

Alcatel-Lucent Wireless Broadband for All Solution



Innovative, End-to-End Solution to
Accelerate the Uptake of Mass Market
Broadband in High-Growth Markets





Alcatel-Lucent can help you accelerate deployment of broadband services to the mass market with cost-effective solutions that transform your services, networks and businesses — and achieve profitable business growth. This comprehensive solution includes: radio access in multiple technologies, flexible backhaul and backbone networks with the opportunity to leapfrog to IP and IT transformation, low-cost terminal bundles and a selection of innovative service offerings for new and advanced users. In addition, complete consulting, design and deployment services are available to assist you throughout the broadband adoption process, speeding your time to market.

Market analysts estimate that the addressable broadband wireless access market in emerging countries will reach \$10 billion in 2008.



Your Partner in High-Growth Economies

To meet the unique demands of high-growth markets, service providers need to go beyond traditional fixed and wireless concepts. That's why the Alcatel-Lucent Wireless Broadband for All solution combines economy with creativity. It can help you achieve significant cost savings, while you extend broadband offerings to new geographic regions and new users. It also facilitates innovative partnerships with CPE vendors, third parties and public stakeholders, enabling successful new business models such as hosted mobile services centers. In addition, the solution offers practical ways to transform your service offerings to satisfy a broad spectrum of customer needs, ranging from entry-level broadband users with limited incomes to sophisticated business subscribers who want the latest multimedia capabilities. Plus Alcatel-Lucent's long experience and deep presence in high-growth markets gives us the ability to solve difficult problems and help you go to market. Alcatel-Lucent has the necessary technologies, expertise and experience to bring all the elements of this solution together, working closely with you to provide affordable broadband communications for all.

