June 2000

Lucent

magazine

GROWING NEXT-GEN WIRELESS:

The Mobile Internet

INSIDE

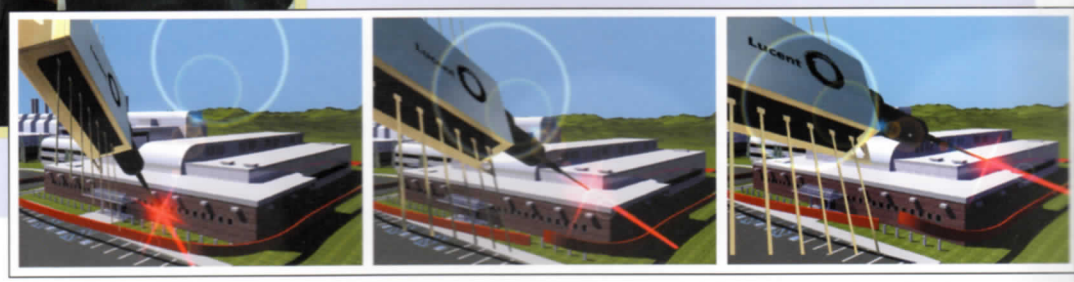
Gaining Ground in Canada · Bell Labs' Global 'Swat Team'

Opto-mizing for the Future

Lucent's Microelectronics Group is taking a bicoastal approach to expansion, increasing its presence in both California and Pennsylvania. Dan DiLeo (at right in photo), president of the Optoelectronics Division, officially opened a new, 143,000-square-foot facility at Opto's 200-acre, 2,000-employee site in Breinigsville, Pa., on May 12.

State legislator Paul Semmel (left) joined other VIPs, including Lt. Gov. Mark Schweiker, for the virtual ribbon cutting (inset below) and tours. The impressive new facility houses a completely automated process—unique in the industry—for manufacturing the high-tech components needed to satisfy an optical networking market that is hot and getting hotter. Opto also is completing a $6-million expansion at its Reading, Pa., facility.

A week after the Breinigsville opening, the division announced a $40-million expansion of its manufacturing capacity in southern California. The planned expansion, by Lucent's recently acquired Ortel Corp., is expected to increase the output of optoelectronic components for cable television networks by at least 16 times.



READERS' LETTERS

Reality Check

Why do people pore over *Lucent Magazine* looking for errors instead of reading the articles? Over the years, we've read letters from people noting that the subjects in a photo didn't display their ID cards, fasten their seat belts, don their safety glasses or use proper ESD protection. People should realize that most of these pictures are staged. They are posed photos—not real life.

Terry Poia
Naperville, Ill.

Virtual Learning

Regarding "Power Surge" in the March/April issue: in the not-so-distant future, many "classrooms" will be virtual, enabling wider educational experiences for a larger cross-section of students. I feel that we are on the right track in this approach, and as innovators we should strive to make the concept a standard for safer, more productive learning.

John Marranca Jr.
Buffalo, N.Y.

Proud of Pat

Last month, when I was traveling on Continental Airlines, I was proud to see a picture of Pat Russo on the front cover of the airline's April magazine. The issue was prominently displayed at every seat. The three-page article was well written and was a wonderful advertisement for Lucent. It makes an impact on the women of Lucent when a high ranking female leader like Pat is considered front page news.

Charlene Estes
North Andover, Mass.

Lucent MAGAZINE ONLINE

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We welcome your letters and ideas for articles.

Please note that all letters will be considered as having been submitted for publication. The editors reserve the right to edit all letters for length and clarity. Opinions expressed in letters and articles do not necessarily reflect the views of Lucent Technologies Inc. management.

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Contents

SID TABAK

Beyond Wireless:
CREATING THE MOBILE INTERNET

PAGE 4

ABOVE Grant Rose, director of Lucent's Wireless Innovation Lab in Canada, experiments with downloading information from the Internet to his mobile phone using wireless data gateway technology.

ON THE COVER The mobile Internet may soon be in the hands of children, including Sharon Paravastu, daughter of Narasimha Paravastu, Mobile Internet, Wireless Networks Group (WNG); Richie (left) and Matt Wetherington, sons of Akemi Denda, Global Multimedia Business Development, Mobile Internet WNG. The Wireless Group is working with Bandai of Japan to enable its gaming device to work with U.S. mobile phone networks supplied by Lucent. **Cover photograph by Roger Tully.**

CHERLY SHERIDAN

E-MAIL FROM THE REVOLUTION

Viking Invasion

Date: May 10, 2000
From: Optical Networking Group
To: Lucent Magazine

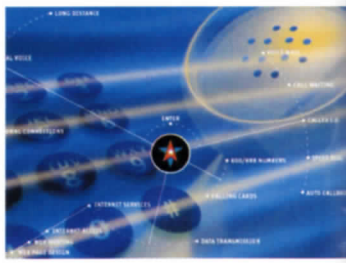
The Vikings are coming!

Telia, a leading Scandinavian communications company, is building its Viking Network in Europe and the United States using $200 million worth of Lucent's newest dense wavelength division multiplexing (DWDM) technology. The fiber-optic network will offer end-to-end connectivity around the world, covering 30,000 kilometers and connecting 40 major cities by the end of this year. Telia said it chose Lucent in part for our ability to quickly build and activate a large-scale global network.

TELIA

We Ple

Date: May 15, 2000
From: InterNetworking Systems
To: Lucent Magazine



allegiancetelecom,inc.
THE NEW WAY FOR BUSINESS TO CONNECT

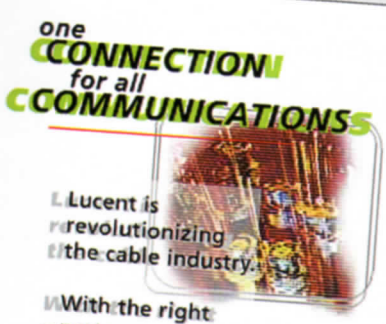
Talk, Watch, Surf

Date: May 3, 2000
From: *CableConnect* Solutions
To: Lucent Magazine

Imagine taking a phone call and surfing the Web via the same home cable connection you use to watch "Who Wants to Be a Millionaire."

That will be a reality soon, for some U.S. communities, when Denver-based High Speed Access Corp. (HSA) rolls out local and long-distance Internet protocol (IP) telephone service over selected cable networks. HSA will use up to $100 million worth of Lucent *CableConnect* Solutions products over the next three years, including network equipment, software and services.

Dan O'Brien
president and CEO, HSA



"We are thrilled to be working with Lucent on the launch of our voice services," said Dan O'Brien, HSA president and CEO, "which will allow us to offer a bundled package of video, voice and data plus next-generation IP services."

dge Allegiance

Dallas-based Allegiance Telecom, Inc. is pledging allegiance to its present and future business customers.

The CLEC will purchase $350 million worth of Lucent advanced telecommunications equipment, software and services over three years to extend voice and data services to 15 new markets. It will also expand resources in the 21 U.S. metropolitan markets it currently serves.

Allegiance will buy Lucent's *5ESS* switch, *AnyMedia* Access System and CONNECTVU-APX switch configuration management software. It also will purchase *7R/E* Packet Solutions to complement its existing circuit network, and attain engineering, installation and system integration through *NetworkCare* Professional Services.

Lighting the Way

Date: May 31, 2000
From: Optical Networking Group
To: Lucent Magazine

The power of light will soon shower high-bandwidth possibilities on the office campuses and urban business centers of the United States.

