

May 1998

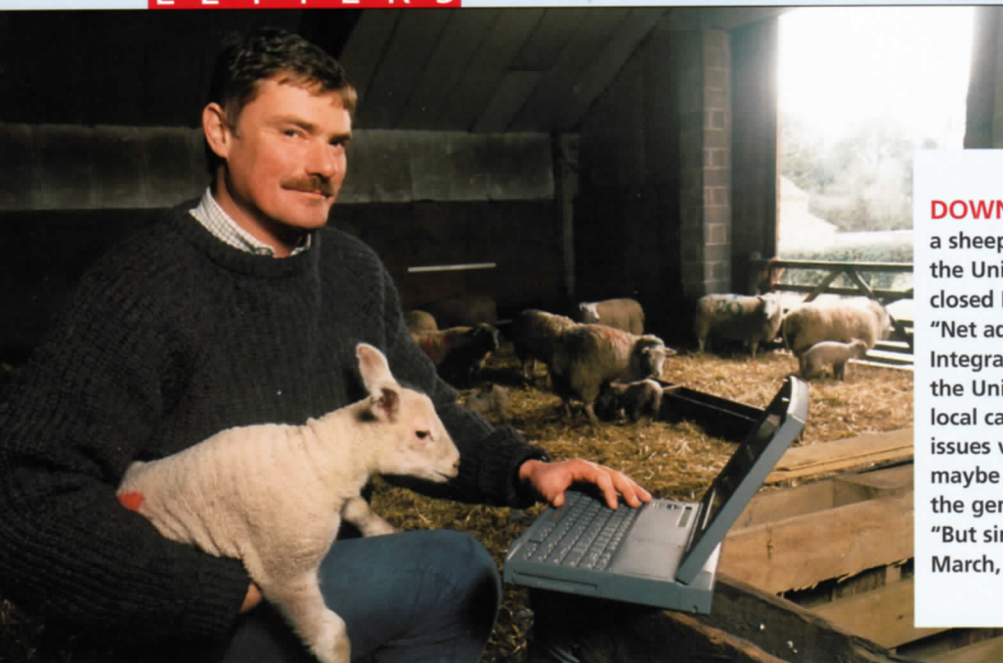
Lucent

m a g a z i n e

Speeding To Market On The Wings Of Innovation



Also In This Issue:
Lucent's Extended Family
Leaders On The Road Again



DOWN ON THE FARM — Kevin Littleboy, a sheep farmer from Thirsk, North Yorkshire in the United Kingdom, says Farming On-Line, a closed Internet user group, has turned him into a "Net addict." The service uses Lucent's *PortMaster 3* Integrated Access Server to connect farmers across the United Kingdom to the Net for the cost of a local call. "I can now share information and discuss issues with farmers who I would otherwise meet maybe once a year," says Littleboy. "I'm not from the generation of technology whiz-kids," he adds. "But since subscribing to Farming On-Line last March, I am now a Net addict."

Premier Perk

After working at smaller firms for the past 10 years, I must say that one of the best perks of working at a company with the stature of Lucent Technologies is the availability of the excellent magazine you provide.

Anthony Pytko
Lisle, Ill.

Technology Tutor

On the December issue: a very interesting and impressive one, especially "Lucent Reaches Higher for Growth in Data Networking." Lucent Magazine for me is not just a magazine. I consider it my companion because it teaches me about advanced technology. More power to Lucent, and more, more, more invention!

Gilbert Yague
Caloocan City, Philippines

Every Second Counts

I enjoy reading Lucent Magazine, especially the March issue's "Digital Dilemma: Year 2000." While John Pittman's "counting the seconds" clock is impressive and reflects an accurate view of the time remaining until the year 2000, it does not reflect how many seconds remain in this millennium, since the new millennium does not begin until Jan. 1, 2001.

Bill Lane
Orlando, Fla.