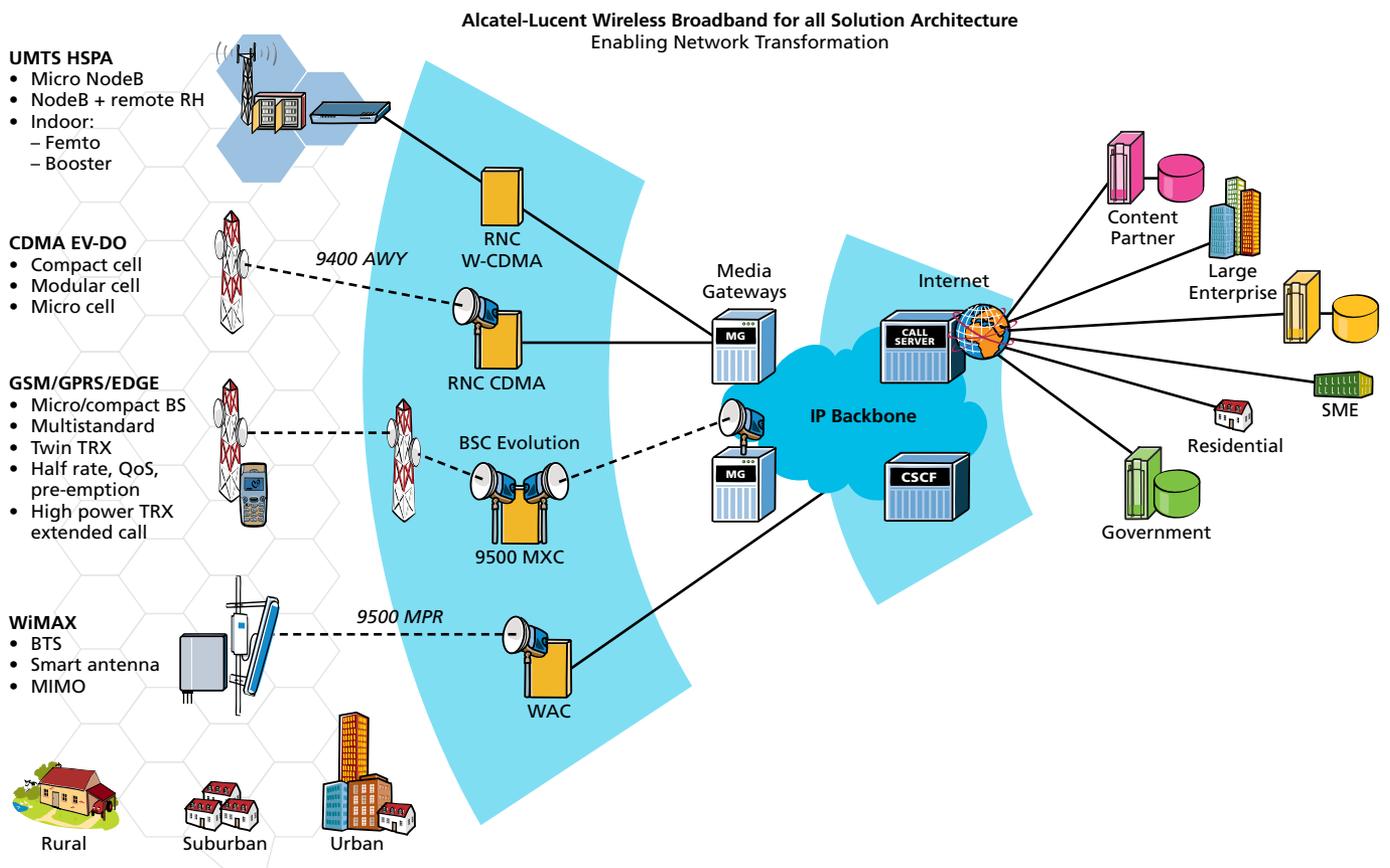


The Wireless Broadband for All solution includes:

- *Radio access* — CDMA2000 EV-DO, GPRS/EDGE, UMTS/HSPA and WiMAX technologies
- *Flexible microwave backhaul and backbone for data transmission*
- *Low-cost terminal bundles* — End-user devices include economical computers, modems, handsets and PC cards.
- *Affordable services* — Applications for both entry-level and more experienced Internet users, including VoIP, mobile kiosk, broadband community centers, e-business and e-education
- *Consulting, design and deployment services* — Offerings to assist you through the entire broadband adoption cycle, enabling faster time to market.

With this innovative, end-to-end approach, the Alcatel-Lucent solution can help you increase revenue opportunities, increase market share, expand margins — and achieve profitable growth.

Figure 1. Alcatel-Lucent Wireless Broadband for All Solution Architecture





The Key Challenges: Access and Affordability

Governments and policy makers recognize that broadband technology plays a powerful role in social and economic development. And market analysts estimate that the addressable broadband wireless access market in emerging countries will reach \$10 billion in 2008. But despite the clear need for broadband services, in many emerging markets there is often a shortage of fixed infrastructure, such as DSL or cable TV networks. And when networks are available, their quality is often inadequate — or the infrastructure may be designed exclusively for high-end users.

Wireless technologies allow service providers to extend the reach of their network rapidly and cost effectively and provide access to a larger subscriber base.

To accelerate broadband deployment to the mass market, the network must also operate at a low cost to ensure services are affordable to the end user and profitable for the service provider. The Alcatel-Lucent Wireless Broadband for All solution uses innovation to address the cost constraints in high-growth markets. Products are optimized to address issues around coverage, capacity, power consumption, civil site engineering, and quality of service. Solutions are focused on providing lowest cost per subscriber, lowest cost per site, lowest cost per km², and lowest cost per MB to cost effectively connect all populations in all areas: dense urban, suburban, rural and remote areas.

The Alcatel-Lucent Wireless Broadband for All Solution meets all of these key requirements.

Table 1. Wireless Broadband for All Infrastructure

INNOVATION IN WIRELESS ACCESS TO MEET DIFFERENT COST IMPERATIVES		
LOWER COST PER SUBSCRIBER	LOWER COST PER KM ²	LOWER COST PER SITE
<ul style="list-style-type: none"> • Cost effectiveness across all subscriber segments • Improved QoS 	<ul style="list-style-type: none"> • Higher Coverage • Fewer Sites • Network Optimization 	<ul style="list-style-type: none"> • Address all site cost contributors • Smaller footprint • Lowest Power Consumption • Site Engineering innovation
FLEXIBLE BACKHAULING TO ACCOMMODATE INCREASED TRAFFIC OVER THE NETWORK		
Lower cost per MB (optics, microwave, satellite, DSL) with evolution towards IP/Ethernet		
ENABLING THE FULL ECOSYSTEM		
Devices IOT, ITC applications integrator, Partnership with low-cost PC providers		



The Right Technology for Your Needs

Each of the major broadband wireless technologies has its own unique strengths and limitations, so the Alcatel-Lucent portfolio supports all broadband wireline and wireless technology standards. We are a market leader across all broadband access technologies giving us a premier position as the industry's neutral broadband access advisor. Sometimes a multi-access network strategy provides the best business model to deploy mass market broadband. Alcatel-Lucent is a market leader in field experience deploying multi-access networks.

