Lucent Technologies
Bell Labs Innovations

English Language Edition

LUX

[lux *latin :* light]

Lucent Technologies Customer Magazine

Blended Lifestyle Services





Patricia Russo

Chairman and CEO
Lucent Technologies

Dear Customers,

The telecommunications industry is going through a time of great transformation. Many of you have told us that increasing end-user demand for blended lifestyle services is driving your plans for next-generation networks. As a result, we're seeing increased interest in the convergence of services across wireless and wireline, as well as across voice, video and data.

Anticipating this evolution, Lucent has crafted its portfolio around a common IP Multimedia Subsystem (IMS)-based platform. Lucent's IMS architecture provides voice, video and data services across fixed, mobile or converged networks – giving carriers and enterprises the flexibility to customize their service architectures to the needs of their customers. And, our Lucent Worldwide Services team possesses a wealth of network integration capabilities – from simplifying implementation and speeding time to market, to reducing deployment and operations risks – that are necessary for the evolution of IMS networks.

In this issue of LUX, you will learn more about the benefits Lucent's blended lifestyle services can offer your customers and how Lucent's IMS architecture supports the cutting-edge applications that end users are demanding. Applications such as interactive gaming and IP-video will help friends and family stay connected in fun and personal ways. Applications such as Lucent's Active PhoneBook serve as a single point of contact for business travelers and provide them with the ability to securely access all of their messages (whether they be e-mail, voicemail, video mail, you name it) from a single location – vastly increasing their productivity and speed of response while on the road. And innovative automotive communications, like the all-in-one voice-recognition solution recently demonstrated by Lucent and one of our partners, bring the full benefit of blended lifestyle services to your car, so you can safely continue your communications experience even while driving to the mountains for the weekend. These solutions can clearly increase customer satisfaction, which in turn will translate into loyalty to your brand.

Additionally, as blended lifestyle services become more ubiquitous, they will enable a sharing of resources and an extended reach that will continue to drive further advances in such areas as education, healthcare and national security.

I hope you enjoy the issue, and we look forward to helping you deliver the next-generation networks and services your customers expect.

Sincerely,



Patricia Russo

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Global Application Trends

» Personalized and integrated communications services to bolster revenues

Service Providers Around the Globe Face Revenue Erosion

Service provider revenues around the globe are unsteady as a result of pricing erosion, regulatory shifts, maturation of key technologies, and emergence of new competitors. While household spending on telecommunications has declined in established markets such as the United States, spending for services related to media and entertainment, healthcare, professional and financial services, and education is steadily rising. Service providers of all types have taken notice and are maneuvering to capture revenues related to these industries.

Within developed markets in North America, Western Europe and Asia Pacific, many incumbent operators have focused on enriching the end-user experience as a way to increase revenue. Many of these incumbents are devising strategies that will also allow them to leverage existing infrastructures. For instance, a wireline carrier might exploit their broadband pipes to deliver multimedia services, while a carrier with fixed and wireless assets might offer a "Grand Slam" bundle of voice, data, entertainment, and mobility services. Carriers are also converging their networks in an effort to gain operational efficiencies as well as the ability to offer compelling converged services, e.g., fixed-mobile, data-voice. Some carriers are partnering with mobile virtual network operators or content providers to deliver new services and reach niche markets.

In emerging markets where the infrastructure is not as established, service providers are concentrating on basic voice services. At present, massive increases in low-margin voice services are bolstering revenues but dragging down the average margin per user (AMPU) in those regions. This is a stark contrast to the AMPU in mature markets where operators are offering bundles that include more lucrative data services.

Generating Mobile Data Revenues

Mobile data revenues are weakening in key early-adopter markets such as Japan and the Nordic region, while posting strong growth in North America. Even though data services exceeded 20% of mobile revenue in Asia Pacific for the first time in early 2005, it was more a result of a 16% slump in voice average revenue per user (ARPU) rather than strong data performance. The lackluster Asia Pacific numbers incorporate some notable extremes – from emerging markets in China where there are massive increases in low-margin voice subscriptions, to mature markets in South Korea and Japan.

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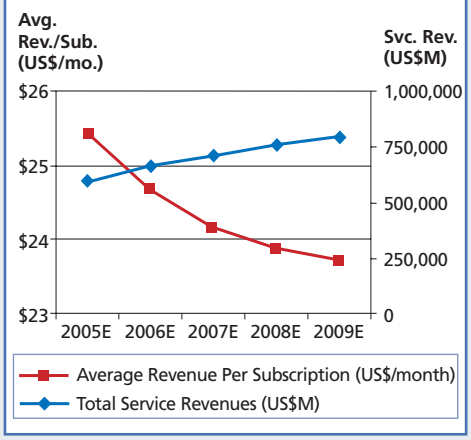
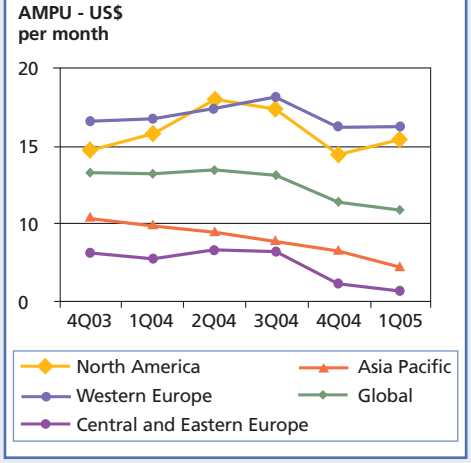
Global Mobile Revenue

Pyramid, "Global Mobile Forecasts: 1Q2005," March 2005



Margins Per User Unsteady Globally

Strategy Analytics, Wireless Operator Performance Benchmarking, June 2005





Dr. Thomas Leutschacher, Lucent Technologies (right) demonstrating the Active PhoneBook application to Dr. Volker Nussbaumer, Executive Vice President Product Management Value Added Services at Deutsche Telekom AG. The Active PhoneBook is one of several Blended Lifestyle Services shown in the VIPcentre Nuremberg, Germany.

In Asia Pacific's mature markets, competition has resulted in flat monthly rates – which depress ARPU – for unlimited bundles of mobile packet-communications, e.g., e-mail, chat, movie clips. Early adopters in Asia Pacific have also embraced mobile music downloads and mobile transactions.

Western Europe trails the Asia-Pacific region in adoption of innovative data services, but it is ahead of North America. In Western Europe, 10 million full-length music videos were downloaded after a service provider launched an offer devised by an alliance with a record company. Western Europeans are now using their mobile phones to watch movie trailers and mobile TV programming such as news, cartoons, and sports.

Like Asia Pacific, data revenues in Western Europe, especially early adopter markets, are showing signs of weakness.

