

Application Enablement

Delivering a trusted Web experience to increase revenue

As people are drawn deeper into the Web and become immersed in its possibilities, end-user expectations and demand for bandwidth are soaring. For the businesses that deliver on the promise of the Web – primarily network providers and content and application providers – the resulting need for network investment has destabilized the business model.

This paper describes how the Alcatel-Lucent vision for application enablement combines the best capabilities of both players to create a new, larger market opportunity that delivers an enriched end-user experience and generates new revenue.

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Putting the end-user experience first

Evolution is inevitable. And the Web is no exception. For network providers and application and content providers, the result is an unstable business model where the value passed between the two players is minimal and neither has full access to the resources they need for long-term success.

Network providers are not getting commensurate compensation for their assets and support so are reluctant to fund the network expansion required for today's bandwidth-intensive applications. Application and content providers have restricted access to the network capabilities — location, presence, quality of service (QoS) and trusted security — they need to enhance the end-user experience.

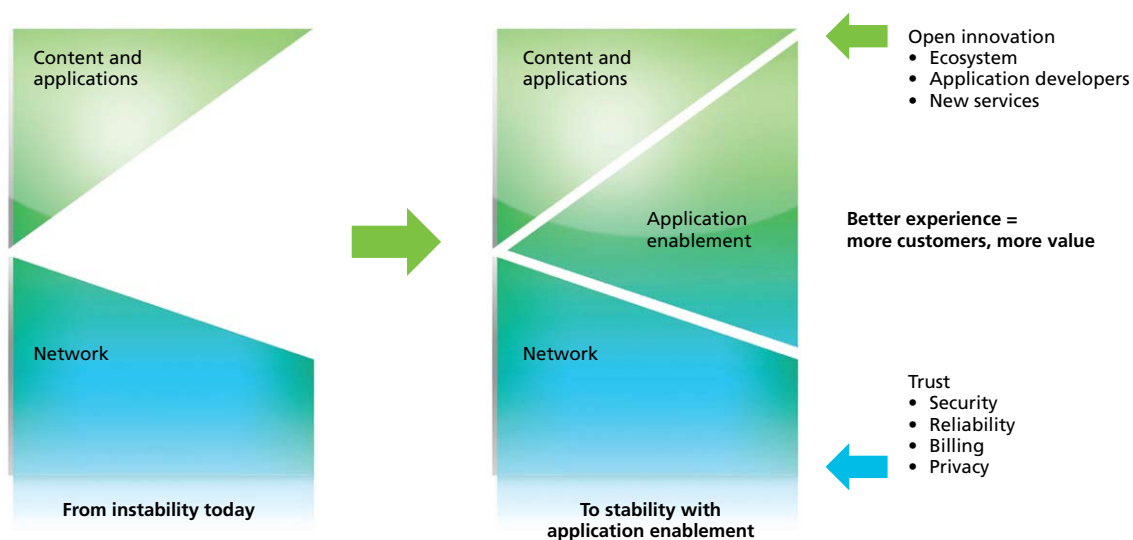
As demand for applications and bandwidth continues to grow, the situation only becomes more precarious. To increase revenue and remain relevant to their customers, network providers and application and content providers must accept that evolution is required.

Any strategy must be centered around compelling business models that improve the end-user experience. What services do end users want? How do they want them delivered? Which ones will they pay a premium to use? And which ones will be so appealing, they will be willing to share profile information? Those ready to deliver the best combination of experience and value for the money will be the first to benefit from new business.

This is where the Alcatel-Lucent strategic focus on application enablement fits into the picture. It creates a sustainable new environment that combines the best capabilities of the network and the Web world so all players can evolve to a more stable model that enables new revenue opportunities.

Application enablement will improve the Web experience for consumer and enterprise end users. And it will create new value that end users, advertisers and sponsors are willing to pay for. A new, larger market space and a more stable, viable industry model, where application, content and network providers combine their capabilities to deliver value and benefits for all participants will emerge. Most importantly, with application enablement, end users will enjoy a trusted and richer experience that is accessible anytime, anywhere, on any device (Figure 1).