We have the flexibility and expertise to help you develop a single cost-effective service delivery architecture to support diverse subscriber demands and to leapfrog your network to the most advanced technologies. As a market leader in IP and IT transformation, we can help you achieve significant cost savings, along with service agility and differentiation. Alcatel-Lucent's experience and deep presence in high-growth markets provides you with the local support necessary for a successful network transformation.

Figure 2: Alcatel-Lucent: Industry's Neutral Access Advisor

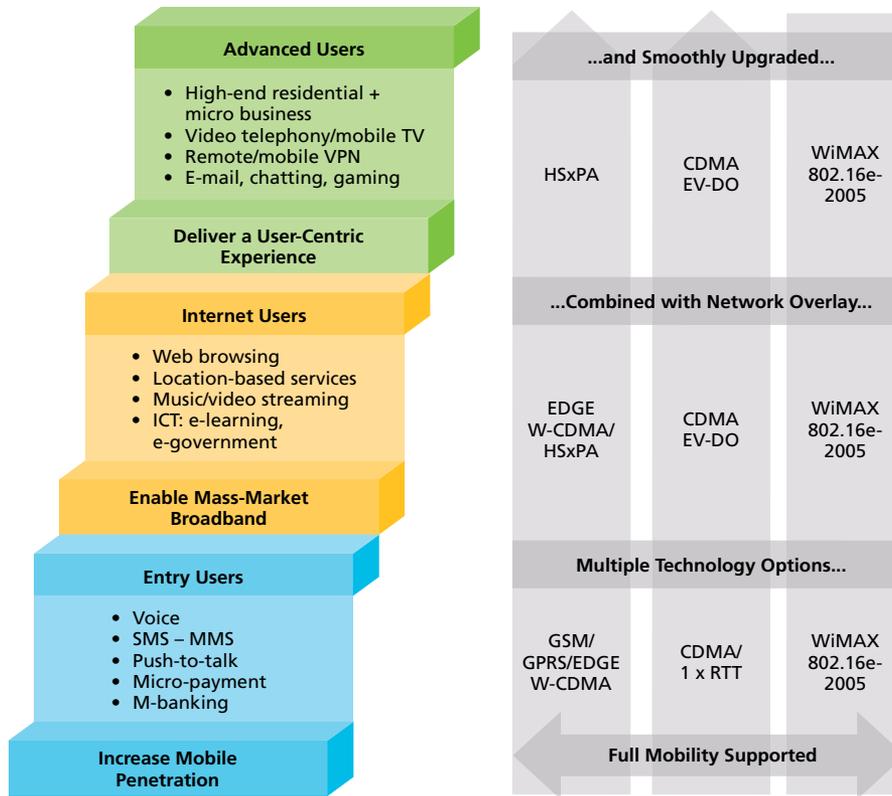
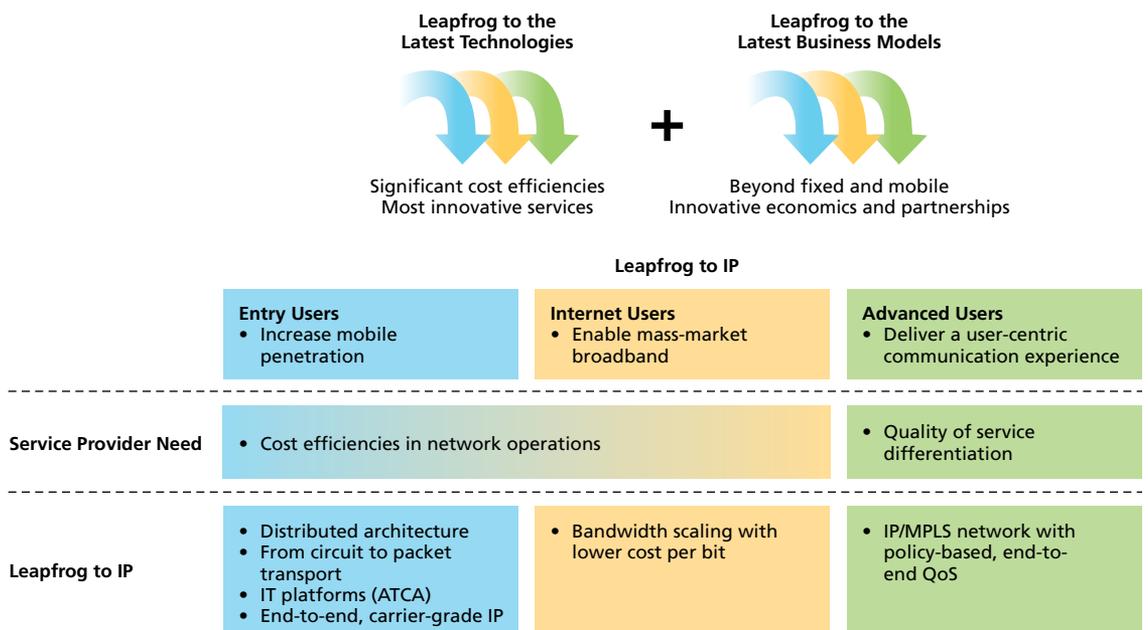