Navigating Changing Markets Successfully

Today, operators seeking a sustainable advantage must do significantly more than adding new services to simple bundles to offset declining revenues. Indeed, in mature markets replete with competitors, bundle prices are steadily eroding. To achieve lasting success, service providers must identify and respond to the specific customer segments that comprise their markets. In doing so, operators will increase subscriptions, protect margins and revenue, and lower churn. What is at stake? For applications, Lucent research forecasts a $187.8 billion total addressable market worldwide by 2007. The highest end-user spending is expected to come from Asia Pacific, followed by North America and Western Europe.

Users Value Personalized and Integrated Applications

Lucent research indicates as markets mature, users place an increasingly high value on personalized and integrated communication, information and entertainment services. Willingness to pay rises as personalization and usability increases. The Lucent Applications Solutions portfolio enables carriers to tap this demand with applications that respond to individual end-user preferences, presence and location. The portfolio includes applications for collaboration, messaging, entertainment, enterprise productivity, and personal convenience. Because these simple-to-use, seamless and portable applications so easily span all modes of end-user lives – personal, business, traveling – Lucent has dubbed them "blended lifestyle" applications.

Service Delivery Approach Critical to Unleashing Full Revenue Opportunity

While blended lifestyle services can be based on existing services, e.g., streaming video, IM, MMS, gaming, etc., they are distinguished by their network and device agnosticism, as well as their ability to interact with one another via a common service delivery platform based upon IP Multimedia Subsystem (IMS). For instance, an operator might enrich a core offer with blended lifestyle applications that provide end-user personalization in terms of presence, availability, and location. In the early days of mobile data service deployment, operators created what are referred to as vertical service platforms to handle the few key mobile data services. This type of "silo" solution means allocating dedicated components to each and every service. This might just be tolerable while the number of services on offer is low; it becomes a nightmare once operators attempt to bring the flexibility, personalization and proliferation of fixed Internet service provisioning to mobile users. Without IMS, developing a portfolio of multimedia services to address diverse user demand is likely to be complex, messy and expensive.

So IMS is, first and foremost, about eliminating the cost and complexity of building separate smoke-stack networks for every new service. It's about developing a converged IP infrastructure in which transport and applications resources are shared across multiple services (and, indeed, multiple access types).

IMS rationalizes the way in which services are deployed over networks. It imposes a logical architecture that makes it simpler and more cost-effec-

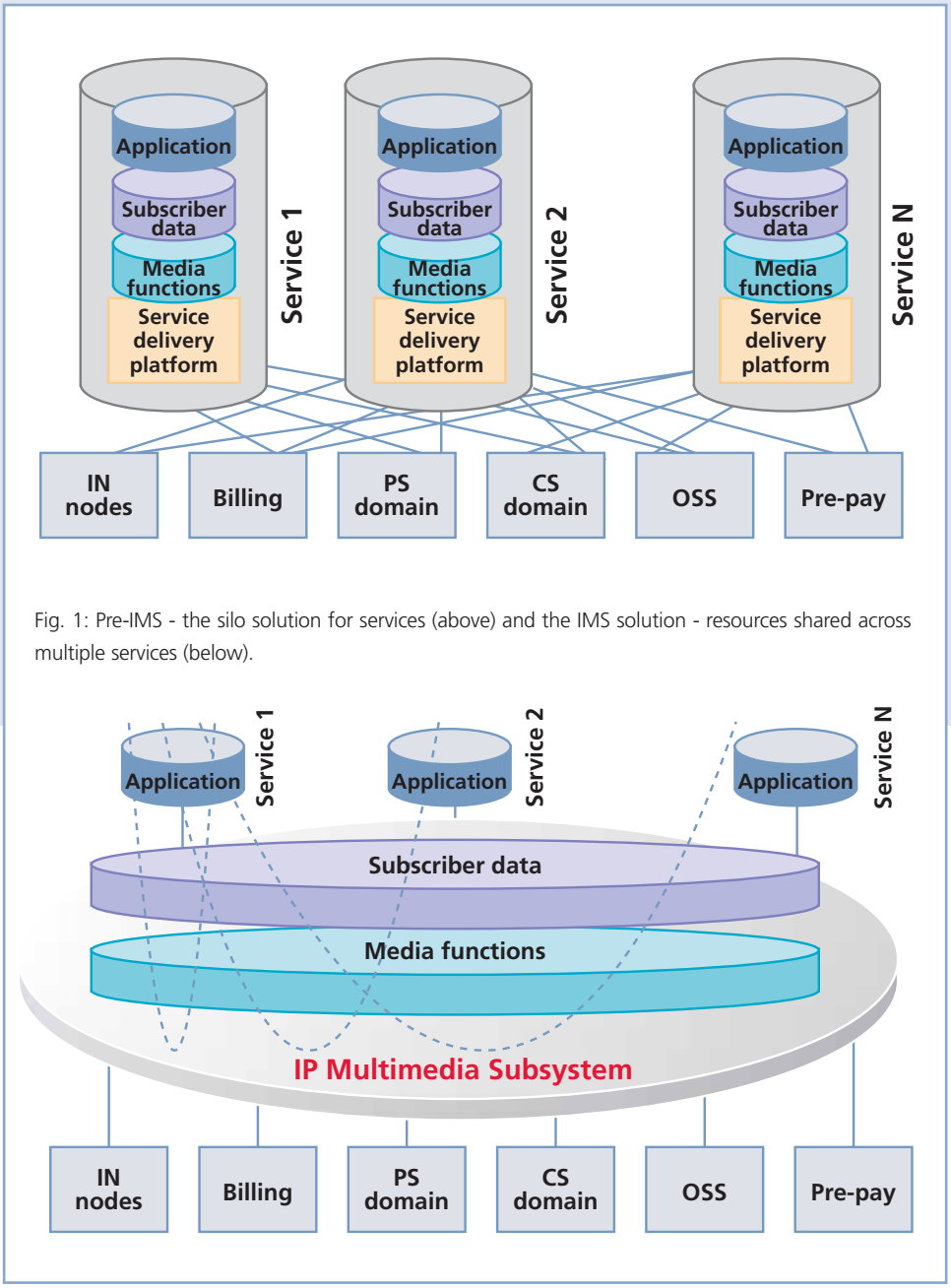


Fig. 1: Pre-IMS - the silo solution for services (above) and the IMS solution - resources shared across multiple services (below).

tive for operators to develop and roll out new and increasingly personalized services. It also makes it possible for users to access multiple services in the course of the same call or session. And finally, IMS enables operators to establish and control quality of service imperatives for individual services, while at the same time protecting the overall integrity of network performance.

IP Multimedia Subsystem (IMS) Applications

Four new IMS applications provide consumers and business users with new lifestyle services that blend voice, video and data capabilities and can be delivered across both wireless and wireline networks. These new services, part of the latest release of Lucent's Bell Labs-developed IMS solution, include:

- The Active PhoneBook application makes it possible for end users to maintain a single, integrated "phonebook", or meta contact list, to support all of their applications, including e-mail, instant messaging, fixed and mobile telephony, mobile video gaming and more. Managed through a client that can be deployed on a variety of devices (3G phones, wireless-enabled laptops or PDAs, desktop IP phones and other multimedia devices), Active PhoneBook incorporates location and presence information in addition to more typical IP address and phone numbers, and captures that information in a simple, easy-to-use graphical format. Using this application, parents may monitor and communicate with their children throughout the day, locate and interact with friends and work colleagues, find the nearest gas station, take-out restaurant, or theater. As importantly, this IMS-based application enables these traditionally distinct communications tools to be blended together to offer altogether new capabilities.