And Lucent will be the company that delivers it—through our planned acquisition of Chromatis Networks, which offers new technology that can reduce the costs of bringing fiber to the desktop in metropolitan networks by 50 percent. By adding Chromatis to our optical networking portfolio, we'll soon be offering our customers this bandwidth-expanding optical technology in the fastest-growing segment of the optical networking market—metro systems.

"With Chromatis, Lucent is one step closer to bringing the speed and power of fiber optics all the way to a customer's desktop," said Lucent Chairman and CEO Rich McGinn.

The flagship Chromatis product—the Metropolis system—features revolutionary technology called selective wave division multiplexing (SWDM). It allows network providers to deploy only the optical wavelengths they need—where and when they need them—realizing huge savings in start-up costs.

AnyMedia, Anyone?

Date: May 17, 2000
From: InterNetworking Systems
To: Lucent Magazine

When Lucent asks "*AnyMedia,* anyone?" customers respond.

In May alone, we inked major deals with five service providers—Broadwing (Cincinnati Bell), Allegiance Telecom, Hughes Ipsat of India, New Century InfoComm of Taiwan and Hanaro of Korea. That brings the number of providers deploying the system to more than 100 in a dozen countries.

Also in May, the Oklahoma City factory celebrated the manufacture of its 10,000th system, just two years after the product was introduced. The facility is one of four factories around the world producing the integrated narrowband and broadband platform.

Service providers are snapping it up because it enables them to offer regular telephone service and high-speed digital subscriber line service from one box.

ROGER TULLY

Beyond Wireless:

CREATING THE MOBILE INTERNET

As universal wireless access merges with data services, the Wireless Networks Group is reinventing itself. Combining next-generation technology with alliances that enable commerce just about anywhere, the group is evolving Lucent into a leading global provider of the things that make the mobile Internet work.

In Japan, where wireless communications are a way of life, subscribers to NTT DoCoMo's i-mode services regularly access the Internet through customized portals on their cellular phone handsets. Nearly 7 million subscribers have signed up for the service with DoCoMo, putting the Japanese company ahead of schedule in its drive to land 10 million i-mode customers by the end of the year. It's just one scenario of a revolutionary technology that matches the telephone of yesterday to the Internet of today.

"DoCoMo is leading the way in mobile Internet access, and we are planning to start next-generation wideband service in the spring of 2001, ahead of other countries. We expect that Lucent will lay the foundation for tomorrow's wireless networks," said Takeshi Natsuno, executive director of the Gateway Business Department at NTT DoCoMo. "We're seeing a new generation of mobile services that

Wireless gaming devices are hot in Japan, and Lucent's collaboration with Bandai is helping bring them to the United States, where users will play interactive games, exchange e-mail and surf the Internet. Joining the fun are Sharon Paravastu, daughter of Narasimha Paravastu, Mobile Internet, Wireless Networks Group (WNG); and Matt and Richie Wetherington, sons of Akemi Denda, Global Multimedia Business Development, Mobile Internet, WNG.

span the industries of education, entertainment, commerce and health care, among others. The mobile service will become indispensible for our daily life even more than today."

For nearly two decades, Lucent has been manufacturing, installing and supporting the wireless equipment and software used by many of the world's leading network operators. Understanding the importance of choice, we offer a breadth of wireless solutions for all the major standards—GSM, CDMA and TDMA—as well as the evolution to third-generation (3G) networks. With that expertise in hand, Lucent is now writing the next chapter in wireless communications, the high-speed mobile Internet.

"Lucent is uniquely positioned to deliver on the promise of next-generation wireless networks today. Not only are we helping wireless network operators make a smooth transition to packet-based networks, but we're now adding the convenience and flexibility of wireless access for a personalized Internet experience," said Jim Brewington, president of the Wireless Networks Group.

Upward Mobility

Revenue growth of more than 50 percent in Lucent's second quarter is evidence that Wireless is doing something right. While Internet growth itself has doubled in the last three years, with more than 200 million users worldwide, wireless networking is even bigger—nearly 500 million users globally today. Every minute, 30 people in the United States sign up for wireless service; the numbers are higher in many parts of the world where wireless has emerged as the preferred—and more cost-effective—means of communication.

Globally, the wireless subscriber base is doubling, growing as fast as the Internet. Some of the global growth in wireless networking serves fixed locations, but most of it is in wireless communications with portable handsets. These users will come to expect their on-ramp to Internet-based information to be accessible from almost anywhere.

"Today, we've got the Internet on our desks and a telephone in our pockets," said Mobile Internet Vice President Stacey Gelman. "What's next is another revolutionary step forward, delivering the ease of Internet services, as well as voice service, on an appliance you take with you wherever you go. Lucent is one of the few wireless equipment providers to effectively combine the best of Internet and mobility for an extremely dynamic and convenient service."

The first phase of wireless data service shows the promise of mobile Internet. Short message service is a wireless technology for messaging Internet-style to or between wireless handsets, and it's a big hit in the markets where it's available. In Europe, short message service has taken off, generating 2 billion messages a month and adding an incremental US $5 to the average user's monthly bill.

"Lucent is one of the few wireless equipment providers to effectively combine the best of Internet and mobility for an extremely dynamic and convenient service."

Stacey Gelman
Mobile Internet vice president

Taking customers well beyond short messages to a flexible, mobile Internet, Lucent brings to its wireless offers a unique blend of leading infrastructure, Internet-capable packet networking technology and alliances across the industry to marry wireless access with data networking.

"Lucent is delivering 'next-generation' wireless networks now," said Gelman. "We have the broadest range of next-generation offers and lead in the deployment of key wireless, data, IP and ATM technology for next-generation wireless."

Tomorrow's Networks Now

Recent customer wins highlight the evolution of Lucent offers on behalf of wireless multimedia and mobile Internet. Sprint PCS and U S WEST Wireless are expanding their CDMA networks supplied by Lucent. Last year, AT&T selected Lucent for a $1 billion extension of its network based on Lucent's commitment to evolving TDMA equipment for the mobile Internet and other forms of wireless data. And in Europe, where GSM is the wireless standard, Lucent is upgrading Germany's T-Mobil to an increasingly data-capable network, via General Packet Radio Service (GPRS).

PETER VIDOR

Walter Picot (left), Lucius Akalanne and Beth Badham are part of the global team developing Lucent's universal base station, a radio system that will support multiple third-generation wireless standards.

"Because of the breadth of our wireless experience, we are engaged with customers globally on all third-generation wireless solutions:

UMTS, W-CDMA, TDMA/EDGE, and cdma2000; and evolutionary solutions like GPRS and EDGE," said Bill Wiberg, president of Lucent's Cellular and PCS business. "Our approach enables carriers to meet next-generation standards for Internet and packet data along with convenient roaming anywhere on the globe, with any phone or mobile appliance you happen to carry."

Lucent's technology direction goes even further — toward a single platform that meets any carrier's regional needs. The *Flexent* product line, built in Ohio, New Jersey and Germany, addresses carriers' mobile Internet needs for base stations, routers and mobility servers. And they pull the *5ESS* switch and *7R/E* core network systems into the future.

A mobile Internet offer that integrates Sun Microsystem's carrier-grade systems with Lucent's mobile GPRS network platform will be available for customer field trials this summer, starting in the Asia/Pacific region.

"Lucent's offer combines our heritage of network reliability and Bell Labs architecture with Sun's 'dot com' expertise in servers and Internet platforms," said Brian Bolliger, director of Global Wireless Strategy. "The result will be a universal wireless server platform configured for carriers' regional needs, accelerating the mobile Internet."

