IDC
Analyze the Future

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com

WHITE PAPER

Preparing for Convergence: Network and IT Come Together

Sponsored by: Alcatel-Lucent

Curtis Price Tracy Corbo

June 2008

EXECUTIVE SUMMARY

The topic of convergence has been front and center in the telecommunications industry for the past five years. The term itself has many meanings and interpretations. However, for the purposes of this white paper, we discuss the convergence of IT and networking technologies as an enabler of personalized and blended services.

Despite the challenges that service providers face in today's market, they possess a unique set of assets that can be leveraged to improve their competitive position. Toward this end, many service providers are executing customer-centric market strategies aimed at transforming their networks to next-generation IP networks for delivery of a superior customer experience.

The key to achieving this goal is developing an environment that allows service providers to leverage not only their own network assets but also third-party applications and services to support the following strategic objectives:

- Reduce time to market for new services
- Lower development costs
- Reduce service deployment/introduction risks

This white paper discusses the convergence of IT and networking in the telecommunications industry. Through in-depth customer interviews conducted by IDC, the document draws upon the experiences of communications service providers that are transforming their business, network, and services operations to improve their competitive position. These companies share valuable insights from their experiences that provide guidance toward taking a logical, planned approach in executing a convergence strategy. The case studies were developed by IDC based on interviews with the companies. The company names were provided to IDC by Alcatel-Lucent.

SITUATION OVERVIEW

The telecommunications industry is in the midst of a major transformation. The once separate worlds of media, entertainment, and communications have become a unified and converged experience that has created a new market paradigm and business model. This new paradigm offers tremendous opportunity to the service providers that can drive innovative services to market and create unique customer experiences.

As end-user market segments become more diverse in their needs and requirements, there is an increasing demand for more sophisticated individualized communications services. Service providers can no longer exclusively use existing market segmentation strategies to reach their target markets. Discrete, standalone services are giving way to increased demand for blended and personalized services (e.g., voicemail, email, instant messaging) that can be delivered to any device over any network.

IDC estimates that the market for blended services in the United States reached $74 billion in 2007 and will grow to $111.6 billion by 2012. To effectively exploit the opportunities present in this new market, service providers must examine their current business models and look for new ways to meet the service requirements of a new generation of consumers and business clients.

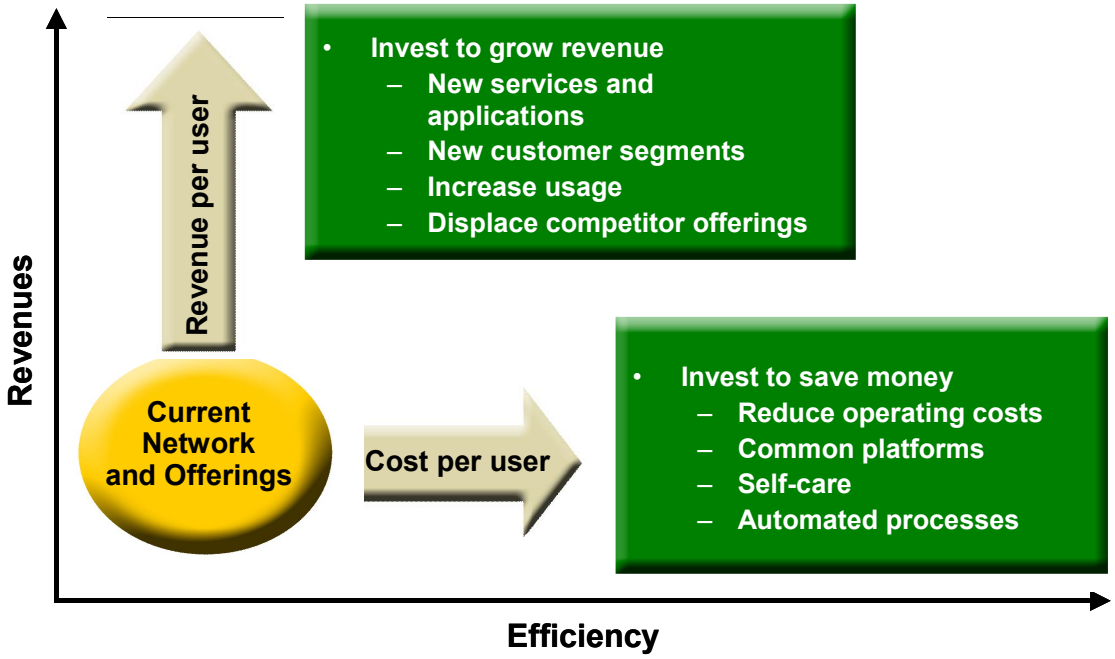
Failure to adapt business strategies to this new market environment will relegate service providers to suppliers of basic transport, which has become a commodity. For service providers, staying at the top of the value chain will require a complete business transformation.