Figure 1. Application enablement stabilizes the business model for all players



Before we look at the application enablement opportunity in more detail, let's take a closer look at the new demands that are driving the need.

New demands require new business models

Today, in the Web era referred to as “2.0”, billions of people are using the Web — at home, at work and on-the-go — to share massive amounts of content. They’re also using Web wikis, blogs and social networking sites to socialize, collaborate with colleagues and exchange ideas every day. And they’re using video like never before, for face-to-face communications, to be more productive at work, to share their lives and their creativity and for on-demand access to their favorite entertainment.

In 2011, the amount of digital information produced in the year should equal nearly 1,800 exabytes¹, or 10 times that produced in 2006.

— THE DIVERSE AND EXPLODING DIGITAL UNIVERSE, AN IDC WHITE PAPER SPONSORED BY EMC, MARCH 2008

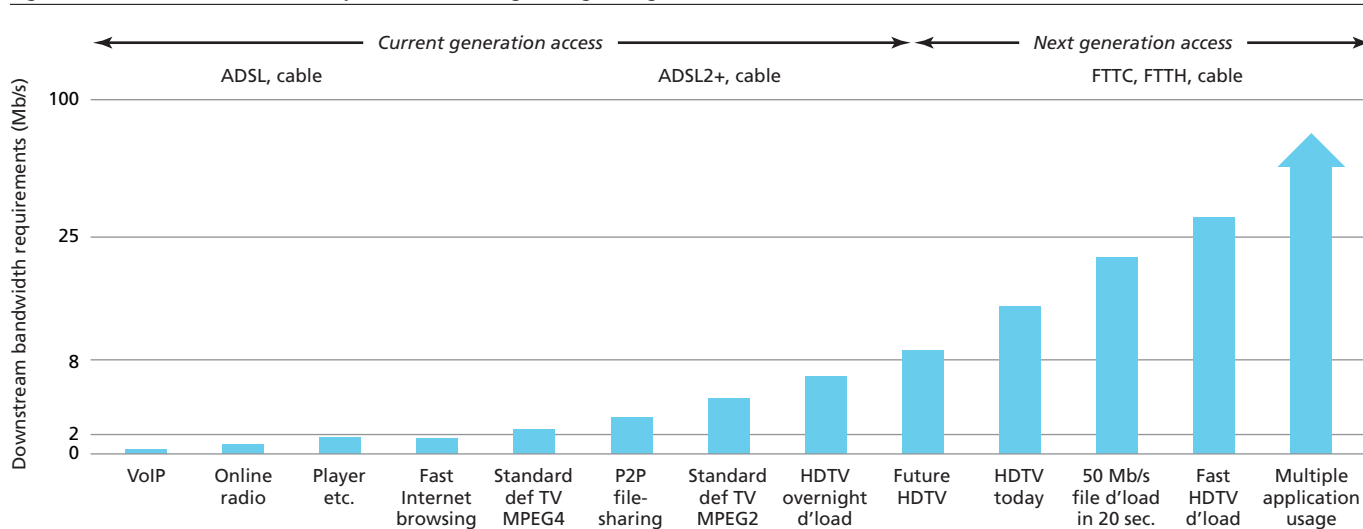
For end users, it’s the experience that counts. Alcatel-Lucent research confirms that, no matter what age or demographic, people simply want to find, connect with and interact with the people and the brands they care about. They don’t want to have to think about the technology that’s making their experience possible.

End users are also putting pressure on the enterprise to consumerize its IT so they can use the same Web 2.0 tools at work, at home and on the go. The business and IT management teams that deliver these services are challenged to transform the way the business communicates while delivering a return on investments (ROI).

The demand for bandwidth is skyrocketing

Along with increasing expectations, this thirst for a more connected end-user experience is translating into significantly increased demand for bandwidth — demand that is only expected to grow (Figure 2).