AirLoop Addition

Please make mention of the people from Chippenham, United Kingdom, who provided the system, electrical, mechanical and software engineering as well as some product, project and other management to develop the *AirLoop* Wireless Local Loop System. It was an unfortunate omission ("Fixed and Mobile Options Offer Wireless Wherever," March 1998), especially considering how the articles tend to be focused on the people of Lucent and their accomplishments.

Michael Ciccone
Columbus, Ohio

Great Tool

The January/February issue was your best ever. I find it necessary to do presentations almost on a daily basis to existing customers, potential customers and to our systems integrator partners. Your profiles of the Lucent business units are the most helpful tool I have come across ("Focused and Ready for Growth," January/February 1998). The org chart helped me understand who we are, and the profiles are a tremendous aid in helping me to articulate what we do.

Jerry Lazaroff
Washington, D.C.

Remember Chippenham

From the recent article about *AirLoop* ("Fixed and Mobile Options Offer Wireless Wherever," March 1998) it is easy to form the impression that all work that has been or will be done on this product is based in the United States. In fact, work began on *AirLoop* in Chippenham, United Kingdom, about three years ago, and Chippenham is currently the main center of development of this product.

John Simmons
Chippenham, England

Write to Us

Please share your opinions about Lucent Magazine with us by sending letters to:
Lucent Magazine
Editor - Rm. 2B515A
Lucent Technologies
600 Mountain Avenue
Murray Hill, N.J. 07974
dvanatta@lucent.com

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Executive Editor
Patty Wainright-Smith

Managing Editor
Dan Van Atta

Editorial Staff
Shirley Chan
Jill Christensen
Maureen Dvorak
Kara Jordan
Noëlle Lusardi
Suzanne Sidhu

Contributing Writers
Saswato Das
Eudora Martin
Jack Molets
Kelli Harris-Wong

Production Manager
Ilona Jones

Design
Bessen Tully & Lee
New York, NY

To contact Lucent Magazine:
Write to: Dan Van Atta
2B515A
600 Mountain Avenue
Murray Hill, N.J. 07974
dvanatta@lucent.com
voice: 908 582-5075
fax: 908 582-6630

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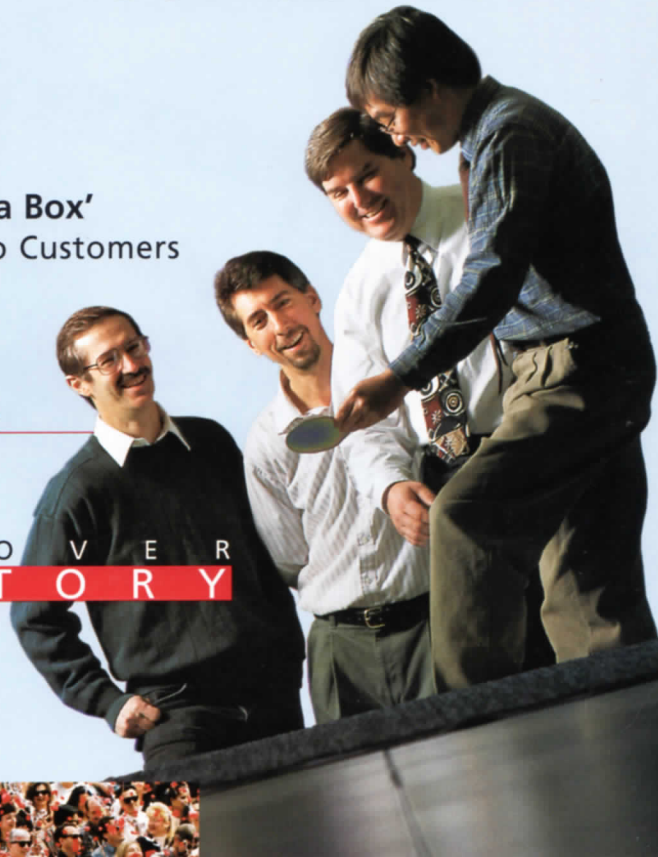
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THEO ANDERSON