Figure 3: Leapfrog your Network to the Most Advanced Technologies



Innovative Partnerships and Business Models

Alcatel-Lucent is a founding partner in the International Telecommunication Union's *Connect the World* initiative, with a history of global leadership and partnering in high-growth markets. Our consulting, design and deployment services help you develop new partnerships with vendors, third parties and public stakeholders — enabling innovative business models.

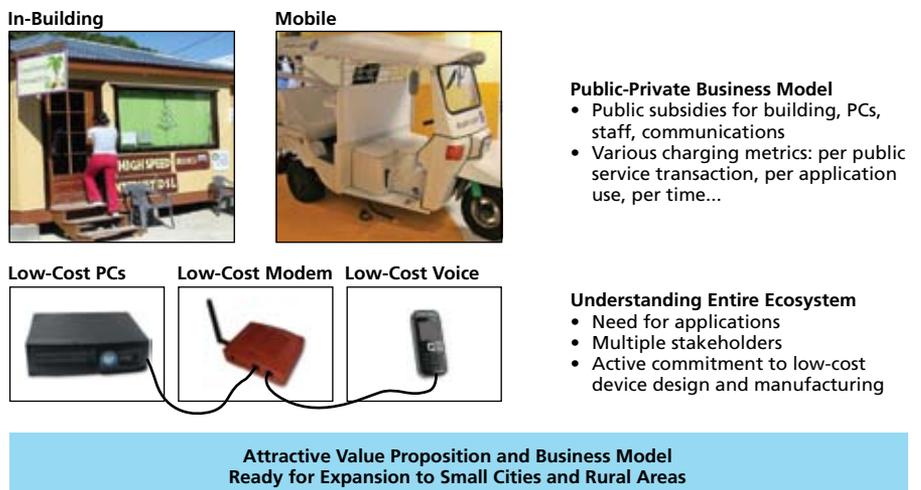
Throughout 2006 and 2007 Alcatel-Lucent conducted end-user research across Tier 2 and Tier 3 cities in high-growth markets to understand what current broadband and next-stage broadband users are looking for in services, pricing and quality of experience. Alcatel-Lucent derived business model recommendations from this consumer research. Our findings showed that users often have their first broadband experience in a group setting, and once they are familiar with the

workings and benefits of broadband, they opt for a personal broadband connection.

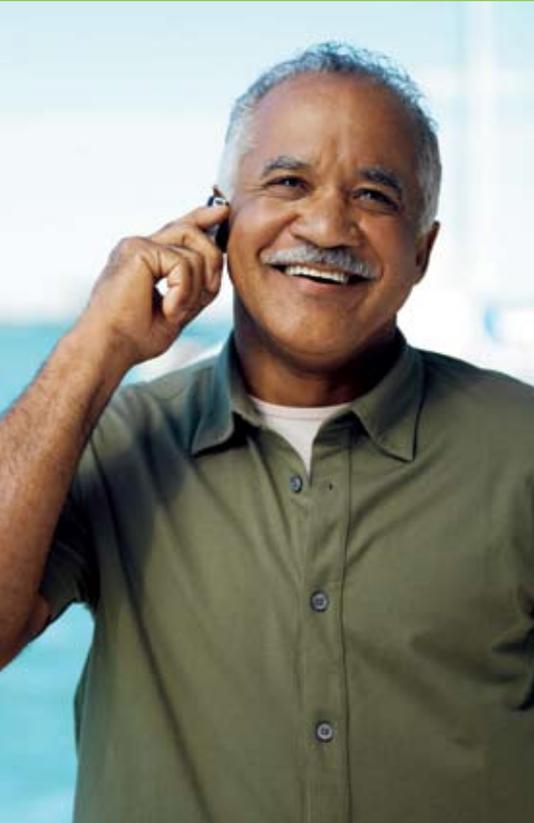
The broadband community center business model is a public-private business model that can generate revenue opportunities for service providers and entrepreneurs. These centers provide a wireless access point and shared terminals for group access to broadband — an important first step in broadband adoption for low-income and rural areas.

- *The in-building model:* Public subsidies fund a small office and Internet-literate staff, along with low-cost terminal bundles through manufacturing and business partnerships.
- *The mobile model:* A three-wheeled motorbike, bus, jeep or other device transports communal Internet connections to unserved areas.