Figure 2. Tomorrow’s bandwidth requirements are large and growing



Source: Downstream Bandwidth from Ofcom

While Figure 2 represents expected growth for wireline operators, the bandwidth phenomenon affects wireless network providers as well.

¹ An exabyte is a billion gigabytes, while a gigabyte is a billion bytes.

Consider what happened when the Apple iPhone was introduced. Speaking at Deutsche Telekom's annual general meeting, Chief Executive Officer (CEO) Rene Obermann revealed that German iPhone customers use mobile Internet services thirty times more than other cell phone subscribers, and that one third of all T-Mobile iPhone customers have chosen the most expensive plan.²

No matter what network we're talking about, the pattern is the same. As services that use more bandwidth become available, end-user demand for that bandwidth increases.

To deliver the experience end users are demanding and manage exploding bandwidth requirements, network and application and content providers must become more interoperable and broaden the value they provide to each other. Until now, there has not been a business model that enables this mutually beneficial relationship.

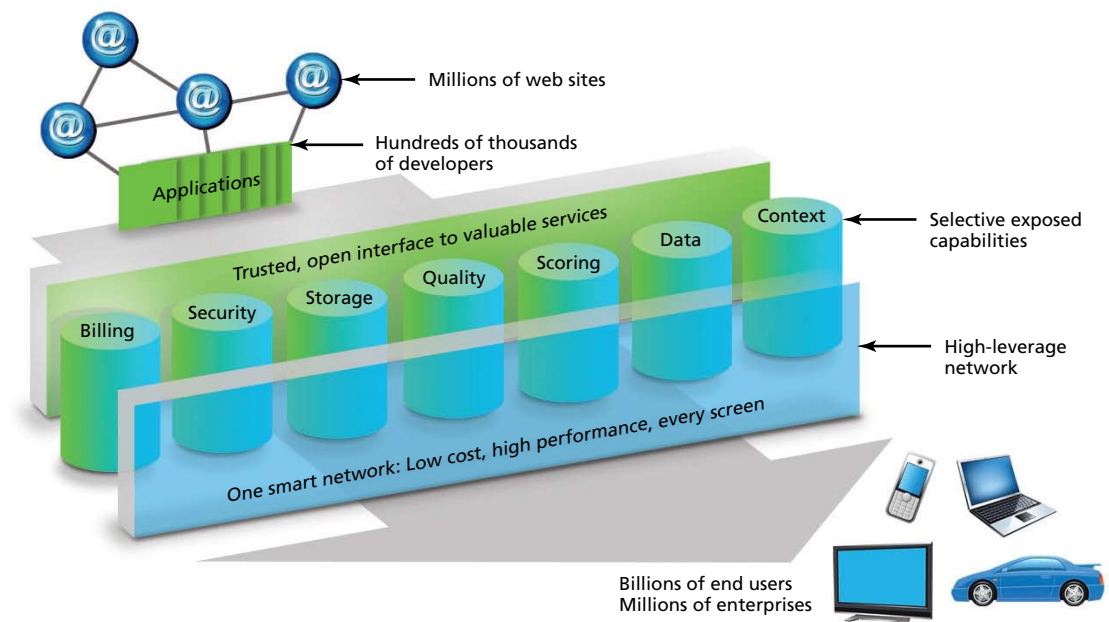
Increasing value with application enablement

The key to application enablement is that both network providers and content and application providers bring critical capabilities to the equation. And both realize benefits that help them address their pain points.

Let's start by looking at the elements of application enablement, as shown in Figure 3. The millions of websites available today provide the vast amount of content and large number of applications end users want to find, connect with and interact with. With the number of websites constantly increasing, open innovation and the power of hundreds of thousands of developers are needed to speed development of new end-user services and experiences. No single organization can provide this development power.

Network providers can expose selected capabilities in a managed and controlled way. When combined with applications, the resulting offerings create an enriched and trusted end-user experience. And last, but certainly not least, a low-cost, high-performance network infrastructure that enables fixed and mobile services that are transparent to the network provides the foundation for the application enablement opportunity.