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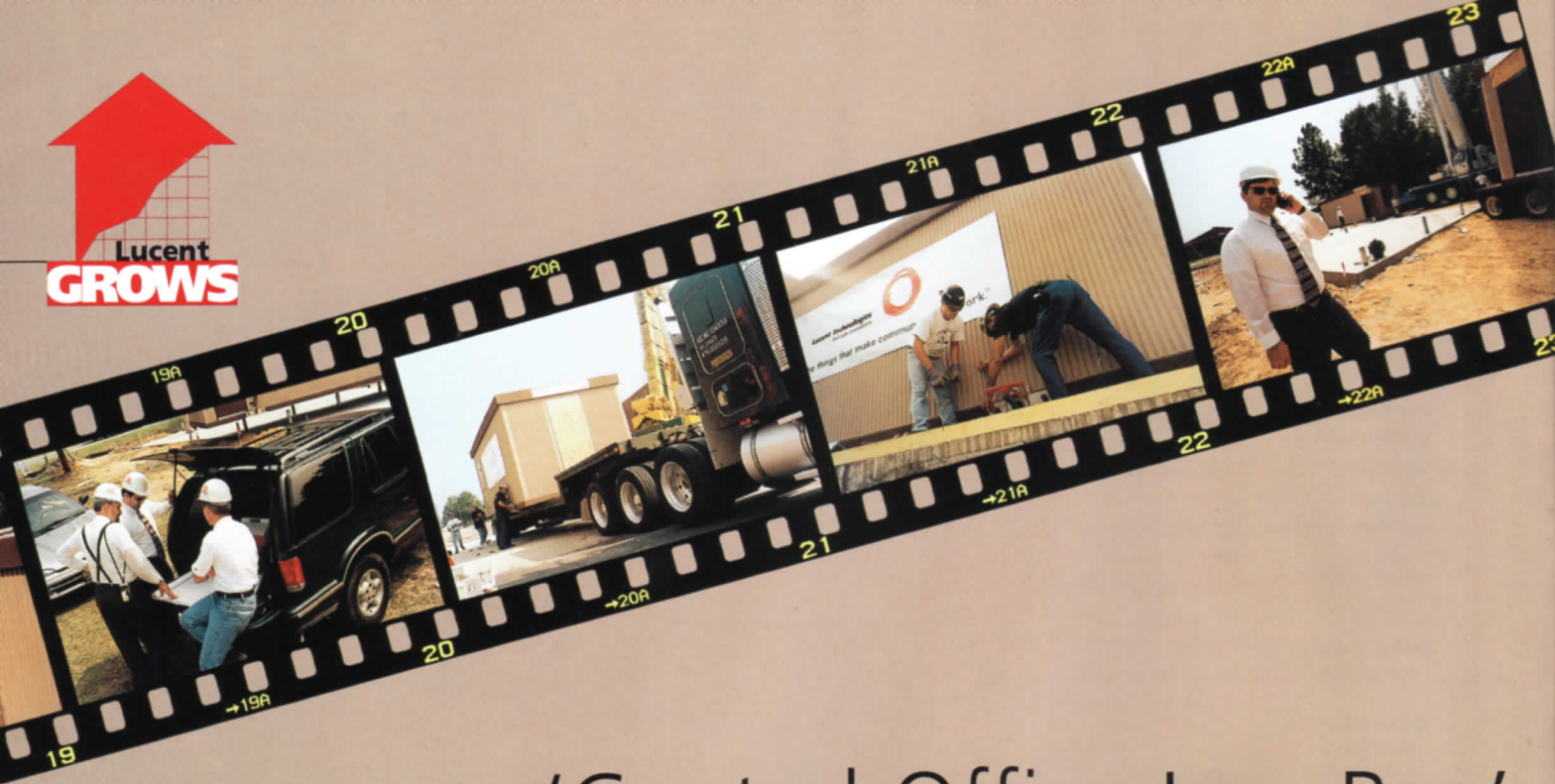


ROB NELSON

On the cover:

Soaring on the wings of innovation are Gary DePalma (left), Lisa Piper, Bob Kurshan (top) and Danny Johnson — all members of the FormalCheck team. FormalCheck verifies microchips, like the one they are riding on, before the chips are packaged.