The Lucent-Sun alliance will enable wireless operators either to become Internet service providers (ISP) or hosts for ISPs wishing to extend services to their customers on the move. At the same time, it will help these customers reduce costs, increase utilization of their networks and generate more revenue-per-user from compelling applications.

SID TABAK

At Lucent's Wireless Innovation Lab in Canada, Jean Chak experiments with downloading information from the Internet to her mobile phone using wireless data gateway technology, while Albert Lau administers the gateway.

Pitching In

As Lucent evolves to serve the packet-technology future, its data-focused units have a huge opportunity to lend synergy to a strong mobile Internet offer. "Like no one else, we have all the pieces in place to support the convergence of wireless mobility, Internet-based content and electronic commerce," said Wiberg.

"Whether it's a wireless operator considering options for next-generation networks, a content provider looking to expand its customer base, or a business seeking greater productivity for mobile workers, Lucent has a solution today." These solutions depend on partnerships, both inside and outside the company, to create offers that maximize Lucent's products and services.

"The Wireless Networks Group depends on such internal partners as InterNetworking Systems and Kenan," said Scott Erickson, vice president, Wireless Networks, Asia/Pacific. "Customers depend on us to provide ready-made, tested products and applications for the mobile Internet, integrating it all into their network — that's where we really outshine our competitors."

A heritage of convergence within Lucent on behalf of the mobile Internet is evolving. Wireless customer offers will include Cajun hub switches and Xedia-acquired ATM systems. "Lucent was a pioneer in integrating ATM into our CDMA offer, thereby reducing operating costs on behalf of our customers," said Erickson.

Lucent's Kenan *Arbor* software enables customer billing for creative, converged network applications around the world. Customers include BellSouth Wireless Data, AXTEL in Mexico, and Dacom in Korea. Optimay software, from the acquired company of that name in Germany, is a key to Lucent's GPRS offers, such as T-Mobil.

"The challenge for wireless operators in the future is that they'll be competing with a broader range

Bringing Applications to the World of Wireless

Partnering with industry players, Lucent is marrying packet technology and wireless access through several convenient—and creative—Internet applications that take full advantage of mobility. Following are a few examples.

Internet unplugged. The first thing the mobile Internet offers is the chance to enjoy the "Internet unplugged," with services like integrated messaging in a compact voice-commanded terminal. In teaming with iPlanet, an alliance between Netscape and Sun Microsystems, Lucent is helping wireless carriers tap the corporate messaging market. Mobile professionals using Bell Labs text-to-speech technology can hear their e-mails, then decide to answer, store or forward.


ROGER TULLY

Always on. Wireless networking fulfills the always-on potential of Internet communications while it frees users from their desks. Internet users subscribe to services that update news, sports, weather and stocks. Today, Lucent ally Strategy.com has an always-on "personal intelligence" application enabling network operators to do those same things. Subscribers on the go will have access to up-to-the-minute news, weather, sports, traffic and stocks, tailored to the user's whereabouts and personal preferences.

With content of whatever sort. Many may use the mobile Internet to locate a drugstore, but millions will use it for mobile commerce. Lucent and PhoneRun Inc. will jointly market a "phonecasting" service that converts the phone into a media network of Internet-sourced audio channels for news, entertainment and shopping. The service will run on Lucent's Mobile Communications System (MCS), which supports a wide range of mobile Internet applications, through a wide variety of devices. The MCS Voice Browser, for example, allows voice-driven Internet access and e-commerce services from any phone, anytime, anywhere.

From mobile commerce. Bluetooth is an emerging wireless specification for short-range voice and data communication. At the core of this technology are chips from Lucent Microelectronics Group containing miniature radio transceivers. Bluetooth will provide an easier way for a variety of devices to communicate with one another and connect to the Internet without the need for wires or cables. For example, users will be able to securely read e-mail on their notebook computers remotely using a cell phone, even when the devices are not within line-of-sight. Estimates hold that by mid-decade, 500 million mobile devices worldwide may incorporate low-cost, single-chip Bluetooth radios. Said Brian Bolliger, director of Global Wireless Strategy, "It's a way for devices to talk to devices, which in a decade may account for more network traffic than person-to-person connections." And Bluetooth could open doors for you: use your mobile phone to order seats at a concert, and carry it to the stadium, where a Bluetooth connection could unlock the turnstile for automatic entry.

To wireless interactive entertainment. The biggest mobile Internet market of all may soon be in the hands of children—mobile entertainment. Lucent is collaborating with Bandai to enable the Japanese company's gaming device to work with U.S. mobile phone networks supplied by Lucent.

Using a wireless gadget similar to Bandai's WonderSwan hand-held gaming device, consumers will be able to play interactive games, exchange e-mail and surf the Internet. "The underlying technology will come with the appeal of a toy, yet it's networked for interactivity without need for a phone, unlike an Internet session," says Akemi Denda, managing director of Global Multimedia Business Development for Mobile Internet. "But it's so much more: it will handle messaging, downloading of digital images, even interactive games so that users don't have to switch game cartridges."

Other attractive applications lurk ahead in new screen and audio technologies and in wearable communication devices, such as three-dimensional virtual eyeglass viewers. Lucent also works with handset and terminal makers to ensure that mobile Internet applications are compact, easy to use and broadly compliant.

—Blanchard Hiatt and Loren Talley

of businesses—often with unique new business plans—trying to apply their brands on enticing next-generation services," said John Hughes, GSM/Universal Mobile Telecommunications System (UMTS) president. "Wireless carriers themselves will want to gain value from content that they deliver to their customers, and we're giving them the tools to do that."

As part of the Service Provider Networks business, Lucent's newly formed Intelligent Networks and Messaging Solutions Group (INMS) is lending its software expertise to create mobile Internet applications. A recent example is the Short Message Service Center, a method for two-way wireless messaging that enables mobile network operators to provide a host of Web-based wireless data services—e-mail, search engine services, stock quotes, news, and access to PrePaid accounts.

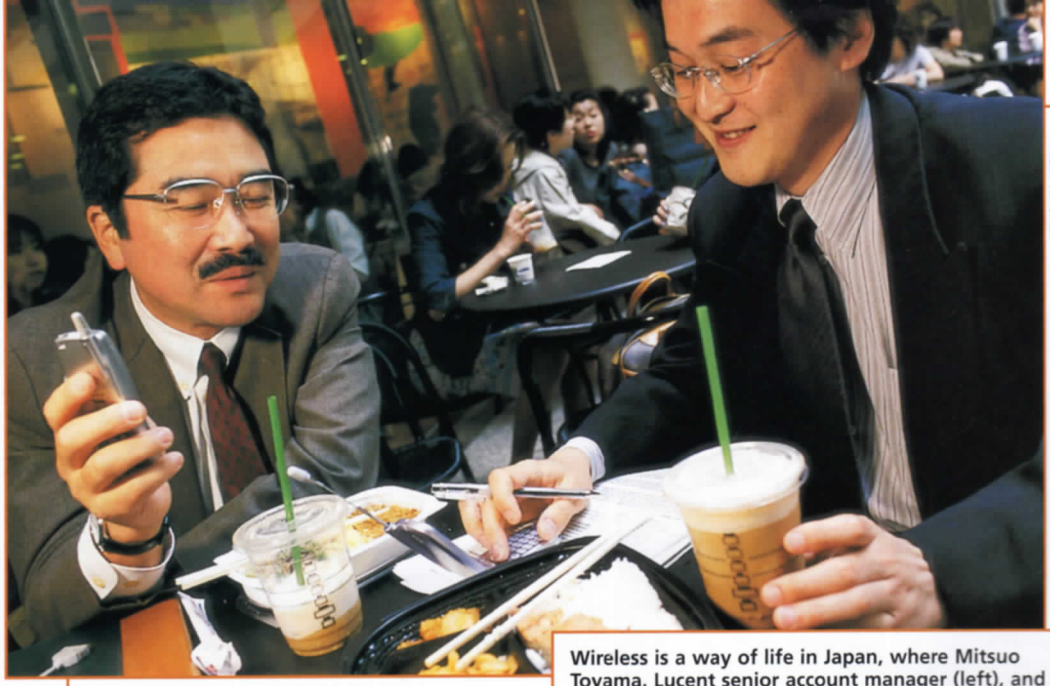
Also from INMS, the already available Mobile Communication System Voice Browser shows how service providers can benefit from a mobile Internet platform that's software adaptable. With voice-response processing, this technology lets users literally talk to the Internet, so you can have hands-free Internet access just about anywhere—even while you're in motion.