Service Provider Transformation

Service providers around the world are embarking on comprehensive transformation programs to improve their competitive position. The strategies being executed are designed to implement an architecture that delivers reduced costs through operational efficiency and revenue growth by creating agility in deploying new services (see Figure 1).

FIGURE 1

Service Provider Strategic Imperatives



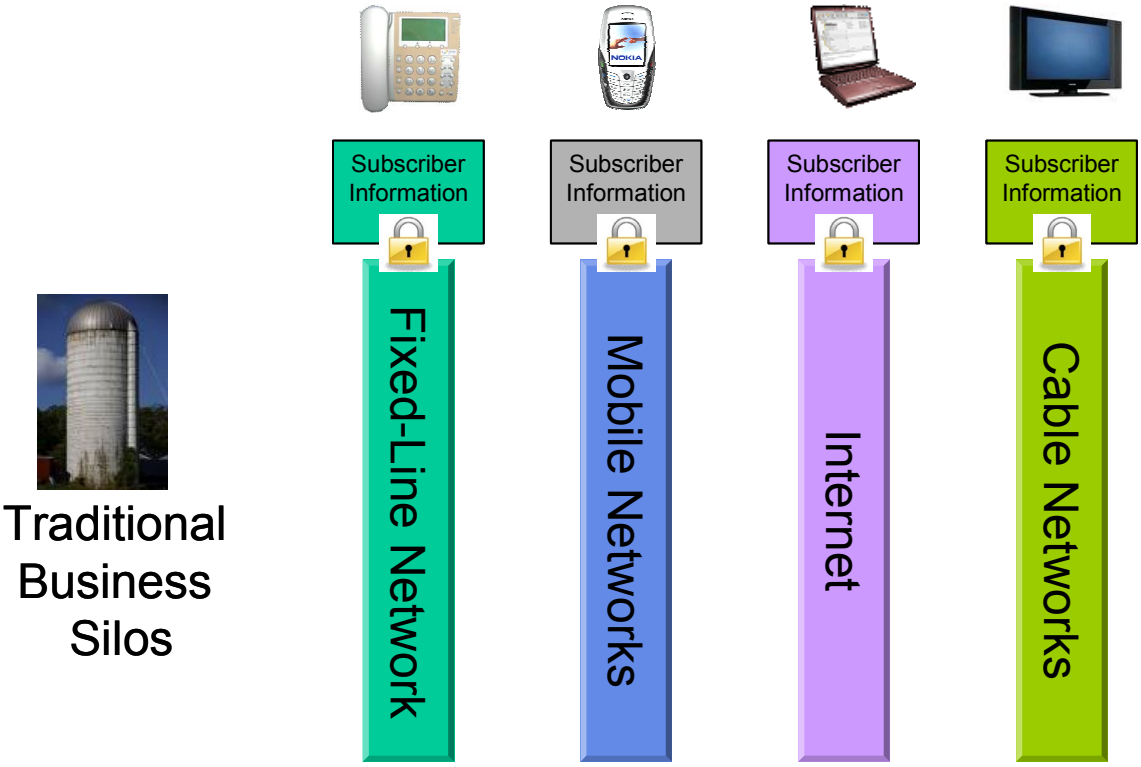
Source: IDC, 2008

Invest to Save Money

The majority of service provider revenue is generated from a large installed base of legacy network assets. As service providers developed new service offerings, they built service-specific networks that operated parallel to existing networks. This created a highly complex segmented infrastructure that was expensive to run, manage, and maintain (see Figure 2).