Cover photography: Roger Tully
Cover digital imagery: Carol Braverman



'Central Office In a Box' STEPS UP SERVICE To Customer

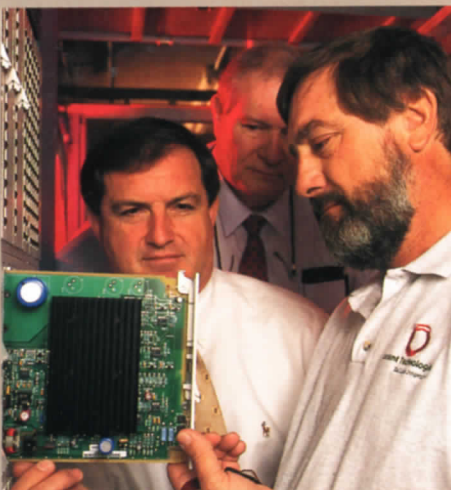
A speedier, cheaper solution — that's what KMC Telecom got when a cross-functional team at Lucent's Morrow Customer

Support Center (CSC) near Atlanta executed an out-of-the-box idea by putting a "central office in a box." In just six weeks, the team figured out how to install Lucent networking equipment in pre-fab, transportable concrete buildings. The solution not only lopped six months off installation time, it proved nearly 40 percent cheaper than traditional methods.

It also earned Lucent's KMC Telecom team a GROWS award for "outstanding contributions to the growth and success of Lucent Technologies." The heart of the KMC project has been the Morrow CSC, a Global Service Provider (GSP) Services and Systems' work assembly center and staging location. The facility assembles and ships installation materials to any customer, anywhere. To help court new customers and reel in new revenues for Lucent, employees at the CSC, including some 350 Georgia-based installers, are approaching their work in innovative ways and enhancing their skills.

"The 'central office in a box' is a unique adaptation," said Jim Barwick, KMC's senior vice president of technology and chief engineer, "and we were only able to do it because of Lucent's facilities and people."

Barwick and Roy Choates, KMC vice president of construction, have been driving the new CLEC's (competitive local exchange carri-



ROB NELSON

Freddie Knowles (right), Lucent installation service representative, checks a circuit pack in the transmission building of the "central office in a box." Looking on are Bill Pittman (left), Lucent national account manager, and James Barwick, KMC Telecom's senior vice president of technology and chief engineer.

er) expansion program, and knew they needed central office equipment set up quickly. Providing advanced telecommunications solutions to business customers in cities of 750,000 or less, KMC had found a niche where it could offer the benefits of fiber optics, broadband access and all the other advanced technology available in larger markets. But it wouldn't take long for others to find it as well.

"KMC had a traditional central office approach — rent or buy property, build or refurbish a building and outfit it with equipment — work that can take an entire year," said Bill Pittman, Lucent national account manager. "But the company planned to expand into 40 to 100 cities in just a few years, and couldn't afford to take the traditional approach."

Barwick and Choates wondered if pre-fab buildings with equipment already installed could be the answer, and brought that question to Pittman. He took it to the Morrow CSC.

"Lucent doesn't like to tell a customer 'no,'" said Freddie Knowles, installation service representative at Morrow. "So when KMC came to Bill Pittman last summer, he invited them to sit down with us and brainstorm, to talk about it awhile."