Partners for the Next Generation

In addition to internal alliances, Lucent is working with partners outside the company to ensure that networks are ready to support innovative and demanding new services, and that the services comply with standards that assure global availability and reliability. (See related story, page 8.)

Lucent is now partnering with over 100 application development companies to speed the way for new capabilities that will support mobile transactions—such as remote office working, online shopping, online banking, e-commerce and broadcast quality video for service providers.

Stepping up advances to build the mobile Internet, Lucent and Siemens Information and Communication Mobile Group are teaming up to prepare for the rollout of 3G UMTS networks.



TOM WAGNER

Wireless is a way of life in Japan, where Mitsuo Toyama, Lucent senior account manager (left), and Takeshi Natsuno, DoCoMo media director, conduct business unplugged and on the go.

The collaboration will ensure the early availability and compatibility of Siemens' UMTS terminals with Lucent's 3G UMTS network infrastructure. As wireless operators around the world start building UMTS networks over the next few years, Lucent will be there to deliver the total UMTS package, from core network infrastructure to base stations and beyond.

This partnership complements another agreement between Lucent and Sharp Corp. for interoperable CDMA devices, along with GPRS handsets to be used in Lucent's upcoming high-speed data trials.

"The next years will see an explosion in services all customizable to each user," said Hughes. "We intend to unleash the power of the Internet to mobile devices by enlisting developers who create new broadband applications and services, leading to increased revenue streams for operators and expanded consumer choice."

In the end, it will mean people have more control over communications services and devices that are faster, convenient and more flexible than ever. O

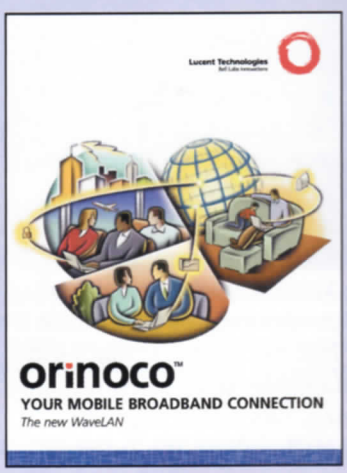
— Blanchard Hiatt and Loren Talley

ORiNOCO Offers Fast Internet Access: One Card, One Solution, No Strings

Imagine being able to check your e-mail and access your corporate files in the airport lounge while waiting for your plane—with literally no strings attached. It's no futuristic dream, but technology already being deployed by customers looking to bring wireless freedom to PC users.

Called *ORiNOCO*, it's a family of Lucent products that provide high-speed (11 megabits per second), wireless broadband connections just about anywhere—in your home, your garden, your office, a hotel, an airport lounge, a university campus, a mall or a park.

"This is not a slow trickle of data, but full wideband Ethernet-level data networking delivered without wires," said Cees Links, general manager of the Wireless Communications and Networking Division (WCND), part of Microelectronics and Communications Technology. "No longer will Internet surfers be limited to using their laptop computers within a few feet of a wall jack."



The system uses one wallet-sized PC radio card that fits into most laptops, desktops and mobile computing devices for instant broadband access. The card provides a high-speed Internet connection and communicates with various access points, which act as base stations for wireless users.

Building on Lucent's *WaveLAN* wireless technology for businesses, WCND has launched a number of wireless access infrastructure products under the *ORiNOCO* banner for untethered Internet access from home, office or public area "hot spots"—all using the same single *ORiNOCO* PC card.

Customers like Showdigital and Wired Global Communications are using *ORiNOCO*'s new AS-1000 Access Server to offer secure and reliable high-speed Internet access for their business customers. And most recently, Lucent introduced a number of high-powered outdoor antennas for *ORiNOCO*, making it possible for enterprises and Internet service providers to offer high-speed fixed wireless networking and Internet access to buildings or campuses at ranges up to 16 miles. The wider ranges can spell cost savings for Lucent's customers, as more powerful antennae mean fewer central outdoor routers are needed to service an area.

ORiNOCO also provides benefits inside the home. The RG-1000 Residential Gateway lets users set up high-speed data networks that allow them to share files, scanners, printers and other peripheral devices. Multiple users can share the same Internet connection and dial-up anywhere in a home or small office.

Irrespective of location, *ORiNOCO*'s broadband access offer adds a convenient dimension to Lucent's mobile Internet package. Angela Champness, director of Product and Business Management, summed it up: "No matter where you are or what kind of Internet access you need, *ORiNOCO* provides constant communication and is commercially available today. One card, one technology, one solution."

— Loren Talley

LUCENT CANADA

Gaining Northern Exposure

A brand new headquarters building ... A growing list of cutting-edge service provider customers ... Leadership in the CLEC, call center and messaging markets ... Second quarter revenue double that of last year ... Employer of the Year recognition.

In the face of having to compete on the home turf of one of Lucent's strongest rivals, the Lucent Canada team is sending a message to Nortel—and throughout Canada—that there's another game in town.

"It's a bit like David and Goliath in Canada, with Nortel in the Goliath role," said Carol Stephenson, president and CEO of Lucent Canada. "But the challenge is exciting. We're growing our business in the backyard of one of Lucent's toughest competitors, and that's fun.

"We're an enthusiastic and close-knit team. We don't have a huge number of people, so our attitude is whoever can help, helps. It doesn't matter what organization you're in; we work collaboratively to get the job done."

Stephenson and her team's "insurgent behavior," as she calls it, are proving that Nortel's home court advantage doesn't make it invincible. Lucent Canada achieved a growth rate of more than 50 percent each year from 1997 through 1999, and its second quarter fiscal 2000 revenue was double that of 1999's second quarter.

Among Lucent Canada's growing list of customers are Telus, Canada's second largest incumbent local exchange company (ILEC); Clearnet PCS, a wireless service provider that is Lucent Canada's largest customer; AT&T Canada, the second largest competitive local exchange company (CLEC) in the country; and Sprint Canada, the third largest CLEC.

Even Bell Canada, the country's largest ILEC and, until recently, an owner of Nortel Networks, is now a customer of Lucent Canada.

Lucent estimates its addressable market in Canada at approximately US$3 billion. By 2002, half of that opportunity is expected to be in the "emerging"

SID TABAK

Rising to the top in Canada's telecommunications industry is the goal of Group Telecom's CEO Dan Milliard (second from right) and President and COO Robert Wolfe (center), who've completed multimillion dollar contracts with Lucent Canada President and CEO Carol Stephenson, Sales Vice President George Arkeveld (left) and Regional Sales Director Wes Henderson.

