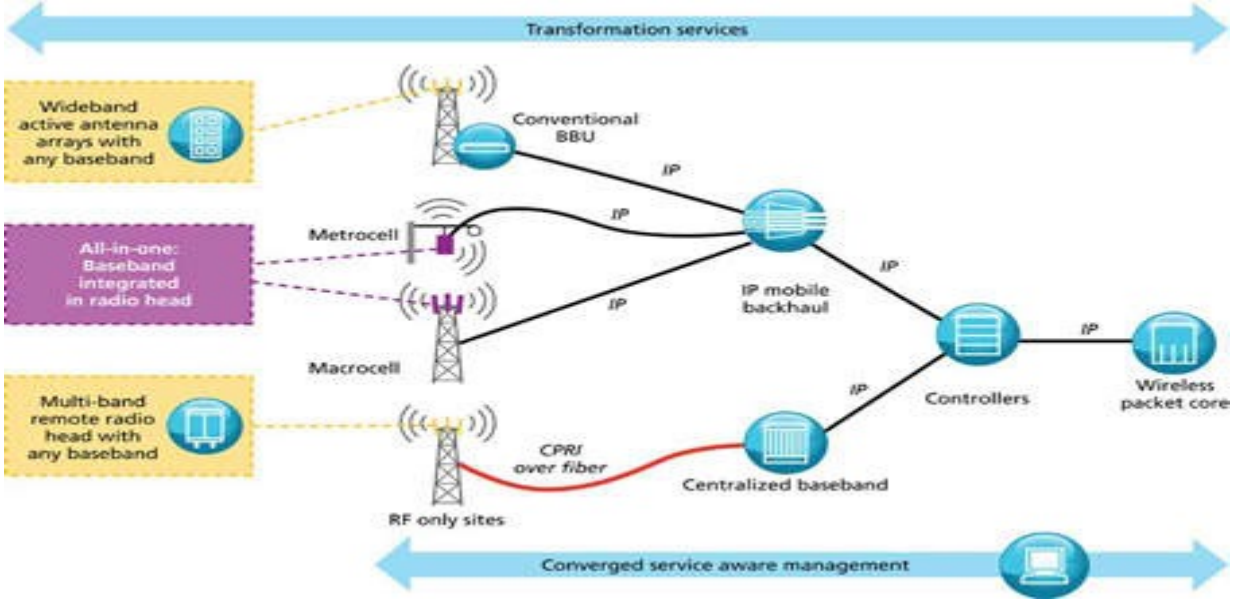
The market for a lightRadio type of miniaturized base station technology is projected to explode to $16 billion in the next five years, because some of the largest carriers in the world like China Mobile, Orange and Verizon have shown interest, and are testing the technology this year. Verizon will definitely need the savings after splurging on its gigantic LTE network bet. Verizon will start field tests shortly.
Alcatel-lucent demonstrated the lightradio 3G/LTE base station, which is cube. The transceiver covers 400 Mhz to 4GHz, and offers 100% increased bitrate to cell phones. LightRadio is a full cell-service transceiver, and is a peer to existing cellular service transmission technologies.

The small, cube-shaped device is designed to complement or replace the existing large high power masts that currently supply mobile signal. The small size, power efficiency and self-contained operation will allow subdivision of cells into much smaller, even building-sized footprints. This will be critical for continuing to increase subscriber bandwidth and responsiveness.



The one constant in the telecommunications market is change. From the transformations wrought by the rise of the Internet to the reinvention of voice communications brought about by mobility, in a very short space of time the ways we connect and exchange information have literally been revolutionized. Today — resulting from the convergence of those two prior paradigm shifts — we're in the midst of yet another dramatic (and exciting) period of evolution. The market drivers are threefold:
1. Video and multimedia applications that are causing residential bandwidth demand to spike
2. Smart-phones that have taken the Internet mobile
3. A trend among enterprises toward reliance on cloud-based applications

On its own, any one of these would be significant. All three together are transformative — changing end user expectations, redefining the competitive landscape and introducing bandwidth

demands that would have been unthinkable a mere ten years ago.

The integration of telecoms, IT, media and advertising is creating an increasingly interactive experience for consumers. Pervasive and affordable broadband has led to a boom in the consumption of video content — supported by advertising and available free to end users. The proliferation of Internet-capable devices is supporting a growing number of innovative multimedia and video applications.