Figure 4. Broadband Community Centers – an Innovative Business Model



Offer Compelling Services Targeted to Separate End-User Segments



Serving the needs of different end-user segments on one network is challenging when working to accelerate broadband deployment to the mass market. The Alcatel-Lucent solution can help you develop innovative, affordable services for all end-user segments without cannibalization.

Compelling, differentiated offerings must be tailored to the needs and habits of each market segment with quality of experience guaranteed at each level. For example, entry users need convenient and affordable payment methods such as prepaid services and m-banking, while existing residential users are looking for services such as VoIP, high-speed Internet and communications and enterprise users seek remote connectivity, corporate e-mail and multimedia services.

Alcatel-Lucent is a trusted communications partner with field-proven references at all service levels. We enable ICT applications such as e-government, e-health, e-education, and e-trade that the ITU has confirmed play a significant contribution to the economic and social development of a high-growth market. When applied to these services, the Wireless Broadband for All solution has the potential to change lives.

FEATURES	BENEFITS
Industry's widest breadth of market leading radio access technologies	Network tailored to the unique economic, geographic and consumer demands of each market
Innovative engineering solutions to lower network total cost of ownership	Address all cost metrics: lower cost per subscriber, lower cost per km ² , lower cost per site and lower cost per MB
IP transformation opportunities	Leapfrog to cutting-edge technologies for reduced costs, greater service agility and differentiation
QoS differentiation features	One network serves multiple types of end-user segments without cannibalization of the high-end subscriber base
Low cost terminal partnerships	Attractive business model to provide broadband to low-end users
Network services	Business consulting to speed time to market



“We are very proud to be the first to deploy a UMTS/HSPA network in West Africa that will enable us to bring compelling new user-centric broadband services to Nigeria for the first time, thanks to Alcatel-Lucent’s unmatched product portfolio.”

GLOBACOM CHAIRMAN, APRIL 2007

Broadband Solutions at Work

Globacom, Nigeria

The objective of this Nigerian operator is to build the biggest and best-quality network in Africa. In just 3 years, Globacom added 11 million GSM/GPRS subscribers, and in 2007, the company asked Alcatel-Lucent to build the first 3G UMTS/HSPA end-to-end broadband network in West Africa. This solution is at the core of an entire network evolution toward IP and fixed and mobile broadband, which will enable significant expansion in network capacity. The solution will also provide enhanced performance and support new advanced multimedia and converged services, such as video-on-demand and mobile data services.

Zapp, Romania

The leading broadband data mobile service provider in Romania, Zapp provides coverage for 95 percent of the population, with the highest ARPU in the country, and one of the lowest CAPEXs in the industry. The company’s broadband strategy is to focus on a niche market of corporate customers. It deployed a CDMA2000 EV-DO network in 2004, then added BREW technology in 2005 and acquired a 3G UMTS license in October 2006. It is the first prepaid wireless broadband service in the world.

OneMAX, Dominican Republic

Greenfield operator, OneMAX, is deploying WiMAX 802.16e-2005 to bring broadband Internet services to major cities in the Dominican Republic. It selected WiMAX for its service differentiation so as a new entrant, it can compete with entrenched fixed and mobile operators. It will be the first live mobile WiMAX network in the world. The Alcatel-Lucent solution includes radio access, advanced broadband over microwave backhaul, residential gateway and PCMCIA cards, and professional services.

“Alcatel-Lucent’s cost-effective solution enables us to better address both the mobile and the fixed markets using the latest technology to provide advanced mobile voice and data services.”

ONEMAX CEO, FEBRUARY 2007



The Alcatel-Lucent Advantage

With the Alcatel-Lucent Wireless Broadband for All solution, you get the partner you need for cost-effective transformation of your services, networks and businesses — allowing you to achieve profitable business cases that address high-growth markets.

Alcatel-Lucent offers the following key advantages:

- Widest breadth of market-leading wireline and wireless broadband access solutions resulting in technology-neutral network advice
- Innovation to reduce the total cost of network ownership while supporting rapid growth of data services, based on:
 - Implementation of NGN solutions
 - Optimized backhauling
 - Cheaper backhauling using IP
 - Access aggregation
- Unique end-to-end solutions, from cost-effective networks to consultation on business models and finance plans
- Active contribution to building the entire broadband ecosystem from devices to applications to partnerships with NGOs
- Global leadership and partnering in high-growth markets, including a presence in 130 countries — with over 18,000 service professionals and distributed R&D

www.alcatel-lucent.com

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