A large team chaired by Choates and Pittman, including KMC engineers, vendors, Lucent installers and the regional Global Commercial Markets engineering group, decided that a transportable, permanent "central office in a box" could work. Equipment to fulfill KMC's designs for transmission, power and switching needs would be installed and tested in pre-fab buildings at Morrow, then transported by flatbed trucks to the installation site.



Lee Waters (foreground) and Thomas Guerrero (rear), Lucent installers, check equipment for KMC's Larry Salter (left), senior vice president, engineering and construction, and Mike Hayter, senior applications engineer, network design.

KMC would buy or lease a plot of land, have cable buried and concrete pads poured. When the boxes arrived, the final hookups could be done quickly.

"The modular concrete buildings are 11 feet by 26 feet and weigh 42 tons each," explained Thomas Guerrero, installer at the Morrow CSC. "We configure and install the equipment here, put the buildings on air pallets, then load them on a flatbed truck for delivery." Four buildings are usually set up at each site.

Since September, units have been deployed to Savannah, Ga.; Augusta, Ga.; and Corpus Christi, Texas. Upgraded units soon will be installed in Winston-Salem, N.C.; Greensboro, S.C.; and Tallahassee, Fla. "When KMC managers saw how smoothly it went and how much cheaper it was,"

Knowles said, "they changed their plans. Now, of the 40 cities KMC is planning to serve by 1999, 35 of them will use Lucent's 'central office in a box.'"

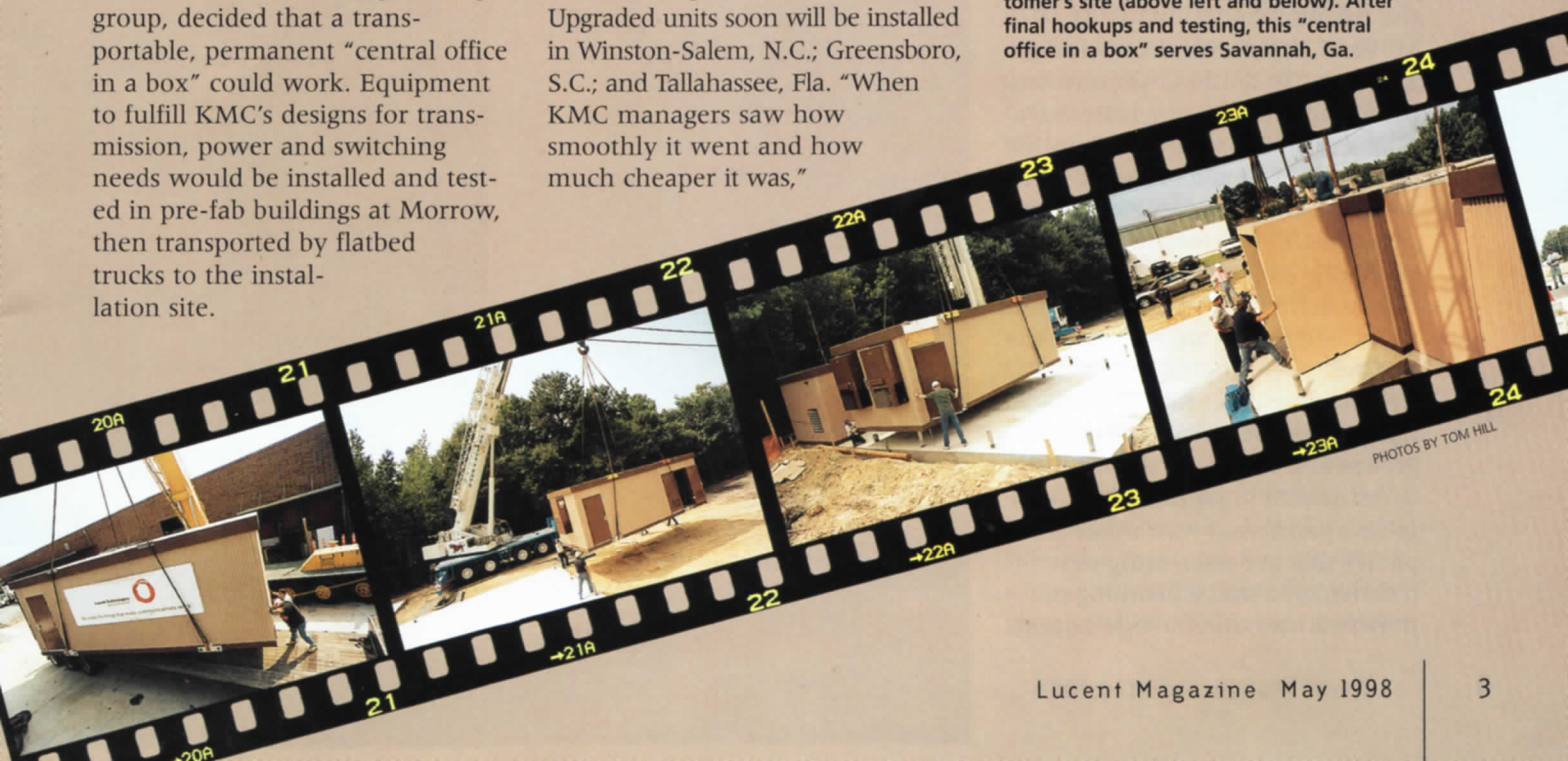
"The Lucent people who pitched in and gave us so much support deserve a lot of praise," Choates said. "The team worked arduous hours to make it a win/win."