FIGURE 2

Traditional Network Architecture

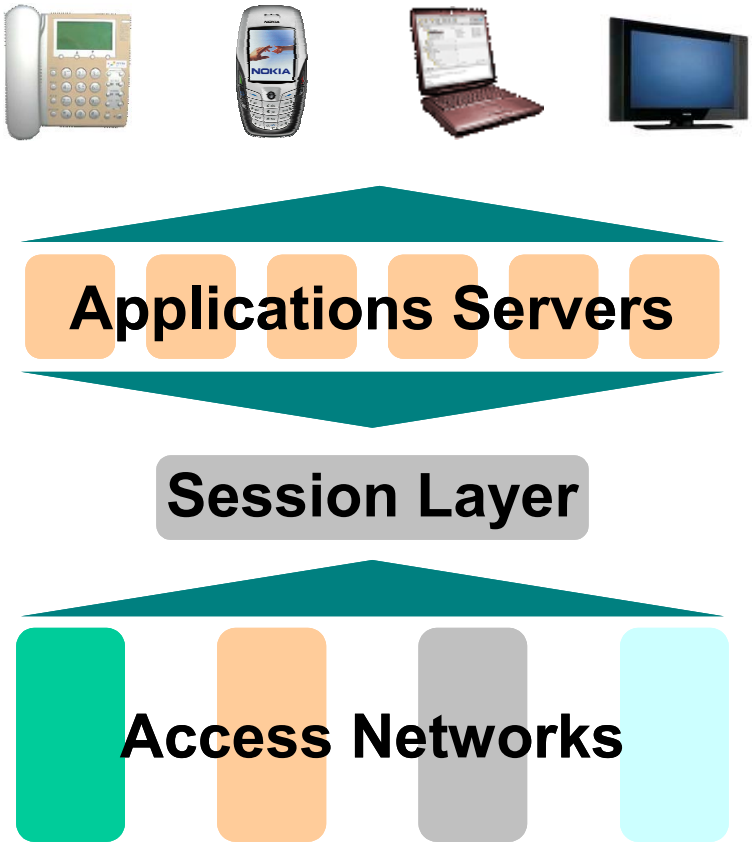


Source: IDC, 2008

Service providers are addressing this challenge by migrating to next-generation networks (NGNs) that will evolve the traditional network architecture away from discrete, service-specific networks to an environment in which services run on a common, shared IP infrastructure (see Figure 3).

FIGURE 3

Next-Generation Network Architecture



Source: IDC, 2008

Streamlining the network in this way allows operators to alleviate the redundancies inherent in the traditional network model and create a more efficient operational environment, thereby reducing capital expenditures and support and maintenance costs in the network and OSS/BSS domains. Addressing these inefficiencies is a critical step in reducing service providers' cost structure while freeing money to invest in new service development.