Not only do consumers expect to access broadband content wherever and whenever they please, but they also want their experience of it to be seamless: no delays, no interruptions. Quality is non-negotiable.

Competitive pressures

For the past several years, service providers have been dealing with forces of radical change while facing off against a new breed of competitors — Application and Content Providers (ACPs) who carry none of the service providers' infrastructure-related costs yet profit from the use of their networks to offer affordable (and sometimes free), innovative and differentiated services. For many of these competitors, advertising is a primary source of revenue.

Meanwhile, service providers are struggling to deliver advanced services over single-purpose legacy networks, hampered by the complexity of overlays and preoccupied with manifold business challenges including declining revenues, low growth, poor market differentiation and reduced profitability. These challenges have resulted in an unsustainable business model in which revenues and costs are diverging.

The changing market provides the chance for forward-thinking service providers to evolve their businesses to take advantage of new opportunities that help address revenue and cost divergence. When asked about growing their businesses in light of the new realities of the telecommunications industry, they identified six key challenges:

1. Increase revenues from new and existing services
2. Introduce new services with speed and agility
3. Manage capacity through improved scalability
4. Reduce network costs
5. Support new business models
6. Improve network eco-sustainability

To address these challenges and respond to the growing divergence of costs and revenues across the residential, wireless and enterprise domains, service providers need to transform and optimize their networks.

Most service providers have recognized the wisdom of going all-IP — taking advantage of the convergence, scalability and cost-efficiencies it affords. Alcatel-Lucent has developed a unique vision called

the High Leverage Network™ (HLN). Based on an all-IP architecture, the HLN solves the dichotomy facing all service providers: reducing cost per bit for transporting rapidly growing traffic while leveraging the intelligence embedded in the network to optimize the creation and delivery of new services and generate new revenues that improve return on investment (ROI).
HLN is the end goal of an overarching, holistic transition that encompasses network evolution, universal access, application enablement and operational transformation. Based on a scalable architecture, HLN delivers the flexibility needed to tackle immediate challenges and sets the stage to take advantage of new opportunities.

High Leverage Network

Alcatel-Lucent's High Leverage Network is about more than just a converged, scalable, multi-access and all-IP network allowing dynamic service creation and delivery at the lowest cost per bit. It's about making broadband accessible to all, delivering service innovation, streamlining network operations and generating new revenues. Supported by four transformation areas, the HLN is a cornerstone to transforming the service provider's business to address the new realities of the telecommunications industry.

The four transformation areas of HLN

Network Evolution

The Alcatel-Lucent High Leverage Network™ architecture is an evolution of the current network that delivers faster service innovation and enhances ROI. By providing embedded intelligence and scalable, efficient and low-cost transport, the HLN architecture represents a fundamental shift from keeping value in the network to extracting value from the network by enabling innovative, revenuegenerating value-added services. At the same time, it increases efficiency and reduces network costs through convergence and scalability of bandwidth and services.

Universal Access

The HLN architecture can deliver any service to any end user uniformly and ubiquitously over any access technology, severing the traditional bond between service and access. Whether wireless or wireline, the HLN can leverage the latest innovations in broadband technology to reduce access costs and extend service reach to under-served areas. Wireline broadband access is supported by the latest DSL and fiber technologies (vectoring, bonding, phantom mode and 10G GPON) built onshared platforms, while wireless broadband access supports converged RAN using 2G, 3G and 4G LTE technologies and the latest lightRadio™ and small-cell technology.

Application Enablement

Through Alcatel-Lucent's Application Enablement vision, HLN facilitates the creation of a sustainable business that combines trusted network capabilities with the speed and innovation of the Web. Application Enablement allows service providers to expose network capabilities and customer knowledge in a managed and controlled way to third parties, helping establish new business models and generate revenue through

faster service innovation.

The Application Enablement vision

Application Enablement allows service providers to develop innovative business models and generate revenue either by allowing new services to be offered to end users or by charging third parties for the use of service provider network assets. It exposes network assets such as subscriber information or quality of experience (QoE) monitoring to ACPs in a managed and controlled way, allowing them to enhance their services in exchange for profit sharing. This integrates service providers directly into the value chain, delivering applications and content to end users. The Application Enablement framework also allows service providers to deliver their own differentiated services with agility and superior QoE, targeting end users according to context and profile, and providing intuitive, user-friendly services that are trusted and reliable.