Lucent workers were glad for the opportunity. "The project has been great for the Lucent installers as well, especially those looking for more experience," said Lee Waters, installer at Morrow. "Normally, only experienced technicians go out to the central offices to work on equipment. But because the central office has been brought to us, we've had the opportunity to work hand-in-hand with the engineers and learn things we wouldn't have otherwise."

"Everyone pulled together for the customer on this project," said Glenn Reavis, GSP regional operations director in Atlanta. "What keeps us in business are dedicated people who are flexible and open-minded to the needs of the customer. The people at the Morrow Customer Support Center have a can-do attitude. They just don't want to tell a customer 'no.'"

— Suzanne Sidhu

Pre-fab buildings stocked with installed and tested Lucent equipment are loaded onto flatbed trucks and delivered to the customer's site (above left and below). After final hookups and testing, this "central office in a box" serves Savannah, Ga.



Nothing Succeeds Li



he pressure is on — from customers and competitors.

Lucent is playing in one of today's most intense industries, where

customers are demanding breakthrough products to meet their escalating information needs, and competitors are vying to be first to meet those demands. It's an industry in which speed equals success, and being first to satisfy customers is often the difference between market gain and market loss.

"I want Lucent to be the most feared and respected company in the information industry," said Lucent Chairman and CEO Rich McGinn. "To do that, we must beat our competitors to our customer's door every time and make sure we have a good product to offer when we get there. Speed doesn't kill in this domain. It drives us toward success."

One of the best ways for Lucent to increase its speed, according to McGinn, is through faster decision-making. That means forging tighter links between the business groups and the research and development organizations. It also means partnering with other companies that are pioneering new technologies, and embarking on new ventures that provide Lucent

with quick growth opportunities in non-traditional markets.

"The essence of innovation is not just about coming up with a new idea, but about creating products that truly change our customers' world — and give Lucent a clear competitive edge," added Dan Stanzione, Lucent chief operating officer and Bell Labs president. "We have to be fast because our customers have to be fast — or they will fade away. It's that simple."

And Arun Netravali, Bell Labs executive vice president, research, believes everyone in Lucent must be passionate about speed and about serving our customers. "It's essential," he said, "for Bell Labs' researchers and developers and the business groups to concentrate on cutting product development intervals and on bringing new technology to market far ahead of the competition. We can't be afraid to replace our own technology with new and better innovations because if we don't, our competitors will."