Invest to Grow Revenue

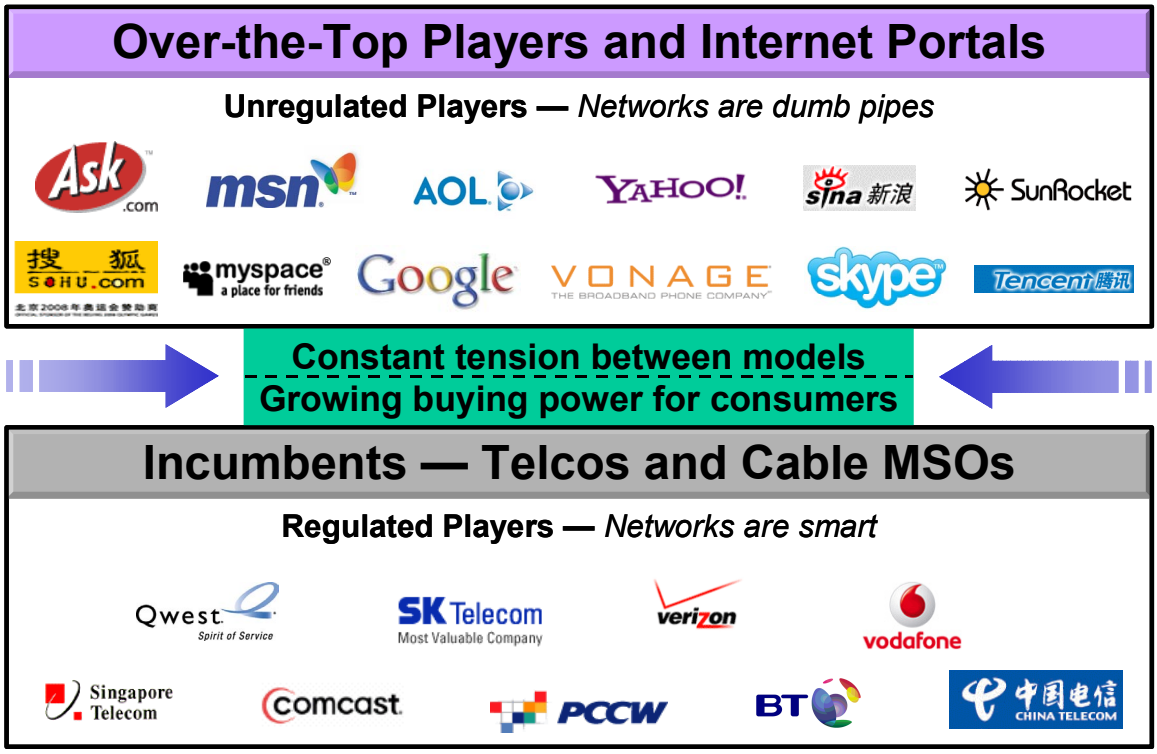
The worldwide market for telecommunications services reached $1.3 trillion in 2007, and IDC expects it to reach $1.4 trillion by 2011. Part of the market's slow growth during this period is due to technology substitution in core voice services; however, increased competition is also adversely impacting revenue for service providers.

As service providers make investments to drive revenue growth, achieving sustainable competitive advantage over a wave of nontraditional competitors has also become a strategic imperative.

The competitive landscape in the communications market has expanded to include new entrants with business models that offer customers a completely new experience. Web 2.0 companies such as Google/YouTube, MySpace, and eBay/Skype have developed compelling value propositions that are challenging the business models of established communications service providers (see Figure 4).

FIGURE 4

The New Competitive Landscape



Source: IDC, 2008

While these companies leverage the traditional service provider's network, they use advertising-based business models to deliver services such as video sharing, messaging, and music, often offering their services for free.

The biggest advantage that the Web 2.0 companies enjoy over service providers is their service delivery process, specifically the ability to rapidly create and deliver new services. The service development cycle for a service provider is typically 12–18 months. Many of the Web 2.0 players can deliver new services in as little time as six weeks.

Despite these competitive challenges, service providers have assets they can leverage to create competitive advantages. One source of advantage is ownership of the underlying network. While many view this as a commodity, network assets are increasingly critical to managing the customer experience through quality of service (QoS) and delivering new personalized and blended services.

Ultimately, the key to driving revenue growth and establishing competitive differentiation is creating a service environment that supports the delivery of blended services (voice, video, data, multimedia, IP multimedia TV services) across fixed and wireless networks. Service providers are making substantial investments in their infrastructures to realize the promise of blended services.