- Peer-to-Peer Video service enables subscribers to conduct two-way streaming-video conference sessions. Parents, for example, can send live video of children to loved ones, or teens can share video of a party with friends.

- iLocator is a personalized location- and presence-based application that alerts users when friends, family or points of interest are in their vicinity, and facilitates services that can take advantage of that location information. For example, users could be notified about a sale at a favorite store.

- Multiplayer Gaming allows operators to deploy a variety of multiplayer games that can be supported across mobile and wireline devices, such as phones and desktop PCs.

--Elaine Hanneman / Carrie Hydro

» www.lucent.com/convergence

Creative Content Solutions – The Entertainment Behind Technology

Boasting an already sizable total addressable market (TAM) of $15 billion for 2005, the mobile entertainment market is expected to burgeon to $31 billion by the end of 2009, according to a study conducted by Dean and Co. Clearly, entertainment has become a key value-added service for end users, as they become increasingly comfortable with spending more money to attain the latest and greatest of what the mobile communications market has to offer.

With this in mind, Lucent has developed various business models that allow service providers to deploy these high-demand services with speed, while being able to differentiate themselves from the competition. These cutting-edge services offer entertaining and personalized blended-lifestyle applications seamlessly to end users and enhance them to keep in touch with friends and family through any medium, at any time, anywhere.



Celebrity voicemail greetings, personalized video greeting cards and hand-picked ringback tones for individual callers are just some of the creative content applications that Lucent has to offer. Recognizing that consumer demand drives the market and therefore your profitability, our content solutions are designed to satisfy today's end-user demand for interactive and entertaining communications services, and in turn provide a new source of revenue generation for service providers.

While all end users undeniably want the ability to communicate important messages without restriction, they also want the ability to personalize those messages. Imagine Aunt Bertha wants to send a Happy Birthday greeting to her niece, Jane, for her 16th birthday, but wants to branch out from the usual MMS and instead send a fun customized video greeting message. After scanning the library of available character images, she selects a cat, knowing her niece's affinity for animals. She also adds her own text to say "Happy Birthday dear - your gift is in the mail - can't wait to give you a big hug." The Lucent video greeting application will then animate the image, convert the text to speech and deliver an innovative video message of an animated talking cat with the personalized audio. Aunt Bertha could also choose to deliver the message to a number of media, be it Jane's new cell phone via MMS, or to her e-mail or video mailbox, both of which can be reviewed from her IP TV.

Built on the Bell Labs engine, the Lucent video greeting application ensures high-level anti-spam and anti-virus capabilities and additionally allows users to create and deliver video messages on multiple standards including SMS, MMS, SMPT, 3gp and Gif.

Differentiating the IP Video Offering

Service Providers can use the IP video channel to deliver high-value applications in addition to high-value broadcast video content. These creative content applications can be accessed using the same familiar interface that consumers use on their mobile phones, PDAs, or on the web, but now it can be offered from the convenience of their sofa. While watching their favorite soccer game, consumers will also have the ability to check their voicemail or video mailboxes. Marketable to both potential and existing customers, these new applications can help service providers increase their revenues and differentiate their IP video offerings by attracting new customers as well as reducing churn among existing ones.

A Message from a Pop Star

Other creative applications, such as celebrity greetings, add a different dimension of entertainment to customary voice mailboxes. With this service, end users can activate a recording of their favorite music artist to answer calls when they are unavailable. Similarly, the celebrity greeting application also allows users to send creative voicemail cards from movie stars, entertainers, and anyone else they choose, to be deposited in another user's voicemail. For example, sending a message from a pop star to a teenager on the day of his graduation could add a lot of excitement to the standard congratulatory message. Because they are stored in the user's voicemail, they can be listened to over and over again and shared with friends.

Equally exciting for the younger generation of consumers is the RingBack tones application that is predicted, by many industry experts, to be the





Video Greetings from web interface

next "ringtones" application. Already a wild success in Asia, it is currently being introduced to both Europe and North America. The application will allow users to choose different songs or entertaining audio clips for their callers to listen to while waiting for the call to be answered. Talk about ultimate personalization! The application could also be set up to play different audio clips to different caller's based upon the incoming caller's phone number. It even allows different clips to be played during different times of the day. So when Darcy's boyfriend calls her, she sets her phone to play him a romantic tune, but when her schoolmates call, they hear a song of a playful nature.

Adding media and content applications to ordinarily commonplace services not only provides end users with fun new ways to communicate, but also creates true value for service providers' offerings. Hosting these applications on a Lucent-owned data center can help carriers significantly minimize both their capital expenditures as well as their time to market as they look to increase their average revenue per user. By addressing end-user demand for advanced communication services, our creative content applications will help you grow your business, grow your subscriber base, and keep you at the cutting edge of the innovative new technology that consumers will be exponentially demanding over the coming years. *--Rema Hariharan*

Blended Lifestyle Examples

Multiplayer Gaming

Mobile gaming could arguably be the most interesting of the blended lifestyle services evolutions. Recent market trends point to a strong adoption of networking capabilities that allow multiple players to interact in a tournament-like environment. This year, a multitude of wireless portable devices, incorporating the networking functionality, were introduced. Today, game "networking" is occurring in a multitude of formats, including wireless connectivity and console gaming, which is helping to drive up subscriber rates of high-bandwidth DSL and cable modems. Combined with mobile advertisements and mobile content delivery, service providers will be able to create, build and brand their mobile gaming communities, in effect driving data revenues and customer loyalty.

Mobile Sport

Mobile Sport is an innovative lifestyle service for mobile devices that enables sports fans to keep track of their favorite sports, players and sporting events, anytime and anywhere. Through a direct connection with a sports database, every major sporting event can be offered to the consumer, in real time and in a dynamic way, using customized state-of-the-art graphical interfaces that utilize Java® applications, which require one-time end user downloads to any Java®-enabled mobile devices. Once downloaded, the application provides users real-time updates on scores, rankings, news, statistics and more. Other functionalities are possible, including the integration of pictures, videos of goals and other key events.

Mobile E-ticket

The Mobile Electronic-Ticket service provides online shopping for tickets, covering everything from search and purchase to payment and admission.

Users enjoy one-stop ticket shopping, purchasing tickets right before an event, electronically sending tickets to friends, and other value-added features, while event organizers benefit from ticket counterfeiting prevention. Venues will also have advantages, including the prevention of illegal entry, the use of low-cost electronic gate terminals, and the ability to attain accurate attendance numbers, on the spot, throughout the course of the event. This lifestyle service will help make access to leisure and entertainment more convenient than ever.