Lucent Canada at a Glance

- **President and CEO**: Carol Stephenson
- **Headquarters**: Toronto, Ontario
- **Employees**: 850, divided almost equally between Service Provider Networks Group and Enterprise Networks Group, with modest representation in Bell Labs, the Microelectronics Group and *NetworkCare* Professional Services
- **Facilities/offices**: 21 in nine cities; Calgary, Edmonton, Fredericton, Halifax, Montreal, Ottawa, Toronto, Vancouver, Winnipeg
- **Lucent acquisitions in Canada**:

  Toronto-based **TKM Communications**, a leading call center system integrator with 50 employees

  Sybarus, acquired by the Microelectronics Group, a 35-person synchronous optical network (SONET) and synchronous digital hierarchy (SDH) semiconductor design company in Ottawa, a city becoming known as Silicon Valley North

  Soundlogic CTI, a 23-person, Vancouver-based developer of software that helps workers handle large volumes of multimedia communications

market that includes CLECs, where Lucent has already won about two-thirds of the business. In fact, Lucent Canada has used its success with these emerging players to raise its service provider share of business by 18 points since 1996.

"Canada is an important market for us," said Pat Russo, executive vice president and CEO of Service Provider Networks. "It's a market that represents forward thinking as to the importance of communications technology, and we see it as strategic to Lucent."

GT Chooses Lucent

A great deal of that forward thinking is coming from rising service provider stars in Canada—such cutting-edge companies as Group Telecom (GT), which has signed important contracts with Lucent.

"We're building the network of the future now with Lucent," said Dan Milliard, CEO of Group Telecom, a rapidly expanding provider whose deals with Lucent could total as much as US$350 million. "Lucent is a world-class company with the experience and capability to build large-scale, converged networks offering circuit, packet and Internet protocol services."

SID TABAK

Group Telecom, which recently moved its headquarters from Vancouver to Toronto, has facilities across seven Canadian provinces and more than 8,500 route kilometers of fiber deployed. Milliard's company expects to add a fifth *5ESS* switch in Winnipeg soon to augment the service provided by others in Calgary, Montreal, Toronto and Vancouver. And, in the next 12 to 18 months, GT plans to have more than 31,000 kilometers of fiber in Canada and the United States.

"Lucent came in and talked to us about our business—where we are and where we want to go—instead of just trying to sell boxes," said Milliard. "Then they showed us an architectural road map of how we can get to the solution we want."

That solution includes fiber-optic cabling for SONET rings, 10G optical gear, bandwidth managers, DACS equipment and Stinger products that will help GT "lead with data" when addressing its target market: small and medium-sized businesses.

Enterprise Leaders

Lucent Canada's New Enterprise Networks Group nearly doubled its revenue growth between 1996 and 1999. A growing part of that success comes from its leadership in Canada's call center and messaging markets. Lucent Enterprise Networks is particularly strong with banks—Scotiabank, one of Canada's largest, is a customer—and other financial institutions, including American Express.

John Cameron, president of Lucent Canada's New Enterprise Networks Group, believes both his team and the Service Provider Networks Group will continue to build their presence when Lucent Enterprise Networks is spun off in September.

"The spinoff will allow each company to focus more acutely on its core business," he said. "It's really creating an entrepreneurial passion here and a tremendous enthusiasm about the future. We're well positioned for significant growth with a terrific portfolio of products and services that the market wants."

"We've got great solutions and a terrific team, and we're committed to this market. We're here to stay."

Carol Stephenson • president and CEO, Lucent Canada

That was one of the messages he and Stephenson brought when they hosted "Insights 2000," a Lucent Canada event that attracted some 600 customers, prospects, industry analysts and media. Held at the Metro Toronto Convention Centre, the event allowed attendees to see demonstrations of Lucent solutions and hear from Russo, Stephenson, Cameron and industry analyst Ian Angus. Perhaps best of all, those in attendance also heard glowing customer testimonials during

presentations by Milliard and Tony Nadra, vice president of Customer Service and Call Centre Operations, American Express Canada.

The extremely successful event generated excellent media coverage and raised awareness of Lucent's commitment in Canada, a commitment that has been made all the more obvious with the opening of Lucent Canada's new headquarters building (see story at right) in the Markham district of Toronto, Canada's largest city.

Awareness of Lucent's presence in Canada had received a shot in the arm a month earlier when Canadian Women in Communications named Lucent "Employer of the Year." The organization cited Lucent for a workplace that is open, supportive and diverse. Women make up 50 percent of the leadership team in Canada.

"Getting mind share is essential if we are to grow in this extremely competitive environment," said Stephenson, "and we're getting the word out. We've got great solutions, a terrific team, and we're committed to this market. We're here to stay."

—David Fine

SID TABAK

Impressive multimedia is just part of the sizzle when Jayne White (left), group property manager at Lucent Canada's new headquarters building in Toronto, shows off the customer demo center to visitors such as MCK Communications' Bill Carty and Aramark's Patrick Fearon.

Building a Real Commitment

The newly opened Lucent Canada headquarters in the Markham district of Toronto is more than employee-friendly work spaces and meeting areas, a 21st century customer demonstration center and a state-of-the-art warehouse and distribution facility.

The four-story, glass and steel building is also a concrete symbol to customers, industry analysts and the media of Lucent's determination to be a major player in a rapidly growing Canadian telecommunications market.

"The new headquarters building is important," said Lucent Canada President and CEO Carol Stephenson. "People were asking, 'How committed is Lucent to Canada?' Well, this speaks very clearly to our commitment. We have put a stake in the ground that adds greatly to our visibility and reputation throughout the industry and the country."

A Lucent Award

Jayne White, Lucent group property manager at the new headquarters, led the building project and received Lucent Real Estate's Circle of Innovation Award for the design of the facility and its on-time, under-budget completion. On about 10 acres, the building has 200,000 square feet of space, including a 30,000-square-foot warehouse and distribution center employing the latest warehouse management system.

