deliver services, tools and applications across managed network infrastructures with performance and security guarantees.

The competitive drivers which influence network service providers and which are eroding their traditional revenues and margins today will prompt carriers to enter the IP Service delivery market place. The existing business and technological infrastructure of network service providers, their marketing capabilities and their financial resources make them a significant agent for change in the emerging IP Services market.

The development and maturing of the IP Services market — and ultimately its success — is reliant on network service providers being able to offer service guarantees to their partners and business customers which support premium pricing, service level agreement monitoring, dynamic subscription and pay-per-use billing.

The challenge for players in the value chain is to identify technology, products, services and partners which together can accelerate the migration to an IP Service delivery paradigm and to adapt sales, pricing, distribution, service and support mechanisms to capitalize on that paradigm.

Sources

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