Telstra Corporation Limited

Telstra is Australia's leading telecommunications and information services operator, offering customers a truly integrated telecommunications experience across fixed line, mobiles, broadband (BigPond®), information, transaction and search (Sensis®), and pay TV (FOXTEL). The company has one of the most recognized brands in Australia, providing 9.6 million fixed lines and more than 9.3 million mobile services throughout the country, including 3.3 million 3G services.

Market Issues

In 2005, Telstra's management team instituted an end-to-end five-year transformation program aimed at improving its network and business operations. Due to increased competition in the Australian market, Telstra wanted to improve its competitive position, reducing time to market for new services, driving operational efficiencies, and improving the entire customer experience.

Infrastructure Requirements

Telstra's management team wanted to transition its existing operations area to something the company called a "One Factory model." This objective was to provide a simplified customer experience with " 1-click, 1-touch, 1-button, 1-screen, 1-step, 1-command" real-time solutions.

Telstra management believed that the telecommunications and media industries were converging toward what it called a "media comms" business. The challenge in this new business is the ability to integrate media content and communications and deliver it to customers in a way that is intuitive and easy to use ("1-touch, 1-click").

Achieving management's objectives required a complete transformation of Telstra's existing legacy network to a next generation network (NGN) using unified IP-based infrastructure. The NGN transformation initiative also included a corresponding upgrade of OSS/BSS infrastructure to support the new paradigm.

The Solution

In addition to being a strategic supplier of core network elements such as IP DSLAMs, Ethernet aggregation, and optical platforms, Alcatel-Lucent was selected as the end-to-end systems integrator for the NGN network transformation.

Selecting a prime integrator was a new strategy for Telstra. In the past, Telstra conducted most network systems integration activity with internal resources; however, the company believed that its NGN transformation needed a strategic partner with global R&D resources as well as systems, service, and support capabilities.

As a strategic supplier and network integrator for Telstra's NGN transformation, Alcatel-Lucent provided a combination of technology solutions and professional services. Alcatel-Lucent's solution included the following:

- Overall project management, network design, hardware and software integration testing, solution deployment, end-to-end integration, migration of customers from legacy network to new IP infrastructure, maintenance and ongoing support, and multivendor management
- A turnkey IP network featuring state-of-the-art access and end-to-end connectivity and supporting new broadband services such as high-speed Internet and video calling
- Migration of Telstra's voice and broadband access networks to the IP-based infrastructure

Lessons Learned

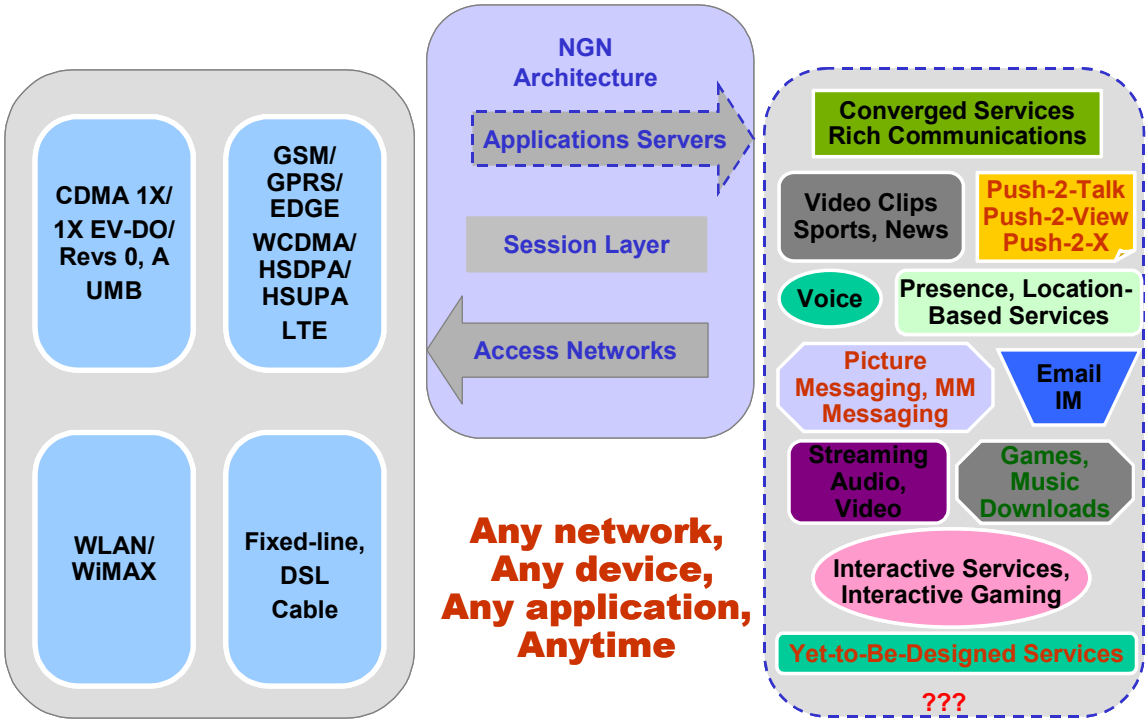
By creating a shared risk/reward model with its strategic suppliers, and stringent service-level agreements (SLAs), Telstra created a close working relationship that tied its partners' activities to its business objectives.