Mobile Marketing

Service Providers can generate new revenue streams by assisting companies to reach and interact with end users on the move. Due to the great influx of multimedia handsets, and the consistently advancing mobile networks, mobile marketing has become a powerful marketing tool, allowing interaction and the use of rich media applications. It can be seamlessly integrated into traditional marketing programs, allowing the use of the latest interactive mobile technologies including mobile video and gaming.



Convergence Showcases: Bringing Technology to Life

» Lucent travels the globe to demonstrate the benefits of Blended Lifestyle Services

Lucent is bringing live demonstrations of the benefits of next-generation converged services directly to your doorstep using a 5,865-square-foot traveling Convergence Showcase. With this Convergence Showcase, you no longer need to imagine what it would be like to send and retrieve voicemail, e-mail and fax messages from a single device – whether you're at your desk, on the beach or boarding a plane. Now you can experience it first hand.

We want to talk with you one-on-one, understand fully the direction you want to be heading in, and discuss solutions that are most relevant to your own distinctive business needs without making you travel to a trade show or to a Lucent facility. This exhibit provides a live demonstration of the end-user benefits of Lucent's converged solutions that you could offer your own customers.

Seeing is Believing

Our Convergence Showcase includes an hour and a half guided tour featuring a mix of applications and devices showing our blended lifestyle services to illustrate Lucent's approach to the IP-Multimedia-Subsystem (IMS) standard. With a focus on the end user, it will show you how you can expand the possibilities of your network to offer new revenue-generating, differentiated services while safeguarding your network investment, and maximizing security.
Through three interactive blended lifestyle scenarios, you will see first hand what end users can experience with converged communications – At Home, At Work and On the Move.

At Home: Bringing IPTV, High Speed Data, VoIP, Location & Presence, and WiFi, all together as a personalized blended service in the home environment, these demonstrations illustrate how:

- A husband and wife, in different parts of their home, are able to simultaneously watch HDTV, standard TV, and surf the Internet via broadband ADSL2 + DSL access, creating a service personalized just for them.
- A resident can use her laptop to call a friend on her PDA about a documentary she sees while surfing the web.
- A man, trying to dictate a long and complex web address over the phone to some friends who want to see what he's looking at, decides to set up a multimedia web session between his friends so everyone sees the same thing.



At Work: With an IMS-based network, your customers can manage their messages, locate peers, access VoIP services and use next-generation applications such as mobile video and short messaging. Our demonstrations show how easy these new services are for the customer to use, and include scenarios showing how:

- Co-workers have the ability to participate in a live video chat, send video instant messages to each other, have a text chat session, or share files instantly while on a conference call with other users.
- Using Lucent's AnyPath® system, a supervisor technician can consolidate all of his messages onto a single platform. Also, during an outage where technicians are dispatched and logged onto our iLocator application with their wireless devices, he can check on which technicians are in the vicinity of the outage and communicate with them via SMS.

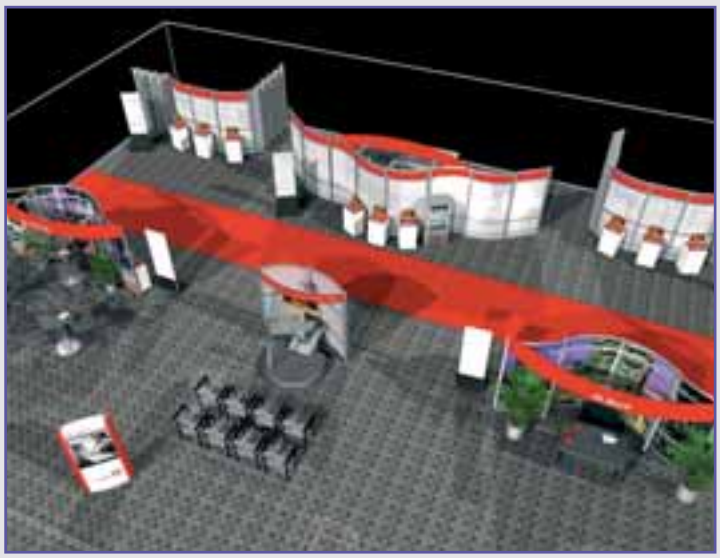
On the Move: Through Lucent's converged IMS solution, your "On the Move" customers benefit by being able to use the application of their choice, in the location of their choice, and on the device of their choice. Our demonstrations will show you how you can benefit from both enhanced customer satisfaction as well as the ability to easily and seamlessly deliver new products that increase revenues and customer retention. For example:

- While waiting for a taxi, a subscriber can receive a call from a friend who is on a train and invites them and another friend to a combined voice and Shared Streaming Video (SSV) SIP-enabled session to share some big news.
- A user can download a presentation while seamlessly transitioning from EV-DO to a WiFi hotspot in the building.

We are confident that by the end of the demonstrations, you'll see that Lucent's experience goes beyond just networks – we understand consumer needs, too.

Coming to a Location Near You

We have already held successful Convergence Showcases this year for a number of service providers in North America. And the response from our customers is clear: Lucent's Convergence Showcase provides a simple and tangible understanding of how the latest communications technology works in the real world, and helps make the connection between solutions and the end user.



And the road show continues. Future Convergence Showcase events are planned to be held in Europe in the coming months, and for the Asia/Pacific region in early 2006. At these showcases we will be featuring new 'in-demand' blended lifestyle end-user applications based on the latest research on end-user demand for each region.

If you are interested in experiencing the benefits of Lucent's blended lifestyle services at your location, please contact your local customer team representative for more information.

- **Active PhoneBook Flash presentation:** www.lucent.com/solutions/flash/activephonebook/
- **Blended Lifestyle Services Multimedia presentation:** www.lucent.com/solutions/video/blended_lifestyle.ram
- **Demo: AnyPath® Messaging System - A Day in the Life:** www.lucent.com/livelink/flash/anypath2.htm



Dave Williams,
Chief Technology Officer
O2

IMS: The Core of the Future

O_2 is a leading provider of mobile services to consumers and businesses in the UK. It is the leader in non-voice services, including text, media messaging, games, music and video, as well as always-on data connections via GPRS, 3G and WLAN. Each month O_2's 14 million plus customers send more than three quarters of a billion text messages. O_2 (UK) is a subsidiary of O_2 plc which also owns O_2 branded mobile operators in Ireland and Germany as well as the O_2 Airwave emergency services network in the UK.

LUX spoke with Dave Williams, CTO about O_2's current market strategy.

LUX: Recently, O2 has made significant progress improving network quality and coverage. Has there been a conscious effort to raise brand values?

Dave Williams: Yes. What we're now about at O_2 - and have been for the past couple of years - is really focusing on the customer experience. There's nothing to be gained pushing technology for technology's sake. Everything has to be about securing a first-rate performance for end users. So our strategy now is only to launch mature technology and products that work extremely well from the customer perspective from day one.

LUX: Which applications are of particular interest?