Figure 3. Application enablement combines capabilities from the Web and networks



² iPhone boosts data 30x for T-Mobile Germany, Fierce Wireless Europe, <http://www.fiercewireless.com/europe/story/iphone-boosts-data-30x-for-t-mobile-germany/2008-05-22>

With these elements in mind, we consider the strengths each player brings to the table.

Network providers bring the quality, trust, reliability and availability needed to deliver an enriched quality of experience. They also bring the trusted capabilities they've used to establish long-term business relationships with end users. These capabilities can be selectively exposed to in-house or external developers in a managed and controlled way:

- Billing systems that enable multiple billing options
- Security for private transactions, such as in the financial, e-commerce and healthcare sectors
- Network-based storage of digital content for more flexible end-user access
- End-to-end bandwidth for high-quality transmissions when and where they are needed
- Scoring capabilities to identify end-user preferences and behaviors
- Subscriber data that can be used to customize the end-user experience according to their preferences
- Context information , such as location and presence, that can be used to personalize services

Application and content providers bring speed and creativity. With both in-house developers and an ecosystem of hundreds of thousands of application developers, they have the scale needed to quickly deliver innovative, experience-focused applications to end users. They excel at fast and open service innovation and are well-known for their ability to quickly roll out new services to consumers then, through consumers, to the enterprise. It's the right approach to deal with the explosion of information and services.

Benefits and opportunities for all players

With application enablement, network providers immediately gain two new sources of revenue to offset investment costs: Advertising and compensation for access to and use of their capabilities. Transforming to a single, high-leverage network centered around multi-service broadband access, service routing and IP-oriented optical routing will help them enjoy a better return on their investment. They will benefit from a network that is:

- Multi-service to reduce costs and enable fixed and mobile services that are transparent to the network
- Available when needed, at home, at work and on the go, across all devices
- Application- and service-aware, delivering the appropriate service level based on connectivity, device and preference
- Elastic, to scale users and bandwidth, both up and down, so that providing a high quality of experience for any particular user happens at zero marginal cost
- Open, to developers and to deliver any service

With application enablement, network providers can also strengthen their position in the value chain and increase their relevance with their customers.

Content and application providers gain more end-to-end bandwidth when and where they need it to deliver a higher quality experience for their customers and benefit from the new, mutually-acceptable business model. They also gain subscriber and context information that helps them create targeted advertising and services. And they can provide access to applications and services when and where end users want them so they don't have to be in front of their PC to benefit from them.

Enterprises can interconnect their network people, processes and knowledge for more dynamic communications. They can combine Web 2.0 social networking applications with application enablers to provide enriched and secure enterprise applications that help them make money and save money by providing faster, context-aware access to the collective knowledge of the organization. Referred to as “Enterprise 2.0”, this combination of Web 2.0 and enterprise applications can also be used to extend unified communications and provide automated, communications-enabled business processes (CEBPs) that improve productivity. With the ability to transparently provide services from the LAN or the WAN, the enterprise enjoys a more flexible and efficient investment model that reduces their overall costs.

Finally, and perhaps most importantly, application enablement gives end users exactly what they’re looking for — the ability to easily find, connect with and interact with the people and content they care about. They enjoy non-intrusive, personalized services that fit into their lives without adding complexity. Content is no longer tied to a device or a service. It is available anywhere in the format end users want and it is delivered responsibly without adding to greenhouse gases or their carbon footprint. With application enablement, end users can finally extend the trust they’ve built with network providers to content and application providers and the services they offer.

Monetizing application enablement

Application enablement only makes sense if there are concrete opportunities to monetize the services it enables to generate revenue. Alcatel-Lucent has completed extensive research to understand which services end users are willing to pay for. The research shows that application enablement provides a number of new sources of revenue (Figure 4).

Let’s look at the source of the new money.

To ensure ROI on their advertising spend, brands will invest more money to gain access to targeted audiences. Likewise, brands, sponsors and content owners are very sensitive to the quality of their brand. Alcatel-Lucent market research indicates they will pay more to ensure their brand is always presented in a quality way to their target audience. Content owners are also willing to pay more for assurance their digital content and customer information is safe, secure, and managed.