THE NECESSITY OF NETWORK AND IT CONVERGENCE

As service providers begin building revenue-generating applications in the IT domain of the network rather than in the network domain, they are increasingly utilizing IT-based technologies such as service-oriented architecture (SOA) as a foundation for creating new services. Within the SOA framework, service delivery platforms (SDPs) such as IPTV share common service enablers such as messaging, presence, and location to support the delivery of blended services across different access networks and devices (see Figure 5).

FIGURE 5

Enabling Converged Services



Source: IDC, 2008

IMS, another SDP, plays an equally critical role in supporting blended services by providing a scalable and reliable core that delivers these services to any device over any network. This helps simplify the deployment and management of new applications and services.

Creating an effective service delivery environment that tears down network silos is an essential component of the service providers' transformation strategy. The convergence of networks and IT within the service delivery environment has quickly become a key enabler in the delivery of blended services.

While convergence is defined in many ways, we define the term as follows: Convergence is the leveraging of common service enablers, via open standard interfaces, to create, deliver, and support blended services over a common IP network.

Convergence of IT and networks in the service layer is being driven by a number of factors, including:

- Interworking of applications and multiple SDPs
- Providing open interfaces to network resources
- Reuse of common enablers (e.g., location, presence) to build new services

Service providers have raised concerns about the use of technologies such as SOA and Web services for delivering services. These architectures are common in the OSS/BSS environment, where they have been used to support integration efforts. However, the architectures are unproven in terms of supporting real-time services with the level of scale, latency, and reliability that service providers require. Consequently, IDC believes that an important source of differentiation exists for vendors that can demonstrate carrier-grade delivery, scalability, and reliability in the service delivery environment.

Operational Considerations

The biggest single obstacle to achieving convergence goals is the silos that separate IT and network operations. As networks have evolved, these organizations have operated autonomously; however, the status quo will not work moving forward. The very definition of convergence requires these groups to come together to deliver and support a broad set of converged services. That will happen only if they work together. Many of the early pioneers of transformation have pointed to hindrances associated with the organizational structure as being the major inhibitor to a successful transformation.

As a result, establishing an organizational readiness plan before a transformation project is implemented is critical. In many cases, this will lead to a comprehensive review of the current organizational structure and business processes, with a focus on making necessary changes to ensure a smooth transformation process. Within an operator's organization, this means effectively bridging the gap between its IT and network operations groups.

Telekom Austria

Telekom Austria is Austria's incumbent national telecommunications provider and part of the Telekom Austria Group. The Telekom Austria Group has two main business areas: the fixed network segment, which encompasses fixed-line telephony, data, Internet, security, and multimedia services, and the mobile communications segment, which covers mobile communications.

Market Issues

The primary market challenge that Telekom Austria faced was an intensified competitive environment in its local market driven by a strong regulatory regime. The market comprised five mobile operators, three wireline operators, over 100 ISPs, and over 200 cable TV operators serving 8 million inhabitants, or 3 million households.