Dave Williams: We'll be looking at all the applications I believe have a long-term future. On the consumer side, we'll want to work with high-quality music downloads, video streaming, file sharing, high-quality photography sharing and Internet browsing. We're hoping to play around with some very innovative devices that will showcase the full capabilities of HSDPA.
For enterprise users, we believe a laptop with a High Speed Downlink Packet Access (HSDPA) card will prove a very compelling proposition - very close to full broadband, plus full mobility. I'm emphasizing full mobility because we believe that's where the space will go. People have slowly but surely become hooked on the Internet for personal use and they're beginning to demand it wherever they go. If that's what the customer wants, mobile players are perfectly positioned to fulfill that market need.
With HSDPA, customers, for example, will be able to download iTunes™ music from Apple's website at more or less the same speed as they can over DSL. I'd say that was pretty close to fulfilling our 3G dream.

LUX: When do you see HSDPA services becoming more generally available?

Dave Williams: 2006 will see a number of HSDPA launches across the globe. Initially, services will probably center on laptop data cards. But I also think we may start to see small PCs being developed for this market. There are already a number of devices starting to hit the market based on the very small hard drive technology found in an iPod™. These devices are pretty compelling for full mobility Internet.
These high-performance PCs with HSDPA cards could well be the next-iteration Blackberry®. Today, a Blackberry is fine as an e-mail device. The portability and form factor are great. But with a little more capability - a device that's six to eight inches square with Windows XP™ capabilities and HSDPA-enabled - we're talking about a whole new market.

LUX: Could you explain how IMS fits into your plans?

Dave Williams: We've been trialing IMS for about 12 months and intend to roll out services later in 2005. We're still debating where we'll deploy and the type of service package we'll offer. But for a



"IMS offers a myriad of revenue-sharing opportunities, bundling opportunities and partnership potential. At the same time, it gives wireless operators much more control of their destinies."

Dave Williams, CTO, O_2

while now, O_2 has been a strong advocate of IMS as the core network of the future.
As mobile operators employ more IP-based services, we need a platform that can switch data sessions over IP with mobility on GSM signaling systems. IP Multimedia Subsystem (IMS) is that platform. Nothing else will do it.

Voice over IP (VoIP) players in the wireline space use IMS to switch calls, and if we want to connect to these services - and we will - we have to have an IMS platform.
But VoIP is just the beginning of the IMS story. This platform should be seen as a creative environment in which service providers can develop numerous rich-call scenarios for both consumer and business segments. IMS opens the door to multimedia conference sessions. It's a way to mix texts and video over both mobile and fixed devices. You can share files. Only the IMS platform will support this level of flexibility and functionality.

LUX: How much impact will IMS have on service development?

Dave Williams: Well first off, IMS offers a myriad of revenue-sharing opportunities, bundling opportunities and partnership potential. At the same time, it gives wireless operators much more control of their destinies.
Second, if you're targeting a certain segment of the market, IMS doesn't just make it easier to roll out new services quickly, it also makes it simpler to customize and tailor for specific segments.
Once again, one of the reasons we've gone in early with IMS is that we've been determined to grow our skill sets - not just on the technical side, but also in term of product development and marketing. We genuinely believe IMS is the core of the future and it's very important we develop the skillsets early and build the talent that's going to pull these new service options together.

LUX: O2 has also been conducting Digital Video Broadcast – Handhelds (DVB-H) trials in Oxford in the UK. What's your strategy in this space?

Dave Williams: Where video services are concerned, TV is undoubtedly the number one killer application. Worldwide, people will always pay for TV, but TV in the context of 3G is more problematic. It's OK if it's very segmented. I'm into fly-fishing. If I want some technical tip about fishing, I can download a short video clip on to a 3G device and it's reasonably cost effective. But if I want to watch a football match, for example, then an entire game over a 3G network is likely to be prohibitively expensive.
So O_2 is looking at how to develop broadcast technologies that exploit our radio infrastructure but use different spectrum. And our approach will be to provide the same video content nationwide, or at least to large segments of the nation.
DVB-H is an industry standard. It's based on digital video broadcast for terrestrial, but developed for handheld technology. It employs quite sophisticated battery-saving technology and offers a very robust signal.
We've decided to trial the technology because we're convinced customers will want soaps, sport and the like on mobile devices. But we're equally sure that the way to win in this market is to transmit as cheaply as possible. Where technology solutions are concerned, the cheapest option always wins. 3G will get you there for niche, customized segments. But we suspect DVB-H is where 'TV-on-the-move' will end up long term.

LUX: Doesn't this cast O2 in the role of broadcaster?

Dave Williams: Not really and this is more about partnerships. What O_2 brings to the party is our radio infrastructure, we bring a customer care and billing system, we bring a customer base, and we bring the uplink. And what broadcasters bring to the scenario is content and perhaps some spectrum. It's an intriguing partnership opportunity. Of course this is not just an option for O_2. It has potential for all wireless operators and broadcasters. But we wanted to get ahead of the game and trial the technology.
We'll be assessing customer perceptions, quantifying costs, checking out technical concerns like the link budget and issues around in-building penetration. Our view is people are becoming more and more mobile, so the chances are there's a good business case for 'TV-on-the-move'.

The full interview can be found in 3GSolution, issue 18.

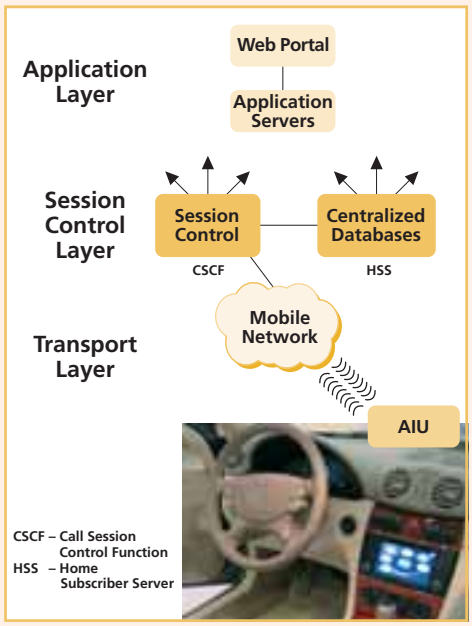
Extending the Service: Mobile Internet in the Car

» Lucent and ESC demonstrate an all-in-one solution for innovative automotive communications to bring the Internet and IP Services to the 'On-the-Move' user across 2G and 3G networks.

Time spent travelling, specifically in the car, is still lost time for many business customers. We are all familiar with the frustration of being unable to retrieve urgently needed information when stuck in a traffic jam, or simply lacking access to desired information and entertainment options when we want it. Lucent is working to make car journeys more attractive by allowing people to use personalized end-user services not just at home or at work, but on the move as well.

In cooperation with the automotive IT provider ESC, Lucent is developing a solution that integrates UMTS, CDMA2000/EV-DO, GSM and GPRS networks, and that provides access to a variety of applications and services available now, as well as to those based on an IMS standard that will become available in the future. This solution is founding the technical basis for a new class of automotive communications solutions for automotive Internet access.