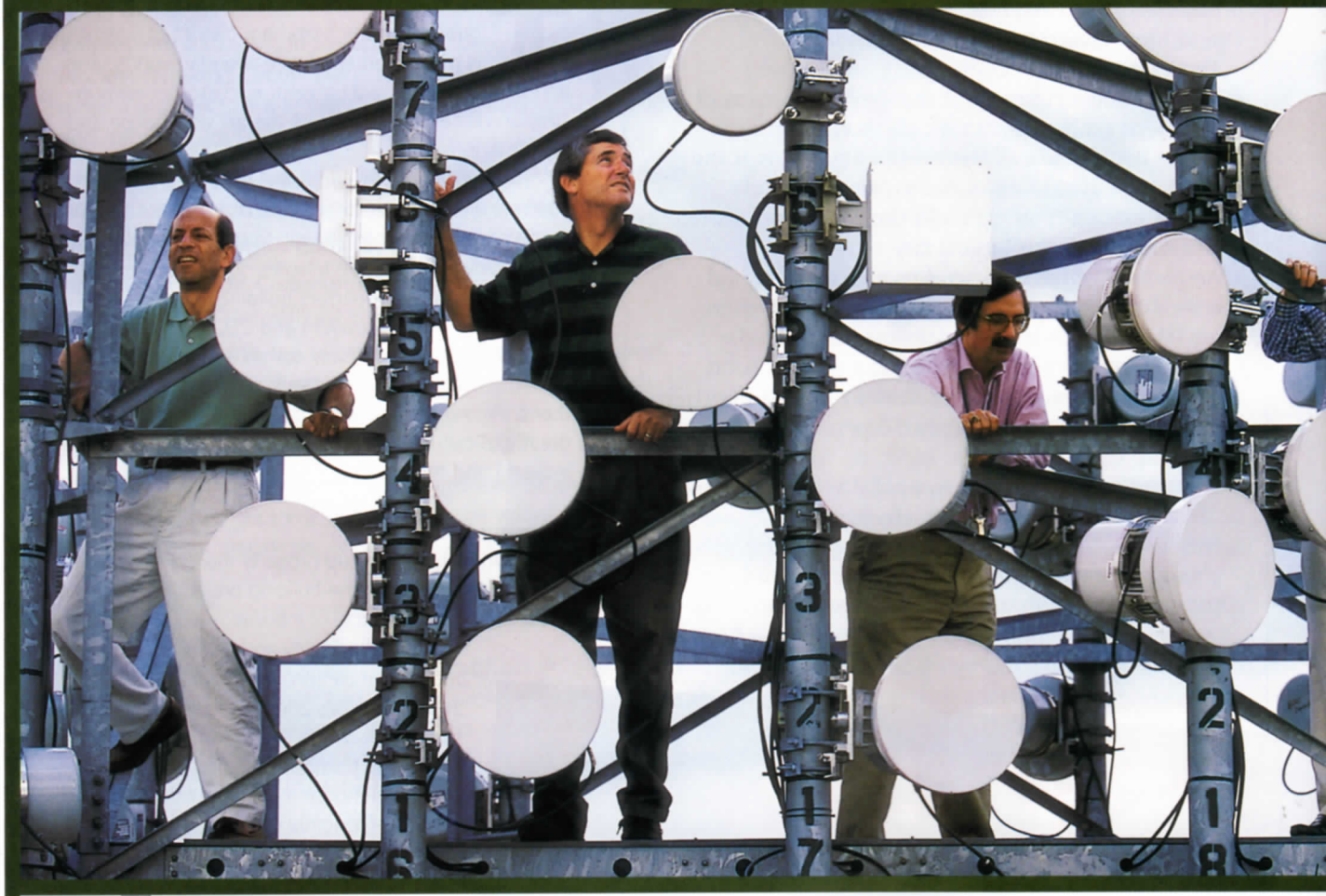
"The original design was for three floors, but our business is growing so fast we needed to add a fourth," said White. "What we worked hard to do was create both a friendly and exciting environment that shows Lucent is cutting edge in every aspect of its business."

The building, with its *SYSTIMAX* communications system visible behind glass partitions on the first floor, showcases Lucent's Intelligent Building System for touring customers. And the customer demonstration center—with its many video screens, multimedia devices and high-tech presentation rooms—has become a "hot ticket" with the media and analysts.

All of the office floors are designed to create an atmosphere conducive to teaming and sharing ideas. There are curved hallways, as opposed to those with right angle turns, that create a sense of warmth, and a number of alcoves that encourage communication among associates as ad hoc meeting places and lounges.

"We're in Canada for the long run," said Stephenson, "and the new headquarters is seen as proof of it. Visitors are impressed, and our Toronto associates really feel quite at home here already."

—David Fine



Advanced Technologies' 'Swat Team' Plans Network Solutions Around the Globe

When the hotly contested race among a host of fierce competitors on a major contract in Australia came down to the wire, a little-known global team of Bell Labs network design engineers provided the winning margin, pushing Lucent past the finish line.

A kind of expert network planning and systems "swat team," the engineers are part of the Bell Labs Advanced Technologies Group's Network Planning Solutions (NPS) organization. With 260 engineers supporting Lucent sales efforts in 17 countries, NPS is an important global resource.

"NPS helps our customer teams win contracts in a crowded field," said Bill Allard, vice president and chief operating officer of Lucent's Global Service Provider operations in Asia/Pacific. "For example, their expertise in network planning, design and infrastructure led us to revise architectural plans in our bid with Australia's One.Tel, lowering the bid by US$15 million. That was a key factor in winning the job."

The $700-million win Down Under to build One.Tel's GSM-based mobile network represented Lucent's largest win to date in the Asia/Pacific region. It marked the beginning of a banner year for NPS around the globe.

KEVIN T. GILBERT

Mohammed El-Sayed (from left), Tom Morawski, Tom Kutz of Winstar, and Lucent's Steve Richman get a look at a piece of Winstar's fixed wireless network. Bell Labs' Advanced Technologies is helping design the network architecture.

Overall, NPS supported 276 complex network projects with numerous service providers. The combined revenue potential of these projects represents a fourfold increase over the previous year. Nearly one-third of the customers are new to Lucent, creating potential for additional revenue streams.

Adding Value in Asia

Rati Thanawala, NPS vice president, said many service provider and enterprise customers approach NPS to conduct business case studies and develop planning tools to assist them in choosing between competing technologies. Some customers also test products from various vendors in the state-of-the-art Interoperability Lab in Holmdel, N.J.

"In all these cases, we're providing extra value to Lucent's global sales force for Service Provider Networks and *NetworkCare*," said Thanawala.

In Asia/Pacific, NPS helped Lucent land nearly $752 million in contract wins. Key wins for this current fiscal year include an $80-million deal to build a CDMA-based mobile phone network for TNZ, the major telecommunications carrier in New Zealand. The contract represents Lucent's first wireless data project in the region. Another major win includes designing a wireless GSM network for India's MTNL.

Successes in Europe

NPS followed up on its success in Asia/Pacific with major wins in the Europe, Middle East and Africa (EMEA) markets. "NPS is integrated into all our sales forces in the region," said Vincent Molinaro, vice president and chief operating officer of Lucent's Global Service Provider operations in EMEA. "Their technical expertise, ability to understand our customers' business and the problems our customers face is a tremendous asset and clinches deals for us."

In EMEA, NPS worked with Lucent's customer teams supporting KPN, the leading telecommunications company in the Netherlands. The effort increased KPN's network capacity and laid the groundwork for broadband services. Earlier this year, KPN signed a memorandum of understanding with Lucent covering a wide range of services, including a trial of Lucent's *7R/E* Packet Solutions.

"Because of this agreement, KPN can profit directly from the innovating power of Lucent's Bell Labs," said Paul Smits, KPN's chairman. "This kind of cooperation will help expand our market position and competitive edge even further."

Elsewhere on the continent, Lucent signed a multimillion dollar optical networking and data deal with Deutsche Telekom in February. NPS staff in Germany and the United States began working closely more than two years ago with the account team and Lucent's optical business unit to examine traffic demands on the German carrier's network. They proposed an evolution plan that will enable the company to manage bandwidth demand related to data traffic. As a result, the German company next year will become one of the first service providers in the world to offer customers transmission rates of between 10 and 40 gigabits (billion bits) a second over optical networking systems.

Winning with Winstar

NPS continues working with U.S.-based Winstar Communications Inc. to expand its broadband network in the United States and overseas. With this technology, radio equipment from a hub building sends a signal to antennae on end-user buildings with externally mounted antennae similar to satellite dishes. Line of sight between the buildings is necessary to deploy this technology.

"Bell Labs has played a key role in the planning and implementation of our network buildout," said Allan Zendle, Winstar's vice president of Architecture and Advanced Technology. Bell Labs developed an algorithm that significantly speeds up the selection process of buildings and radio hub locations. Instead of taking up to several days to identify each potential building, this tool enables Winstar to examine potential candidates throughout the continental United States in about a week, instead of several months.