Cable TV operators, which have strong penetration in large Austrian cities, are moving aggressively into the voice market with bundled wireless voice solutions with high-speed Internet access and digital TV. This has intensified competition for Telekom Austria as approximately half of the market is located in these same large cities.

To combat these external market factors, Telekom Austria decided to reorganize and implement a new service/application layer as well as higher capacity in the access and core. Increasing capacity was designed to provide sufficient bandwidth to carry interactive rich media services that would differentiate the company from competitors selling single service solutions. The applications/services (IPTV, HD content) are complemented by a differentiation strategy based on providing higher quality, higher data volume, and support for any application.

A transformed infrastructure would support a range of services with the expected security and quality levels.

Infrastructure Requirements

To scale to support larger numbers of broadband customers, Telekom Austria needed to upgrade its network with advanced technology and implement lean processes. The objective behind this upgrade was to be able to provision services for the mass market and business market at a lower cost basis.

Telekom Austria's initial network strategy involved investment in broadband rollouts for capacity expansion with ADSL/XDSL in the access network and fiber in the backbone edge network to connect the company's 1,400 local exchanges. This formed the basis for initially supporting high-speed Internet access and, ultimately, IPTV service.

The Solution

In 2002, Telekom Austria merged three business units (Internet, Business, Telecom) into one company. Along with this move, the company merged its IT and network departments, which was extremely important for it to be able to make quick decisions around OSS/BSS transformation and avoid potential management disputes between the IT and network departments that would slow down the progress. The consolidated IT and networking structure put all stakeholders on the same page and made the business case for convergence much easier to validate and pursue.

As part of the OSS/BSS transformation, Telekom Austria's strategy was to deploy best-in-class platforms for areas such as fault management, performance management, inventory and provisioning, and most important, centralized service and product catalogs. However, what was more important for Telekom Austria was having a solutions partner with resource experts for systems integration, data structure definition, and configuration of interfaces.

Not only was it important to work with a solutions partner with sound integration skills, but the partner also had to have a thorough understanding of its network and IT systems and processes. The ability to overcome the challenges of migrating legacy systems, where not everything was perfectly documented, was extremely important for Telekom Austria.

Lessons Learned

- The most challenging aspect of Telekom Austria's transformation was organizing the internal companies' decision-making processes. Initially having two organizations (IT and network) delivering different messages to the management level was stimulating difficult decision-making processes.
- Developing a strong working relationship with the solutions partner has proven critical. Large transformation initiatives are complex, with the need to make important management decisions in terms of functionality and priority. Therefore, the selection of vendors should include not only technical competence but also solid project management skills.
- The use of leading-edge technology building blocks in the OSS/BSS world is enabling the shortest implementation times.
- The development of a target OSS/BSS landscape is the prerequisite for a future-oriented sustainable decision-making process.

FINDING THE RIGHT PARTNER

The complexity involved in undertaking a large transformation project requires the right partner to ensure success. Consequently, telecommunications operators are reevaluating their technology suppliers in search of trusted advisors — with the right mix of skill sets, products, and services — with which they can form strategic rather than purely tactical partnerships. The right partner is about much more than just the technology.

Network equipment vendors and some integrators are devising strategies to support transformation initiatives. Both groups have core competencies and visibility within certain parts of the service provider infrastructure that allow them to address various areas of transformation.

However, the strategic partner that will make the transition happen will have a broad portfolio of services that include expertise in program management, network design, integration of networks, business and applications, network management, and back-end OSS/BSS systems.

Alcatel-Lucent: The Network Integrator

As service providers' technical and business requirements change because of their transformation programs, there is an opportunity for network equipment providers and IT firms to exert greater influence on how operator networks evolve. Accomplishing this transformation requires a combination of skills that very few companies possess.