Drivers and passengers can use the automotive communication solutions to access the Internet interactively and gain access to applications and services available to both consumers and business customers. Users will be able to access websites and business applications, multimedia, video and entertainment services, as well as send and receive e-mails while in the car. For road safety purposes, the system uses voice-recognition technology that not only reads voice messages, appointments, faxes, e-mails or Internet contents to the driver, but also allows them to dictate voice command replies. Moreover, Automotive Internet allows passengers to access the World Wide Web or their corporate Intranet via a notebook or PDA. Mobile video communication for business or entertainment purposes for passengers is also possible, particularly with the widespread deployment of LCD-based entertainment and navigation systems in vehicles. In the end, the benefits of this solution to the commuter are undeniable: traveling time is used more efficiently, information is presented to the user when needed, and services and applications are available when and where they are needed.



The all-in-one automotive communication solution consists of a unit installed in the automobile, and the application and service provided by the operator.

1. An Automotive Internet Unit creates the connection in the vehicle between the on-board electronics, the control elements, the display and the driver, and links the vehicle to wireless networks (GSM, UMTS, CDMA) via its radio antenna.
2. The applications and services are provided centrally in the network. When used with IMS-based applications the full benefit of converged services is available to the automotive user.

Many experts are convinced that attractive services offered by the converged networks add a new dimension to "automotive communication services" and represent a new revenue opportunity for operators. These experts stress that UMTS will, for the first time, make mobile Internet in the car really attractive and the increasing availability of 3G High Speed Data (HSD) networks such as HSDPA and CDMA 2000 EVDO will bring the necessary bandwidth to offer high-value multimedia services.

The system has the capability to bring multi-channel entertainment to mid- and long-distance commuters using bus and train transportation. With the installation of viewscreens and the automotive communications solutions, passengers can be provided with a variety of entertainment and information options. Educational programs can also be offered to a targeted audience to bring added value and attract consumers to those transportation options.

Users have the ability to access the assortment of information offered by their service provider in the car, as well as on their PC, PDA or cell phone. At the same time, automobile communications opens the way for increased customer satisfaction for a number of different consumer product providers. For example automotive makers could leverage the connection between the box and the car's diagnostic system for such purposes as notifying drivers of impending defects at an early stage (e.g. brake or ignition system faults), updating the controller software to save a visit to the workshop or allowing a dealer to remotely access the vehicle diagnostic unit without requiring a premature dealer visit.



Dynamic Services

It is possible to rapidly inform drivers about dangerous traffic situations, road works or traffic jams. This information can also be used for dynamic navigation services using the latest maps available online.

Automotive Internet opens up great opportunities for network operators and their contract partners to win new customers or make targeted approaches to existing, precisely defined customer groups and therefore bolster customer retention. Besides the automotive makers, totally different interested parties will probably also consider using the automobile communications solution and endeavor to set up appropriate cooperations with 3rd-party providers. Automobile clubs, for example, could use the automotive communications system as a welcome possibility for providing their members with valuable services such as updates on road projects, discounts at restaurants and hotels and other new services.

Whatever the use, the system is designed as a multipurpose instrument incorporating bidirectional, interactive communication. New user/provider cooperations will be created across interest groups to offer mobile customers a mix of different services in each case.

Initial users of the Automotive Internet include:

Commuters/Consumers

Commuters can obtain information about destinations, traffic, accident black spots, the weather forecast, stock markets, diverse news topics, webcams and lots more while they are on the move. Dynamic navigation services can be used if required.

The automatic info feature compiles the information automatically and personalizes it according to preferences. Travel information, navigation directions and messages can be read out to the driver if desired.

Road warriors and business travelers

For road warriors and business travelers, the car becomes a mobile office: seamless, personalized multimedia communication with the office, customers, employees and private contacts. Additional services can be purchased while on the move.

- Communication and information retrieval using text, visual and audio output
- Receiving, forwarding, writing and sending e-mails
- Automatic adaptation of content – to suit time of day, event and vehicle location
- Dynamic navigation (with the latest map material)
- Integrated read-aloud service
- Push Messaging delivers messages directly to your car within seconds
- Address book/telephone directory with online import function, e.g. from Outlook
- Online driver's logbook
- Online interface for laptop

Efficient fleet and automotive management

The seamless, permanent, mobile communication between drivers, fleet operators, automotive makers, workshops and the on-board electronics opens up brand new possibilities and offers many advantages:

- Increased profitability and quality due to optimized online control of fleets
- Full control and an overview of the entire automotive fleet at all times
- Reduced downtime and repair times due to remote diagnostics and remote maintenance
- Increased safety for drivers, vehicles and goods in transit
- Enhanced customer retention through innovative services and customer communication. Services from other providers can be marketed as well.

--Matthias Nass





Hyun-Myung Pyo,
Chief Marketing Officer of KTF

Have a good time!

» KTF Korea - Forerunner with High Technology

For Korea, KTF is more than the leading mobile service provider - it is the recognized symbol for leadership within the Korean wireless communications industry. Acquiring more than a million new subscribers last year alone, KTF's subscription rates reflect the recognition the provider has earned for its outstanding customer relationships. In addition to securing first place for customer satisfaction management for three years running from KMAC (Korea Management Association Consultant) and earning first place in the 2004 National Customer Satisfaction Index, KTF was also named "Most Innovative Company in Responding to Customer Needs" by FEER. Now, the company is looking to develop its blended lifestyle services offerings, through an expansion of its multimedia and converged services, so that it can even further maximize value for its customers.

LUX spoke with Hyun-Myung Pyo, Chief Marketing Officer of KTF.

LUX: Can you describe some of the new (data/converged) services/applications that are now emerging in Asia?

Pyo: As the trend for communications services shifts from voice to multimedia, consumers are demanding faster transfer rates, lower costs, and expanded mobility. Take, for example, mobile Internet service: customers want high-capacity multimedia and enhanced performance (e.g. extended memory, enhanced multimedia, PC Sync), in addition to open operating systems for terminal platforms. In effect, expanding and changing the value chain across the entire business has become a requirement.

As service providers attempt to keep up-to-date with the latest trends, we are witnessing the emergence of a variety of services including content, integrated wired/wireless, and convergence.
Content services have become a necessity as our existing text-based services transition to multimedia services, such as video, music and gaming. These kinds of services, often associated with a mobile phone, are provided through multimedia contents sourcing. At KTF, we offer 'G-Pang,' a service that enables users to play various 3D mobile games via a high-performance game phone. This service has proven to be very popular, as Korean customers are already very comfortable with online games and are naturally attracted to a gaming service that allows you to play anytime, anywhere. Already launched for KTF subscribers this past July, mobile network gaming will also become available to users of other network by the close of the year.