Rati Thanawala
vice president,
Network Planning Solutions

"Expanding our network planning and design capabilities is part of an overall effort to build even stronger links between Bell Labs and our customer and business units," said Ernie Rodriguez, former vice president of Bell Labs Advanced Technologies, who recently announced plans to retire. "The demand is increasing as more companies without design and planning expertise seek us out to help them turn up services so they can generate revenue."

—Stephen J. Hudik

Fun and Games (SANTIAGO, CHILE) Children at the San Hogar Cristobal Center for homeless kids make a Pablo Burgos sandwich during a party sponsored by Global Days of Caring volunteers. Burgos, a Lucent employee in Chile, was one of many volunteers who spent the day playing games and clowning around with the kids.

Making a World of

Lucent's Fifth Annu

PETER VIDOR

Ready to Roll (WESTFIELD, N.J.) Judy Sheft, Intellectual Property and Compliance vice president, and 25 other Microelectronics volunteers fixed up the Westfield Infant Care Center inside and out. The volunteer crew rolled up their sleeves and painted the building and nursery rooms, installed new plumbing and planted grass.

Global Days of Caring 2000

With Lucent banners flying and volunteers rallying around the world, the Global Days of Caring celebrated a milestone—five years of giving back to the communities where Lucent employees live and work. Volunteers tackled projects as diverse as the people they benefited, in 26 states and 25 countries outside the United States. More than 17,000 employees, family members and friends spent the last weekend in April building, gardening, cleaning, walking, sharing their time and, most important, caring—helping to make a world of difference. The thanks employees received were the same from Mexico to Germany and Florida to Taiwan, demonstrating that smiles are as universal as they are contagious. Take a look at the snapshots on these pages to see the faces and places that made this year's event a success.

CLAUDIA KUNH

PETER VIDOR

→ A Shore Thing (LONG BRANCH, N.J.) Water was not the only thing being passed out at the Jersey Shore marathon. Monisha Merchant, a Lucent volunteer, also shared smiles and words of encouragement with runners participating in the 26.2-mile run held along the New Jersey coast to benefit children's charities.

MARLENE KARAS

← Blazing a New Trail (NORTH ANDOVER, MASS.) About 24 Lucent volunteers and family members, along with 23 volunteers from Outdoor Exploration, mapped out new nature trails in Harold Parker State Forest. Tony Roberts (right) was among the volunteers who built a wheelchair-accessible ramp, cleared away brush for future trails, and constructed foot bridges for easy access through marshes.

SID TABAK

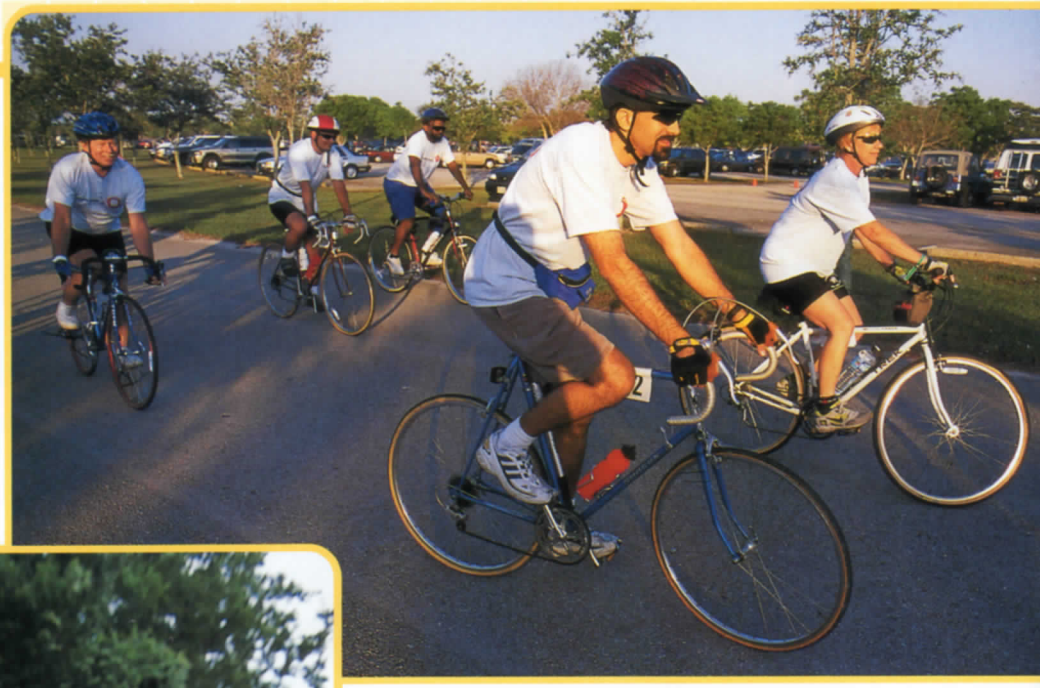
→ A Step in the Right Direction (TORONTO) Carol Stephenson, president and CEO of Lucent Canada, kicked off the five-kilometer walkathon in Toronto. Lucent employees raised awareness and $10,000 for the York South Association for Community Living, which provides living assistance for developmentally challenged people.

Difference

al Global Days of Caring

MARKUS MATZEL

← Lending a Helping Hand (NUREMBERG, GERMANY) Volunteers helped spruce up the grounds and small animal zoo at the Martin Luther House for Children. The busy day was spent working on animal cages, renovating play areas and other landscaping work. Susanne Krahl (left) and Antje Wisotzky spend some quality time with a new friend.



→ Leaders of the Pack
(MIAMI) It was a beautiful day for a bike ride, especially along the South Florida coast. Just ask the 16 Lucent riders and 15 Lucent volunteers who participated in the two-day, 150-mile bike tour from Miami to Key Largo and back. At final count, the Lucent riders raised and collected pledges totaling $4,812 to benefit the National Multiple Sclerosis Society. Joe Jurich (center) and Georgette O'Cone (far right) lead some riders along the course.

KEVIN VANDIVIER

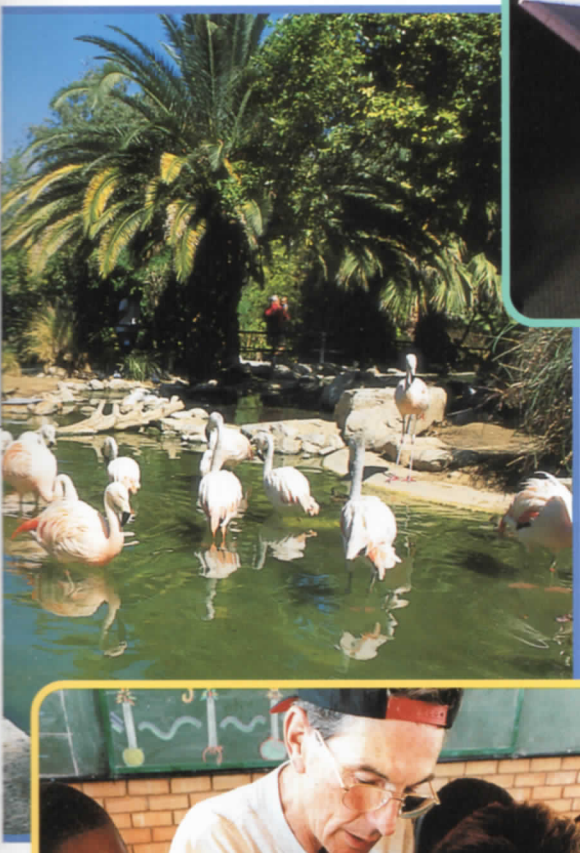
Walk on the Wild Side (TUCSON, ARIZ.)
Like explorers on safari, Richard Coop (left) and 50 other volunteers took mentally and physically challenged children on a tour of the Reid Park Zoo. Lucent Pioneers organized the zoo outing and picnic and handed out Hug-A-Bears to recognize 30 youngsters for their work on neighborhood and global volunteer projects.