Non-traditional service providers – some in specific vertical markets – are often willing to pay for the productivity enhancements offered by application enablement. For example, an insurance company or healthcare organization, whose employees currently travel from home to home, might find a quality, secure e-health service within the home reduces their expenses, improves productivity and quality of care.

Whether end users are buying products from brands that are willing to pay the network provider to advertise or directly consuming a better experience, they will drive the application enablement opportunity. Alcatel-Lucent research shows end users are willing to pay for specific enhancements and service blends. For example, in 2008, study participants said they consider sharp video and instant access to content the two most important quality of service enhancements for online video. And a significant percentage indicated they are willing to pay for instant access to content (Figure 5). They are also willing to pay for security, privacy, continuity of service across devices and personalized services across any screen.

Figure 4. Application enablement provides new sources of revenue

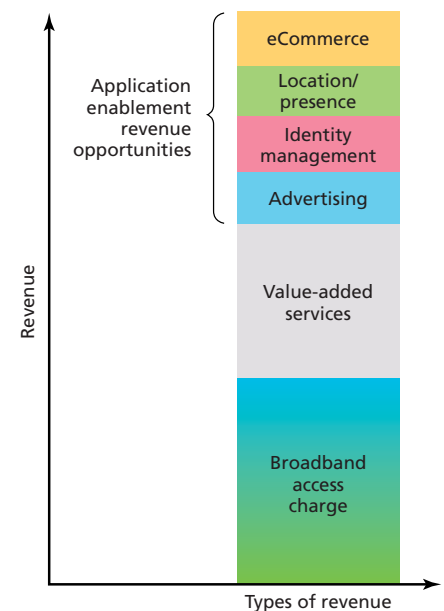
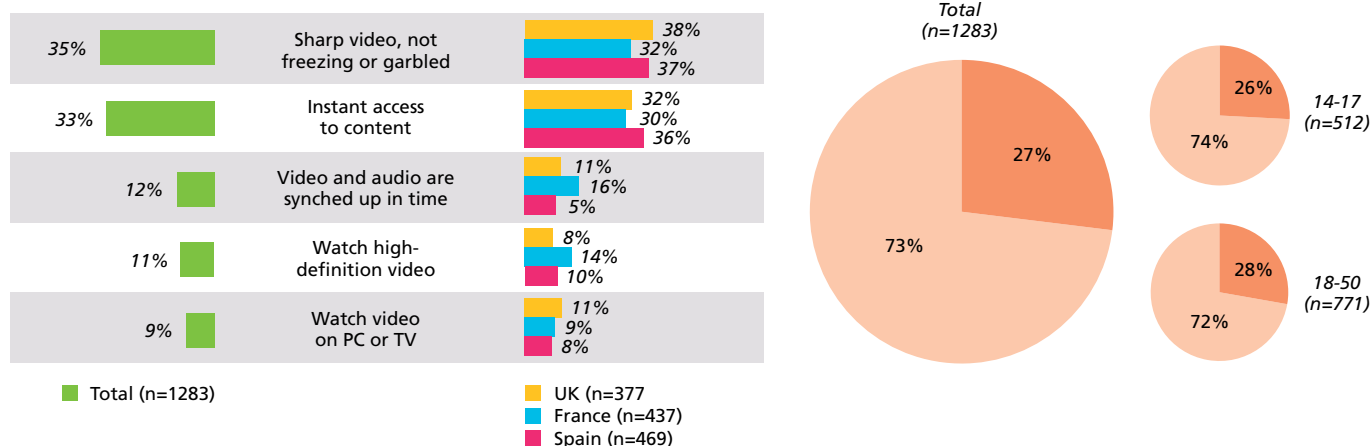