Due to the stagnation of the communications market, integrated wired/wireless services - while expected to become accessible to customers in the near future - are not yet actively available. The Korean telecom industry is in the process of developing several major services such as WiFi, One-Phone, and WiBro, a broadband wireless Internet technology, and is waiting to see if the advantages of these offerings stimulate the market.

Also, many companies are evolving their infrastructures to provide converged services to their customers, offering a variety of services through a single end-user device. In Korea, the major services we offer include K-Ways, K-Bank, and DMB (Digital Multimedia Broadcasting), a satellite-based service that enables people to watch video channels through a cell phone while on the move. Through the development of convergence technology, we expect existing services to evolve also. For example, K-Ways, a terminal-based navigation service, provides important driving information to promote safety and offers real-time navigational technology that guides the driver to any destination, every time. Customers can use this service by downloading mobile applications to an end-user device and use the available GPS receiver in the terminal. This advanced new service is already rivaling existing telematics.

LUX: What are some of the biggest challenges for introducing new applications and services?

Pyo: Today, with Korea's mobile communications penetration rate surpassing 76%, the market is almost saturated. Therefore, increasing revenues from existing customers (ARPU) is now the priority, more so than dedicating resources to expand our customer base through marketing. However, increasing APRU is a lot easier said than done.
When it comes to marketing, unlike existing voice-based services, customers don't fully understand all of the benefits that many new services have to offer. An important issue facing service providers is having



the ability to enhance the service environment fast enough to keep up with the changes in the market environment. For example, special education is needed to expand infrastructure and various channels in a timely manner for service activation.

LUX: What are some of the future services/ applications to be included in your offerings?

Pyo: We're currently providing all the services mentioned earlier with 1x/DO network, but for the future, we are also driving forward DMB and RFID related business, WCDMA, WiBro, IP TV, Home Networking, telematics (GPS). In the not-so-distant future, one business will no longer be able to meet the needs and demands of varying customers, allowing 'convergence businesses,' providers that combine the advantages of a range of business areas, to become mainstream. Additionally, as convergence services are upgraded, they will be provided to customers in accordance with the infrastructure evolution mentioned above. Through WCDMA, users can use multimedia contents such as voice and video at an average speed of 2Mbps in the 2GHz band, with an assured quality of service transfer rate. It is expected that the current wireless data communications market will revolutionize when WCDMA service is launched.
In addition, telematics services, using GPS, will be the next big thing. Even though the functions are currently limited and the available content services are at this time insufficient to meet customer demand, this technology will be a key to the future success of convergence. In this belief, KTF will continue to develop all of the related multimedia and technology.

LUX: How do new applications continue to help your company grow?

Pyo: Digital Convergence, which is rapidly spreading across the industry, offers mobile communications companies new opportunities for market growth. With high-speed transfer rates, mobility and low costs, customers will be able to easily use entertainment applications like videos, music and games, that will effectively dramatically enhance the multimedia communications environment. Therefore, revenue sources in the mobile telecommunications market are likely to radically change because of expected increases in data service usage in addition to existing voice services.

LUX: What is Lucent doing to help you when it comes to new applications and lifestyle services?

Pyo: Lucent's switching systems and base stations, based on the best technologies in the world, have made a contribution to the growth and development of KTF. Lucent has helped to lay the foundation to accommodate a variety of technologies and services, while still allowing us the ability to rapidly evolve in the future.

KTF Blended Lifestyle Services

MagicN®
MagicN is a portal service that provides a variety of content, solidly backed by the applications of powerful wire and wireless networks.

Major Services:
- Phone decoration (pictures/sounds) including ringtone and character downloading applications
- Message/Mail, including message manager and magicN Mail
- Fun, include leisure, chatting, entertainment news and today's horoscope
- K-merce securities, lottery and gift certificates including a variety of e-commerce
- Friend Finder, with maps including information on travel, highways and traffic
- Game Box, including all kinds of games from strategic simulations and role-playing games
- Sports/News/Life, including a wealth of news, weather forecasts, hobbies and leisure

The most popular among magicN data services are music- or picture-downloading services. Users are downloading a variety of pictures and photos to be stored as their backgrounds or forwarded to friends.

FIMM®
Fimm is a high-speed multimedia mobile communications service. The Fimm platform offers the convenience and freedom to enjoy a vast array of excellent lifestyle services, including voice transmission, data, streaming video images, real-time TV viewing, and video phone communication. All of these are available alongside high-quality audio.

Major Services:
Fimm contents include VOD Services, which bring customers amazing streaming video images of TV shows, movies, music videos, and sporting events through a high-resolution graphics channel. Also included is MMS, which allows customers to transmit a wide range of attached multimedia data. Data can include long text, photos, pictures, music, streaming video, etc.



» www.ktf.com



Picture © T-Com

Blended Lifestyle Services – Our Vision, Your Future

Imagine a world without refrigerators or washing machines. Better yet, think back a few years to when cell phones, computers and the Internet were far from commonplace. When evaluating our lifestyles today, there is no denying that science and technology have defined the development of humanity, specifically when considering all of the gadgets and "cutting-edge" applications we utilize on a daily basis. But it all begs the question – what could come next? The answer is simple: At Lucent, we envision a world where advances in communications enrich our quality of life, a world where people and technology fuse imperceptibly together, a world of Blended Lifestyle Services.

Over the years, communications and technology have undeniably enhanced the quality of our lives - both in the personal realm and in the workplace. The invention of the telephone changed the lives of millions, as did in turn the invention of the computer. Today, the Internet tears down any pre-existing communications boundaries subject to time and distance limitations, enabling instant information sharing across both geographical and political borders. This convergence between communications and computing is reflective of the direction in which innovative science is heading – towards a seamless blending of people and technology.

Blended Lifestyle Services are applications designed to enhance your quality of life. No longer reliant upon the reach of the home telephone cord, in Lucent's vision, you will be able to move as freely as you do now but with innovative technology at your fingertips and the ability to remain in contact with family members, friends or colleagues across any device, at any time and in any place. Our technology will allow you to determine your own schedule, and live your own life without boundaries - the only limitation is your imagination!

Enhanced Quality of Life

The market trend is clear: consumers are no longer as interested in the products as they are in the services, and the experiences these services can offer them. Lucent's Blended Lifestyle Services can provide you with the easy-to-use applications you need to increase the quality of your life by saving you time and effort, and supplying you with the technology to receive information or carry out any action that you previously could only do from limited locations, if at all.

In Lucent's vision, you are able to: take pictures and e-mail them to family and friends as an instant postcard; download songs and videos and play them back on demand; and update your business contacts while driving in your car or

The next 20 years – Outlook according to Information Society Technology Advisory Group (ISTAG)

- 2006: Personal Area Networks
- 2008: 3.5G mobile
- 2009: Context-based self-reconfigurable networks
- 2010: Real-time monitoring (updating) of traffic flow
- 2011: Embedded agents
- 2012: 4G mobile
- 2012: Augmented reality
- 2012: Universal software radio
- 2014: Self-repairing software
- 2020: Self-organizing and learning databases
- 2020: Context-sensitive pattern recognition
- 2021: Real Virtual Reality
- 2024: Development of intelligent chip able to understand emotion

sitting on a park bench. You will have a single way to sign on, a common set of contacts for every service, and 'access aware' information delivery. In case of an emergency, your unique service profile will find you wherever you may be, not just the device you utilize, day or night, at home or at work.