IDC believes that Alcatel-Lucent has a broad set of intellectual capital assets and professional network integration services field experience that puts the company in a strong position to address operator requirements around transformation. Alcatel-Lucent's deep technical expertise in the network, operations, and service-layer domains enables the company to support a broader value proposition targeted at various constituencies within the service provider organization. Alcatel-Lucent has developed best practices in key areas of transformation, including planning, implementation, migration, and operations.

As a leading network integrator, Alcatel-Lucent has developed a set of messages designed to highlight its approach to addressing the converged space of IT and network concerns.

For the southbound networking requirements, Alcatel-Lucent's message is aimed at:

- Migrating legacy voice and broadband access networks to IP-based infrastructures
- Ensuring end-to-end quality and reliability across all network layers
- Managing networks to maintain a highly optimized environment

For the northbound IT requirements, Alcatel-Lucent's message is aimed at:

- Understanding the applications and subscriber data requirements

- Supporting multivendor platforms and multiple technologies
- Leveraging an ecosystem of "best-in-class" partnerships
- Consulting capabilities built upon repeatable solutions, program management, and best-practices methodologies

Given Alcatel-Lucent's heritage as a telecom equipment provider, the most significant challenge for the company will be increasing its mindshare on the IT side of an operator's organization. Alcatel-Lucent's success in this area will depend on its ability to demonstrate capabilities outside its core networking area. Toward this end, the company has numerous OSS/BSS integration projects with operators' IT departments, as well as end-to-end network solutions (e.g., IPTV or TPSDA) and business consulting areas. IDC believes that Alcatel-Lucent is well positioned to assume a leadership role in helping operators transform their businesses and networks based on its networking expertise and global services capabilities.

As service providers increasingly look to "strategic partners" that can assist in their transformation initiatives, IDC believes that Alcatel-Lucent's network integrator strategy will resonate with service providers. This will enable Alcatel-Lucent to engage with service providers at a more strategic level where it can exert influence on how service providers transform their operations.

CHALLENGES/OPPORTUNITIES

Transformation represents the current evolution of the network and will be the backbone of the next generation of network-enabled business and consumer services. The telecommunications industry is playing a key role in the delivery of these services to a global audience that spans all vertical markets, including consumers. Convergence is the leveraging of common service enablers, via open standard interfaces, to create, deliver, and support blended services over a common IP network.

The challenge for the telecommunications industry is to drive greater levels of efficiency within current infrastructure while finding ways to add value to existing services and at the same time meeting the demands of rapid innovation and deployment. It will take a combination of a well-devised plan, a dedicated team, and the right third parties to meet the challenges of bringing together network operations and IT to meet the demands of convergence. Keys to success include the need to:

- Provide a clear vision as to how a convergence strategy will enable companies to meet current and future business requirements
- Analyze strengths and limitations of existing infrastructure
- Define a set of key performance indicators (KPIs) and milestones along the way to the desired end state

- Define the sourcing strategy and the criteria used to select technology partners (Vendors should demonstrate capability by articulating an overall architecture strategy and having the resources to integrate and implement the architecture.)

- Make the decision around insourcing or outsourcing network operations (The key consideration is whether an operator has core competencies in the new technologies being deployed. If not, how long would it take to scale?)

CONCLUSION

Operators around the world are responding to a variety of market dynamics by executing transformation strategies that will enable them to improve their competitive position. The convergence of IT and networking holds the key to driving innovative services to market while establishing meaningful differentiation from traditional and nontraditional competitors.

While the strategies being executed range from narrowly focused efforts to large-scale initiatives, the sheer complexity of transformation projects will drive demand for a range of network and IT services. IDC believes that operator transformation initiatives will be a significant growth catalyst for the $40 billion communications services market over the next few years.

A number of network equipment providers and systems integrators are pursuing strategies to address the services opportunities around transformation. However, a unique set of skills is emerging in the area of transformation that will define winners and losers. Companies that can deliver a blend of IT and networking services such as network consulting, design, network and application integration, and outsourcing will be well positioned to address operator transformation requirements and exploit the services opportunities that follow.