Operational Transformation

The HLN architecture facilitates transformation at the operational level by reducing the complexity and cost of the network, IT and business operations, and giving service providers the agility to act on new opportunities quickly and efficiently. It eliminates parallel legacy networks and processes, and delivers more for less with a holistic, integrated and eco-sustainable network. Evolving to HLN also improves ROI by reducing time to market through embracing a consultative approach that takes into account individual, provider-specific requirements and existing environments.

The business benefits of HLN

Each of the four transformation areas of HLN can be associated with a set of business benefits, many of which have been quantified using case studies by the Alcatel-Lucent Bell Labs Business Modeling team.

Network Evolution

Maximizing network capacity and efficiency at 100G Legacy core networks often consist of IP and optical layer overlays with a mix of circuit and packet technologies. Given the independent evolution of the two technologies, legacy transport networks frequently don’t make the best use of available IP resources or optical bandwidth. With the rapid increase of both volume and variety of traffic carried by the core, this can lead to significant cost
inefficiencies. The HLN architecture uses built-in network intelligence at the edge to direct traffic to the most economical layer for transport through the core. Large volumes of traffic designated for a predetermined destination — such as a data center — can be off-loaded from the IP core network with the help of IP/optical cross-layer automation technologies. This approach will become increasingly beneficial as video becomes an ever-larger fraction of the backbone traffic.

Further bandwidth efficiencies can be gained through the use of advanced traffic aggregation and grooming technologies. The intelligence embedded within switching/routing platforms of an HLN architecture enables

the appropriate granularity of grooming to be applied based on the type and mix of transported traffic. These techniques can also provide economical ways to migrate from legacy technologies to IP-based packet technologies through smart aggregation of legacy TDM/ATM traffic with IP traffic.

As multimedia content and applications cause traffic and bandwidth to skyrocket, service providers are struggling to maintain the capacity and profitability of their networks while delivering the services and QoE end users expect. By supporting both optical transport and IP routing at 100G (i.e., 100 gigabytes per second), the HLN architecture allows service providers to increase their overall capacity by scaling their networks without performance degradation or incurring the cost of network re-engineering. Combining next-generation 100G optical coherent technology with the power of 100G IP and Ethernet, the HLN architecture delivers bandwidth with intelligence at 100G. It enables service providers to deploy residential, business and mobile services at 100G across the metro, edge and core, optimizing network efficiency and performance to profitably meet the demands of continued traffic growth while suppressing total cost of ownership.

A converged edge for residential, mobile and business services Historically, launching new services has meant adding network overlays specific to each service's requirements. These overlays are built using the best technologies and operational models available at the time, and each new service is engineered and operated as a separate entity, with its own management systems. Often, different services are operated by separate organizations within the service provider. This is clearly an unwieldy, expensive and ultimately unsustainable model. Significant costs arise from the enhancements and extensions that must be made to a number of back-office
systems for provisioning, monitoring and billing associated with these new services.
The HLN architecture removes the need for the separate service silos by providing a common platform and utilizing a set of shared protocols such as IP/MPLS and Carrier Ethernet to support the full range of potential end user services. This multi-service, all-IP platform is flexible, scalable and easy to maintain — dramatically increasing capacity and simplifying provisioning and monitoring through common management interfaces. This approach can also allow service providers to reduce the number of vertical organizations they must maintain to deliver distinct services.

Case study: Delivering converged services at 100G

This business model based on a North American Tier-2 service provider's regional network compares OPEX and Total Cost of Ownership (TCO) over a five-year period for three separate service edge networks using separate edge devices to a converged IP edge using a fully converged edge platform. The findings show that the fully converged edge requires fewer nodes and has lower startup and ongoing OPEX and can realize 28% TCO savings (62% OPEX savings, 24% CAPEX savings) over five years. An

operationally converged edge with the same number of nodes has lower upfront and ongoing OPEX and can yield as much as a 35% OPEX savings.

Improving bandwidth efficiency with a content delivery model

Internet content — particularly video — is often delivered via third-party content delivery networks (CDNs) that provide caching mechanisms to improve performance. These add to the expense of broadband service provision, but are essential to customer satisfaction and sometimes help differentiate between various content providers. However, the fact that they are situated outside the service provider's network limits the possibilities for capacity and performance improvements.