Lucent's Blended Lifestyle Services will evolve, over a Value over IP™ network, to select the information you need, anywhere, at any time, on any device. As people begin to leverage the timesaving and information-sharing benefits of these applications, they will sign up for various networks and communities carefully chosen to suit their own interests and satisfy individual needs.

For example, it would be safe to assume that you, as do most people, begin your day in front of the bathroom mirror. Throughout the process of getting ready, you may begin to mentally plan out your day, and prepare yourself for what may come. Instead of making tentative arrangements in your head, reliant upon the information you'll receive when stepping outside your door, or consulting your calendar, your mirror could act as a *smart mirror*; a portal site displaying any information you request including, but far from limited to, weather, traffic, news headlines and your appointment calendar.

It could even advise you on your choice of clothing, of course dependent on the weather information streaming in, or play you your favorite video clip or footage of last night's news headlines that you may have missed. Beyond information services, the *smart mirror* could even measure your blood pressure, heart rate, temperature and body mass index, track the changes over time and send the results to your doctor via the *mobile healthcare system*.

Once leaving the informative hub of your apartment, your *smart wallet* could also work to simplify your daily errands and maximize your time, while simultaneously reducing the bulky content of your wallet. It can be your cash, credit card, office badge, frequent flyer ID and house key all in one. After charging electronic money to your *smart phone*, equipped with a *smart wallet*, paying at a point-of-sales terminal will be as fast as a simple wave of your *smart phone* over the sensor.



"The tremendous advances that bring blended services into peoples lives and allow them to be fully integrated in their personal environment is a new paradigm which completely changes the way they communicate and live."

Harold Smeeman
Lucent Technologies
Business Development & Marketing
Application Solutions EMEA

With mobile payment and content delivery services, smart phones could also be used in the place of theater and stadium tickets, allowing you to check seat availability, purchase tickets online and have your electronic ticket sent via MMS to your mobile device. At the stadium, you would just need to wave your handset over the ticket reader machine to enter.





Smart phone: cash, credit card, office badge, frequent flyer ID and house key all in one.

As part of an interactive advertising experience, a *tryvertising* service would also allow you the option of downloading music fragments, from one of your pop idol's latest songs, to your *smart phone* while passing one of their *smart posters* situated in city centers, airports or public areas.

With all of these exciting new services though, comes an amplified need for security. Conventional security systems will undergo radical developments in the coming years towards *mobile home monitoring systems.* To install an alarm system in your home, you will simply need to place sensors on the doors and windows. Wirelessly connected, these detectors would communicate with the central alarm system, allowing all alarm sensors and cameras to be operated and monitored from your car, on your smart mobile device, or anywhere you happen to be.

The future is wireless, connected, and portable, and in the coming years conventional desktops and laptops will evolve to *smarttops;* computers that are operated through a personalized "human interface". After all, machines should listen to what you say and do what you tell them!

Working differently

Developments in information and communication technology (ICT) will not only radically alter the way in which we live, but also the way we choose to work. Work hours will become significantly more flexible, intense and efficient. As the relationship between the working person and the workplace becomes less distinct, offices will become less of a necessity and more of a meeting place for employees who, equipped with *smart phone* or *smarttop*, will be capable of conducting their business from anywhere, at any time.

Mobile learning systems could also be made available to train employees regardless of their location. In our vision, the workplace of the future will maximize communication, interaction and creativity, by both enhancing personal interaction experiences, and by making distance an issue of the past for collaborative projects.

To increase the group work experience and stimulate success in virtual teams, *mobile video chat* will enable colleagues to have a real-time video chat. With an easy-to-use Lucent virtual conference room application, you will be able to chat with colleagues around the world, device independent, no matter where you are.

Security

Many businesses have come to increasingly depend on ICT facilities. A successful company depends not only on the performance and the reliability of the ICT architecture, but also on its security.
While encryption technology is advancing at a rapid pace, advances in scanning technology will also allow biometric identification - enabling people to be identified by fingerprints and retina patterns. By utilizing this far more efficient method of identification, users will no longer have to remember passwords or carry ID badges. In addition to offering greater security, this system could be used to provide conclusive proof of identity for secure access control.
Under another application, biometric identification can be used to assign differing access rights to individual employees, suppliers, customers and visitors. As the system identifies the person concerned, it would permit the individual access to only those parts of the building for which they are authorized.

The advantages that our Blended Lifestyle Services can offer are easy to grasp. They maximize time management and define convenience; two qualities that will no doubt increase consumer happiness. And while not everything in life is possible, and not all difficulties are always simply solved, we know one thing is for sure…happy people live longer! *--Harold Smeeman*



John Giere
Chief Marketing Officer
Lucent Technologies

Dear Customers,

As the lines between the worlds of voice, data and mobile services continue to blur, the telecom landscape is filling with numerous possibilities as well as challenges. Lucent has as one of our top priorities to understand the needs of your business, the dynamically changing technology landscape and the evolving market competition that you are facing. Technology, consistent with our Bell Labs heritage, remains our forte. However, today we have recognized that it takes more than great technology to make our customers successful and thus we have evolved ourselves to meet this challenge.

As featured in this issue, the telecommunications market is shifting toward more personalized forms of communications, across multiple networks and devices. This trend is towards a focus on services, rather than the network delivering it, and as a result our focus is on what users want to do, not where do they have to go to do it. Backed by the unrivaled intellectual prowess and expertise of Bell Labs, our solutions consist of the breadth of products, applications, professional and managed services, deployment and marketing resources necessary to see your service roll out from design to delivery, and beyond. Our Market Advantage Program (MAP) assists our customers with identifying market opportunities, seeding demand generation behind these new services and, providing new services introduction training for the purpose of differentiating your offerings.

If you are looking to offer a wide range of services from Voice over IP, mobile entertainment, Internet video, WiFi-Cellular Roaming, and Data-Centric services to Instant Messaging and Family Portals, Lucent has a solution and the capability to support you on the right path. Our IMS (IP Multimedia Subsystem) Solution enhanced with Bell Labs unique Service Enhancement Layer reduces both cost and complexity and increases service flexibility – and it's available today. Our convergence workshops, road shows and demos bring our vision and the reality of Blended Lifestyle Services to life. These forums present an opportunity to communicate jointly our next-generation services vision and together create a solution to best suit the target user requirements.

The next generation of communications is as complex as it is exciting. We're here to help you evaluate your options in order to maximize your success. Please do not hesitate to call on us.

We hope you enjoyed this edition of LUX. Your feedback on our format, suggestions for topics in the future and opinions about our individual stories are very welcome.

Warm regards,

John Giere

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