← A Dream Come True (AUSTIN, TEXAS)
Armed with shovels, hammers and determination, volunteers like Lucent's Mark Sanchez (left) teamed with Habitat for Humanity, a national organization that provides affordable housing to area residents, to help build a "dream house" and landscape the grounds.

TOM SALYER

ROBIN NELSON

→ Role-Model Readers
(ATLANTA) Never underestimate the value of reading. That's the philosophy behind "Read to Me," a national literacy campaign sponsored by the Pioneers. Lillie Milner (background, from left), Brenda Ballard, Jonathan McLaughlin and others assembled and distributed kits with storybooks and other resources. Pioneers partner with Grady Hospital to help parents like Dedric Jordan (foreground, with son Russell) read to their children.



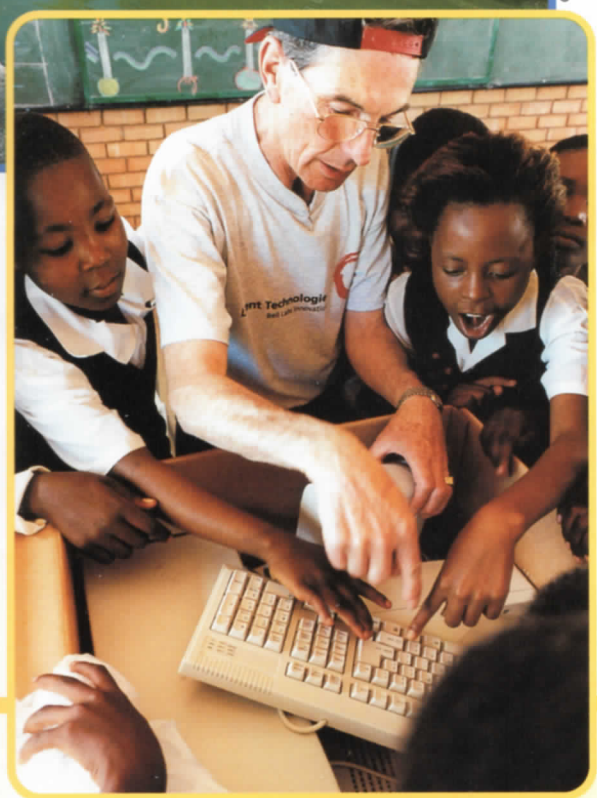
JOHN PHILLIPS; BELOW, SALLY SHORKEND

CHERYL SHERIDAN

← Spring Cleaning
(TAIPEI, TAIWAN) A little hard work can go a long way, as volunteers proved on a recent visit to the ancient Confucius Temple. Shiow-lan Sheu (center), with her children Cheu-gang Huang and Jya-ming Huang (far right), cleaned up the temple grounds and did some landscaping work to keep this amazing monument in great shape.

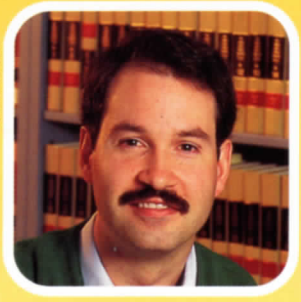
LARCENA JOEY

← Shining Ray of Hope (HINODE, JAPAN) Mayuki Yamamoto (standing) lends a helping hand as residents of the Hinode Taiyo Noie (House of Sunshine) paint colorful designs on pottery and sort beads. The agency organizes recreational projects, gardening, exercises and other daily activities for its 30 residents.



← Reading, Writing, Rebuilding (PIETERSBURG, SOUTH AFRICA) An eight-member team delivered equipment to the Selaelo Primary School and refurbished fences damaged by torrential rains that flooded South Africa's northern province. Surrounded by a sea of smiles, Allan Henderson unpacks a computer donated to the school.

How are you using technology to increase productivity?


LISA QUINONES

Our group piloted a document imaging and text conversion tool to better manage our large paper repository of licensing contracts. This high-tech tool eliminated a long-standing bottleneck that prevented quick access to mission-critical files. An online link to other databases improved the way we respond to demands from Lucent's legal groups and business units.

Art Roberts
paralegal,
Intellectual Property Licensing Law,
Corporate Law,
Liberty Corner, N.J.


JIM COIT

In the war for talent, technology is driving down costs, increasing efficiencies and propelling us past competitors. We're automating the recruiting process into a paperless, efficient system. With the launch of our e-Offer program and new candidate care process, we interact and connect with new hires to complete the hiring process using personalized Lucent Web sites even before their first day on the job.

Chad Theule
senior manager,
Recruiting Technology
Human Resources,
San Diego


LARRY HAMILL

Our team adopted a flexible, online reporting tool to track and compare customer satisfaction levels against our competition. Instead of using snail mail to share reports, our Web site allows us to access customer feedback quickly, pinpoint customer issues and introduce immediate improvements. Customer issues can be resolved efficiently.

Debbie Tillery
senior manager,
Voice of the Customer Program,
Global Marketing,
Service Provider Networks,
Columbus, Ohio


LISA QUINONES

My job involves inventory management and maintaining quality service for internal customers. Technology allows our team to exchange ideas with greater speed, ease and cost savings. We've traded slides and handouts for online interactive demonstrations in our training programs. With a PC and digital projector, we can create "what-if" examples for goal setting and modeling the best ways to address customer issues.

Miguel Araujo
manager, Materials Management,
Procurement,
Microelectronics,
Madrid, Spain


ROBERT ROYAL

Lucent installers and technicians depend upon computer-based training to keep pace with rapid changes in data networking. As a prerequisite to hands-on experience, we log onto Lucent's Web-based College of Knowledge to expand our technical skills and pursue certificates. With more than 400 courses available, Lucent ensures that we're qualified to handle the challenges and customers we encounter in the field.

Jim Gallagher
field operations manager,
Network Services,
Service Provider Networks,
New York, N.Y.


ROBIN NELSON

Our technology and networks give us the flexibility to work anywhere at any time. Technology has eliminated clutter from my desktop and my life. These productivity enhancements, plus our constantly changing industry, are what keep us growing and increase our competitive edge and value to Lucent.

Marcus Mills
business systems analyst,
Information Technology,
Chief Financial Officer,
Alpharetta, Ga.


LISA QUINONES

Technology and teamwork have produced laser chips that are twice as complex, but are developed in half the time. Bell Labs' advanced modeling techniques reduce design cycles. Our Web site provides timely communications with team members in Research, Microelectronics and Optical Networking. The result: We won a best product award for the world's first fully functional, wavelength-selectable optical transmitter at Optical Fiber Communications 2000.

John Johnson
member of technical staff,
Semiconductor Photonics Research,
Bell Laboratories,
Murray Hill, N.J.


LARRY EVANS

Thanks to technology, resources are available to us at amazing speeds. I count on technology not only for valuable online support, but to build Lucent hardware. To shorten turnaround times and recycle product parts, electronic files are used for transferring blueprints, designs and manufacturing requirements to vendors. Model parts are stored in an electronic database to ensure they're robust and ready for manufacturing.

Trish Powell
computer aided designer,
Switching Platforms and
Technologies,
Service Provider Networks,
Naperville, Ill.

Lucent Technologies
Bell Labs Innovations