In an HLN environment, caching can be integrated directly into the routing platforms at optimal points and be applied selectively to traffic streams for which download performance is an issue. This creates an ideal balance between end user proximity and the cost of content caching. Furthermore, caching services can be extended to streamed content and multimedia entertainment, improving customer satisfaction and permitting new, high-quality video services such as high definition TV (HDTV) to be sold as premium options. The 'integrated CDN' enables the delivery of new services that generate additional subscription fees and prevent subscribers from switching to competing providers.

As video traffic continues to grow, CDN capabilities will become increasingly valuable as a way to manage network capacity and enhance scalability. CDN services could also be sold by service providers to third-party content providers looking to differentiate their offerings, retain customer loyalty and protect their brands. A network-based CDN service is attractive to enterprises to improve download/streaming performance for applications such as telepresence.

Case study: Improving bandwidth efficiency and delivering high quality Internet video

A case study to investigate the economic benefit of a Metro CDN to deliver high-quality Internet video to broadband subscribers yielded an NPV of $2.5M and a DPP of less than a year. The retail subscription case exhibits comfortable profit margins and the wholesale case improves overall ROI—even at challenging market price points. The TCO for the network is less than three cents per Gb on a non-amortized basis. The results show that a typical service provider can realize a payback period of less than one year, add approximately 10% to flat-rate broadband subscriptions and avoid expensive IP infrastructure upgrades. Bandwidth savings are higher in the initial year, illustrating a significant reduction in bandwidth need with incremental savings in following years. The model also shows additional bandwidth savings from reduced peering/transit costs.

Universal Access

Future-proofing the network with Converged RAN

Rapid technological evolution — particularly in access networks — can lead to frequent replacement of hardware assets before they've undergone much depreciation. This is not only disruptive to operations, but increases the CAPEX associated with new technology deployment, lowering ROI and increasing the payback period. The converged RAN and converged wireline access domains

of an HLN architecture make extensive use of backward compatibility and future-proofing to create savings on both CAPEX and OPEX.

With the advent of software-defined radio (SDR) technology and continuing use of multi-standard cabinets, mobile technology upgrades can be carried out with minimal or no hardware replacement. This strategy is an integral part of the converged RAN domain where 2G, 3G and 4G technologies must coexist even as their relative proportions change with time. A similar strategy is also used in the converged wireline access domain, where the broadband access platforms are quickly evolving toward higher bandwidth technologies.

Case study: Evolving to LTE with a converged RAN

For a Tier 1 European wireless service provider in a region with 450 cell sites, access cost decreased from 0.07 Euro per megabyte to less than 0.03 Euro per megabyte, resulting from the implementation of a converged RAN that makes use of SDR technology.

Growing wireless capacity with Small Cells

Mobile data traffic is increasing ten times faster than service providers' revenues. With the proliferation of smart phones and other mobile internet-connected devices and the move to 4G/LTE, this trend is projected to continue. Residential small cells let service providers add capacity and improve coverage while improving the QoE inside the home. A third party survey reports that 84% of people who use Wi-Fi find small cells appealing, and 72% of interested respondents are willing to pay for advanced services3.

Small cells also enable new innovative services4 that end users are willing to pay for. These services are offered more cost economically when compared to macro cells because small cells are not encumbered by large capital investment, strict legal restrictions or costly maintenance. This allows a total cost advantage of between 65 to 90 percent5.

Case study: DEPLOYING Residential Small CellS

Bell Labs Business Modeling found that mobile operators can effectively implement a highly profitable small cells network targeted at the residential market. The modeled scenario shows a five year business case that indicates a discounted payback period of 32 months and a positive NPV of 28 million Euros. The results also demonstrate that the first mover into the home cell market can achieve large gains in market share.

Stretching the Mobile Network with lightRadio

The Radio Access Network (RAN), as currently designed, cannot deal with the explosive mobile data consumption and connectivity. A radical new approach is needed. Mobile networks need to

become more dynamic, distributed and elastic to deliver new services better and faster to address the ever changing requirements of end users. Alcatel-Lucent is the first in the industry to announce a new product portfolio called “lightRadio” that addresses this challenge using the latest innovations from Bell Labs. lightRadio is a new product family designed to help mobile service providers contain their TCO and dramatically improve network capacity. It delivers 2G, 3G and LTE technologies with a defined path to LTE Advanced, and it works with multiple scale points, from large macrocells to small metros, across all deployment morphologies from rural to dense urban. lightRadio includes the five radio access elements — antennas, radios, baseband, controllers and management, with an architecture that distributes intelligence appropriately across them.

lightRadio allows the baseband to be combined with the radio head to create a zero footprint solution. This not only eliminates civil works and site rental costs, but also reduces power consumption by eliminating heating and cooling costs of the enclosure. As well, on-site work to provision, commission, install, repair, augment and upgrade a cell site are all decreased by the use of wideband antennas/ radios and centralized or remotely programmable baseband hardware. These factors can add up to a substantial savings in TCO.