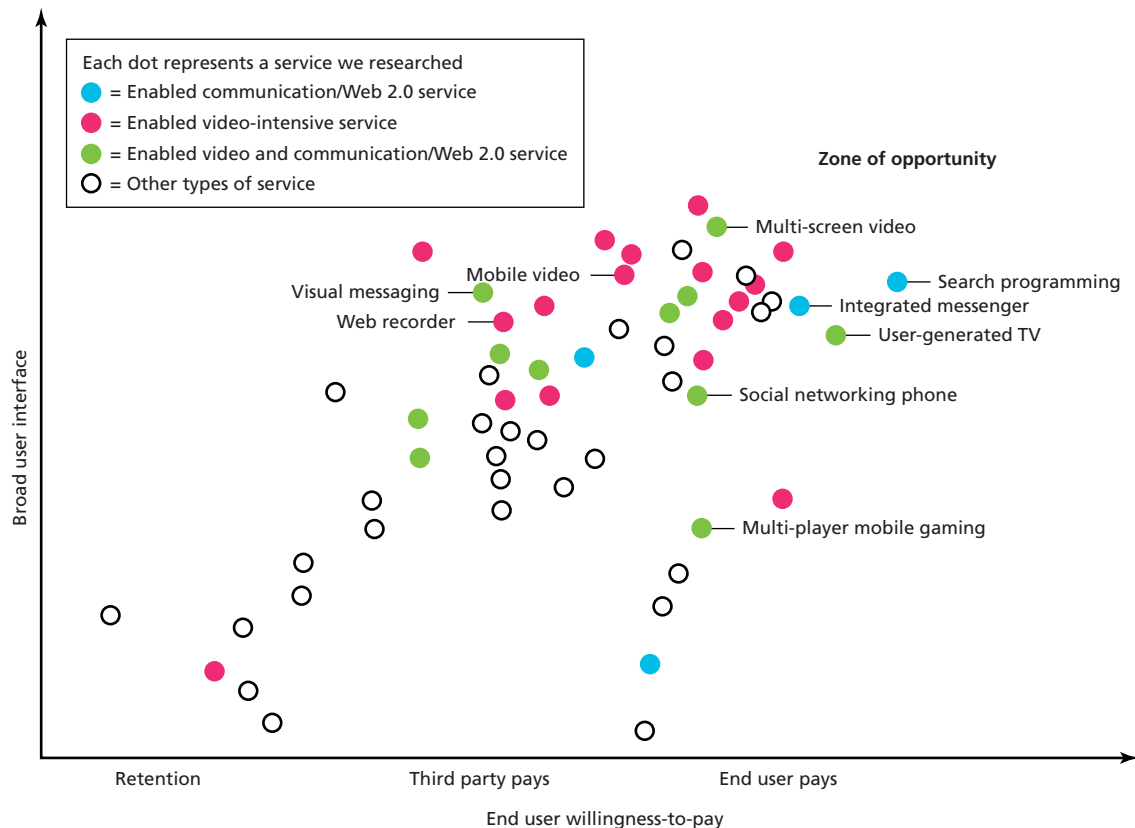
Figure 5. End users are willing to pay for specific quality of service enhancements



Source: Alcatel-Lucent end-user research, quality of service, 2008

To better understand end-user needs, potential demand and willingness to pay for services, Alcatel-Lucent also completed quantitative research in 15 developed countries. While the total size of the application enablement opportunity is not yet known, economic modeling by the Alcatel-Lucent Bell Labs Business Modeling team predicts the uptake of these types of services in the first five years of availability in those countries (Figure 6). The cumulative value of that opportunity is estimated at 100 billion United States dollars, split among the network, content and application providers, brands and other players that make up the service delivery value chain.

Figure 6. Application enablement is a five-year, 100 billion dollar opportunity in 15 countries



Source: Alcatel-Lucent analysis and interpretation of primary market research

Alcatel-Lucent delivers the foundational elements for application enablement

Today, Alcatel-Lucent provides customers around the globe with some of the foundational elements for application enablement, bringing them experience, expertise and technology leadership as the first steps to implementing this vision.

Alcatel-Lucent uses its experience as a network integrator as a starting point to discuss the best path to application enablement. To help network providers with the challenge of delivering high-bandwidth services while controlling costs, Alcatel-Lucent focuses on low-risk deployments and low-cost, eco-sustainable solutions. With Alcatel-Lucent as their network integrator, network providers gain a partner that:

- Understands the architecture, applications and support systems requirements
- Finds innovative ways to solve complex business challenges
- Insists on program and process excellence to reduce risk
- Migrates legacy voice and broadband access networks to IP-based infrastructures
- Supports multivendor platforms and multiple technologies in a seamless manner
- Manages, maintains and operates networks and services in a highly optimized environment to reduce risk, decrease time-to-market and enable creative business solutions that help customers grow

Alcatel-Lucent also brings its experience transforming networks around the globe to a scalable, all-IP Triple Play Service Delivery Architecture (TPSDA) that delivers a high quality of experience for voice, video, Internet, enterprise and mobile communications. Alcatel-Lucent uses this experience to help mobile operators implement next-generation wireless networks.

Alcatel-Lucent has also worked with several customers to reduce both time-to-market and operational expenses by transforming the way new services are brought to market. The Alcatel-Lucent Service Delivery Environment uses a service-oriented architecture (SOA)-based blueprint architecture to bring customers capabilities such as content management, third-party access and onboarding, targeted advertising, geographic messaging services and subscriber data management.

With one of the largest research and development and innovation teams in the world, Alcatel-Lucent supports network providers with:

- Technologies, such as zero-touch photonics and service-aware routing, that play a critical role in transforming to all-IP networks.
- Innovations, such as location-based services, Near Field Communication (NFC)-based services and mobile enhanced reality, that provide new opportunities for revenue.

BUILDING THE FOUNDATION FOR APPLICATION ENABLEMENT

The foundation upon which Alcatel-Lucent will build its application enablement strategy can already be seen in a number of successful customer engagements, including AT&T™, bharti Airtel™, Orange™ Uganda, Sky Telecom, Sprint™, Telefonica Moviles, Telstra™, Virgin Mobile™ and Verizon™.

Many of these engagements resulted from our experience as a network integrator working at the cross-section of the Web and IT world and the network. With experience in end-to-end networks, applications and OSS/BSS technologies, Alcatel-Lucent effectively bridges the gap between the network and IT – a prerequisite for application enablement.

Conclusion

Application enablement is a significant opportunity for network providers. With this approach, they can deliver an enriched and trusted end-user experience that broadens and stabilizes their relationship with content and application providers while increasing revenue. By investing in a high-leverage network and exposing key capabilities in a controlled way, network providers will be able to evolve their business models in line with end-user expectations. And they will be ready for the uptake of new services that is expected as the global economy returns to strength.

Alcatel-Lucent understands the application enablement opportunity and is committed to supporting network providers and industry and public sector organizations as they deliver the trusted experience that will move them up the value chain. We will do this by providing solutions that are customized to support today's needs and sustainable to anticipate tomorrow's potential:

- IP, optics, broadband access and application enablers to reinforce our areas of leadership
- LTE, enhanced packet core, W-CDMA and open application enablers to ensure we remain at the forefront of technology evolution

We will also provide the services and customer care that keep customers looking to us as communications experts and the network integrator of choice. This includes delivering the solutions of others through extensive multivendor support. And we will remain committed to commercializing innovation through Alcatel-Lucent Bell Labs and to actively engaging developers and partners. In short, we will evolve with our customers, their resolute partner as they move to the stable and sustainable business models that will increase revenue and enable their long-term success.

Abbreviations

BSS	Business Support System
CEO	Chief Executive Officer
IP	Internet Protocol
IT	Information Technology
LAN	local-area network
LTE	Long Term Evolution
NFC	Near Field Communication
OSS	Operations Support System
PC	personal computer
QoS	quality of service
ROI	return on investment
SLA	Service Level Agreement
SOA	service-oriented architecture
TPSDA	Triple Play Service Delivery Architecture
WAN	Wide-area network
W-CDMA	Wideband Code Division Multiple Access

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