Case Study: reducing TCO with lightRadio

An extensive study conducted by Bell Labs Business Modeling shows both the CAPEX and OPEX impact of deploying the new lightRadio architecture compared to a traditional state-of-the-art converged RAN solution for a Radio Access Network that serves 20 million subscribers in an urban area—and which is evolved to meet wireless data traffic growing 30-fold over the next five years—lightRadio delivers TCO reductions of 51% over the five year period, compared with the 2G- and 3G-only based scenario.
Leveraging copper assets while evolving to fiber

Streaming video applications, either delivered by a managed IPTV service or, increasingly, delivered over the Internet are the largest consumers of fixed access bandwidth. While the long term solution is to implement a next generation fiber access network, an immediate need for incumbent operators is to increase bandwidth and generate revenues to meet today’s demands while financing the longer term evolution of their access networks.

Two-thirds of the world’s broadband subscribers are connected through digital subscriber lines (DSL). For many operators, leveraging their copper plant can be a fast and cost-effective way to deliver high speed broadband services in the short and medium term. Alcatel-Lucent’s High Leverage Network architecture allows operators to maximize revenue from their copper assets while evolving the access network from copper to fiber. HLN uses a converged all-IP access platform that supports the latest DSL and fiber technologies to deliver high speed broadband with less power and more efficiency, helping to reduce carbon footprint. The platform delivers scalable access bandwidth with embedded intelligence to enable new broadband services. Innovations such as VDSL2 bonding,

VDSL2 vectoring and DSL phantom mode help increase bit rates and extract more value from copper, while planning the evolution to next-generation fiber.

Case study: Maximizing copper investments

Bell Labs developed a business model for an incumbent operator to compare the TCO of delivering an average of 50 Mbps per household using different technologies. The operator has neighborhoods with existing copper only and an average density of 1,500 homes per square kilometer. The business model assumes existing access platforms are replaced with next generation converged access platforms supporting both fiber and copper technologies. The model shows that the TCO per home connected at a take rate of 60% is approximately Euro 870 for a fiber-to-the-neighborhood model versus approximately Euro 1,150 for a fiber-to-the-curb (FTTC) model and Euro 1,350 for a fiber-to-the-home (FTTH) model. The solution achieves in excess of 50 Mbps over existing copper by using VDSL2 with bonding, vectoring and phantom mode technologies.

Application Enablement

Changing the Internet business model by providing managed online services

Today's fixed and mobile broadband services are speed-centric, with fees based on the subscription tier or amount of data consumed. This fails to take into account the different value that consumers place on Internet services — such as VoIP or video conferencing versus basic Internet browsing — or consider the differing quality expectations associated with them (e.g., interactive gaming requires lower latency than email or streaming).

The speed-centric approach results in lost revenue opportunities and potentially higher churn rates, as unhappy customers may shift to a competitor providing better service.

With the HLN architecture, service providers can leverage intelligence embedded in their networks to instead deliver subscriber-centric Internet services. Awareness of subscribers, services and applications can be extracted to provide differential quality of service (QoS) treatment to highervalue traffic streams, and the ability to guarantee higher quality of experience (QoE) for certain applications — and meter them separately for billing — creates opportunities for tiered pricing. Differentiated metering makes it possible for service providers to offer limited-time promotional campaigns, loyalty programs, free zones and customized application bundles based on subscriber profiles, all leading to higher revenue potential. It also allows service providers to partner with over-the-top players in revenue-sharing business models by exposing network capabilities to enhance their applications and content.

Case study: Generating new revenues with QoS managed services

By adapting an existing triple-play network to allow consumers to subscribe to QoS-managed Internet video, gaming and VoIP services, a service provider with 13 million broadband households could generate

additional revenues of over $260 million (based on take rates of approximately 30% by the fifth year of operation, with breakeven occurring during the second year).

Enhancing VPN services with application assurance

In the enterprise market, layer 2 and layer 3 VPNs represent a growing proportion of service provider revenues. The current focus for most of these services is on the fees associated with bandwidth provision and multi-site interconnection. There is limited service-level reporting, and typically no indication of how business-critical applications are performing. Many enterprises have to acquire detailed application-level reporting and control through premises-based equipment provided by third-party networking companies. If service providers offer built-in reporting and metrics — possible in an HLN environment, at a lower cost than current premises-based solutions — they can strengthen their role as trusted partners to enterprises, providing a complete set of application management and assurance services.

The embedded intelligence available in the HLN architecture extracts the application-level information necessary for this. Deep Packet Inspection (DPI) with QoS-based policy enforcement can be used to ensure a higher quality of experience for real-time applications, similar to the services provided to broadband consumers. As the range of applications offered over enterprise VPNs grows, greater value can be created by providing monitoring and assurance with more granularity — increasing reliability and availability and reducing troubleshooting time. Application-assured business VPNs can also create customer stickiness in addition to added revenue.

Case study: Adding revenues with application-assured VPN services

This study examined the potential revenue generated by offering application-assured business VPN services with reporting and control to enterprise customers that had already bought a hosted VPN service from a Tier 2 Western European service provider. Using a Bass penetration model, saturating at 50% over an 8-year period, the study predicted a Net Present Value of $13 million generated with a Discounted Payback Period of 1.34 years.

Improving home entertainment with targeted advertising and multi-screen services

The current home entertainment business model is based on selling TV channels for a fixed monthly subscription, with added value coming from premium packages, pay TV and video on demand (VoD). Supported by advertising revenues at a national level, the same basic content is broadcast to all subscribers, which drives the home entertainment business toward a commodity model as competition between cable, satellite and IPTV continues to grow.

In an HLN architecture, inherent intelligent multicasting capabilities allow traffic streams to be identified with groups of subscribers within a region — or even individual subscribers in a household. The streams can then be customized based on stored subscriber intelligence and policies.

Access to subscriber profile and browsing information can be gained via an opt-in service or user information can be aggregated to protect privacy.

Based on customized content that is largely paid for by the higher value generated from targeted and personalized advertisement, this new approach expands the range of interactive transactions available to subscribers, opening up new business models and third party revenue sources. E-commerce and personalized loyalty programs can create new value for the end user, reducing churn and attracting new subscribers.

As an added benefit, converged networks enable a consistent and seamless experience for users who want to take their entertainment programming from one device to another across fixed and mobile networks. These multi-screen services require content adaptation based on device information contained in the end user's profile, and can greatly improve QoE while attracting new customers and generating new revenues.

Case study: Delivering multi-screen services to increase revenues and subscriber base

This business model shows the benefits to a medium-size European IPTV operator of adding multi-screen services to its current service offering. Initial subscribers are the operator's own smart phone-equipped residential and pure mobile subscribers. However, the multi-screen offering attracts competitors' mobile subscribers over the five year period. Monthly fees for the service decrease over time to reflect market pressures. The results show positive cash flow generated in less than 2.5 years from a growing subscriber base. New revenues are also generated from new sources such as mobile advertising and interactive services based on subscriber profiling. The business case shows an IRR of 93% with an NPV of more than $16M over five years. OPEX is less than half of revenues from the second year.

Exposing intelligence to ACPs

By using a secure exposure framework and a set of well-defined APIs within the HLN architecture, service providers can provide Application and Content Providers with access to selected network capabilities. As these capabilities lend themselves well to an agile and innovative web development model, ACPs will have an enhanced ability to create an unlimited number of new and innovative applications — while improving the performance of their existing applications and content with enhanced end user QoE. In return, the ACPs share a portion of their revenue with service providers. As advertisers are willing to pay more to deliver messaging on websites that attract high numbers of end users and superior QoE, revenue will rise across the board.
Setting up a third-party ecosystem for offering services under new business models represents a major business transformation, and requires tapping into relevant expertise to ensure a successful transition. The integration steps required for the transformation must be prioritized according to

business criteria while developing a transformation plan that includes relevant financial guidance, a set of risk-free transformation program steps and key business indicators mapped against industry benchmarks. Based on each service provider's starting point, business transformation expertise helps providers achieve a more services and customer-focused business model, resulting in faster time-tomarket, increased revenue and greater customer loyalty. Specialized expertise is also required for lifecycle management of the exposed APIs, including industrialization of the application on-boarding process.

Any business transformation framework based on the HLN architecture must include a set of migration tools and transformation practices that can help carry out the steps required for this evolution, helping service providers realize a profitable and highly adaptive business model through the use of customer-focused strategic planning, service mapping, cost modeling and a technical assessment process.

Case study: Evaluating the potential revenue from application enablers

A Bell Labs model was developed for a Tier 2 APAC service provider to evaluate revenue potential from new applications that leverage subscriber information and network intelligence. The applications included location based services, real-time media, multi-media messaging and mobile gaming. The model used information from the service provider's existing subscriber database, and the projected revenue split was between downloadable retail applications and recurring monthly revenues. Using projected application pricing and ARPU levels from industry analyst studies, the study showed additional revenues of $64 million over five years, in which revenue from retail applications accounted for 40% of the total.

Operational Transformation

Achieving faster times to market for new services while reducing risk

Many service providers' current network management and service delivery systems are built in service-specific silos and lack the flexibility and granularity required for the rapid deployment of new services. Introducing new services in such environments requires changes to operational systems for provisioning, monitoring and charging. This makes up a large part of the operational expenses borne by service providers, and tends to be time-consuming. When transformation projects are added to the mix, integration-related activities add to the total cost and extend time to market.

As service providers evolve toward an HLN architecture and service silos are collapsed onto common platforms, it becomes easier to implement unified network management and service delivery systems. The integration of systems across network domains accelerates time to market for new services — and provides better end-to-end network and service visibility, because multiple services can be monitored in a consistent, coordinated way by a minimum of staff. This streamlining also reduces operating costs. With increasing adherence to industry standards, network management and service delivery systems will eventually work across multiple vendors' technologies.

The HLN vision is also about leveraging business and operations transformation expertise to reduce risk and achieve sustainable business growth. Streamlining the assurance, fulfillment and billing aspects of service deployment is critical to successful, rapid new-service introduction and requires the use of best-available industry practices for operations integration and automation. Improvement in operations can reduce TCO and improve QoE for end users; further efficiencies can be gained through the implementation of self-provisioning and self-care capabilities facilitated by APIs exposed on top of the OSS and IT assets.

Evolving to an HLN enables transformation at the operational level, often covering the entire spectrum of operations and business support while managing the risks and complexities of transformation, migration and integration projects. Alcatel-Lucent provides service operations consulting, migration services and system integration capabilities. Our OSS/BSS and application services solutions include a portfolio of enablers, applications and products from leading strategic partners. With over 50 successful operational transformations performed globally, Alcatel-Lucent simplifies OSS/BSS transformation and integration with proven results — 15-30% reduction in OPEX, 65% faster time to market, and 80% savings in provisioning costs.

Taking on the challenge

As the telecommunications industry evolves, service providers are transforming their businesses to address the six key challenges: increasing revenues, rolling out new services, enhancing capacity, reducing network costs, supporting new business models and improving eco-sustainability. Alcatel-Lucent's High Leverage Network solution marks a critical step towards realizing the potential of the future market. Through its four transformation areas of Network Evolution, Universal Access, Application Enablement and Operational Transformation, the HLN allows dynamic service creation and delivery at the lowest cost per bit, and creates a new business ecosystem that makes service providers an essential part of the value chain. By increasing revenue, managing capacity and reducing costs, a High Leverage Network enables the holistic transformation necessary to leverage change into advantage.

Your trusted partner in transformation To maximize the chances of success and to optimize the results achieved from each transformation step, service providers need a partner with professional expertise in all aspects of transformation —and telecommunications.

With decades of experience in the industry, Alcatel-Lucent has the knowledge, talent and innovation necessary in the transition from legacy networks to next-generation HLN architecture. With access to the expertise and modeling tools of Bell Labs — holders of thousands of cutting edge patents — we provide a full range of services to cover all phases of the evolution to HLN, from development to planning, execution to full life-cycle management. Market leaders in access, optics and IP, IP transformation, multi-vendor network and OSS/BSS integration, business process management, IPTV, mobile video and managed services, Alcatel-Lucent is your trusted partner to help turn today's challenges into tomorrow's opportunities.

Bell Labs: Innovation and expertise

For more than 80 years, Bell Labs has been the leading source of cutting-edge technological innovation in telecommunications, developing over 33,000 patents. With unique, extensive business modeling capabilities, Bell Labs' case studies provide actionable, practical insight into the future of the industry.