Teams throughout Lucent are already stepping up to the challenge and speeding new products to market — often to the surprise of our competitors and the applause of Wall Street analysts.

For example, Lucent recently announced *WaveStar* OLS 400G, an optical networking system that offers greater capacity than any existing system. It took Lucent

"Our customers were asking for help, and we provided it fast through an intelligent marriage of technologies."

— Tony Parker



THEO ANDERSON

ke Speed to Market



Mike Ayukawa of Chip Express (far right) examines a silicon wafer with (from left) Hal Scholz, Marty Gasper and Tony Parker at Lucent's Microelectronics Group facility in Allentown, Pa.

just 18 months to develop and bring the system to market. We followed swiftly with *WaveStar* BandWidth Manager to help customers handle that increased capacity. Lucent also took the Internet Telephony Server SP from concept to product in just nine months, beat our competitors by two years with the announcement of *TrueWave* fiber, and was first to introduce a code division multiple access product that worked.

And there's much more. Several newly announced examples of how Lucent is meeting customers' needs in a hurry were showcased during Bell Labs Innovation Week in April. Here, we present some of "the best of the best."

The World's Top Firewall

Figuring out a secure way to conduct electronic commerce is a major hurdle to taking advantage of the Internet's explosive growth. How do consumers prevent credit card numbers from falling into the wrong hands when they are making a purchase? How do suppliers and distributors exchange information about orders without setting themselves up for eavesdropping? Lucent's Managed Firewall provides the answers.

Not a surprise, given that Lucent wrote the book on firewalls; Bell Labs' Bill Cheswick is widely considered a world-leading expert on such matters. The new firewall gives consumers the next genera-



JOHN KEELAN

Margaret Ann Chappell, systems engineer in Holmdel, N.J., helped her development team move Lucent's *elemedia* Gatekeeper toolkit to market in less than seven months.

tion in security. It is snooper-proof. It draws from five stellar patents. And while more than 50 firewalls are available today, none can match Lucent's product when it comes to flexibility or reliability. "We leveraged our Bell Labs expertise to create a new product that can support multiple security policies. This is a very valuable feature — no other firewall can do this," said Howard Gittleston, director of the Lucent Internet Security Products Group.

Because of the large number of potential customers, the new firewall provides a scalable approach to meeting each customer's needs. It's also easy to use, complements any firewall now in use, and supports a variety of applications without requiring any network reconfiguration.

Major Internet service providers (ISPs) in the United States and Canada are conducting trials of the firewall. Planet Access, a New Jersey ISP, is already a customer. And the International Computer Security Association has endorsed it as "meeting the highest standards" of the global industry.

The firewall was commercialized in less than six months by a high-energy team consisting of researchers, developers and business group people working in con-

cert. The product prototype was put together in 120 days — a result even the most nimble Silicon Valley start-up firm might envy. "Speed to market was our mandate," said Gittleston, who coordinated the launch. The team came out with a second version of the firewall in three months. "The industry's needs change quickly. We're committed to keeping pace."

Internet Innovation

Routing telephone calls over the Internet is becoming one of the fastest-growing segments of the communications industry. Competition is fierce among companies seeking to position themselves in the market, and Lucent is playing to win.

Through its year-old *elemedia* venture, the company is quickly turning out software tools to enable high-quality multimedia communications over the Internet. One of the latest — and greatest — of these tools is Gatekeeper, which was developed in direct response to customer needs. "We quickly defined an initial product that could easily evolve with the standards and meet customer needs. The overall effort was completed in just under seven months," said Krishna Murti, *elemedia*'s vice president of technology.

Gatekeeper provides call control services, such as address translation (needed when a call from a phone on a public-switched network is being made to a PC linked to the Internet); bandwidth management (needed if a gateway is congested); admissions control (invoked to get credit card approval, for example); and other services that will enable Internet telephony to mimic today's public network service.

"Gatekeeper will enhance the quality of service of Internet telephony, as well as provide the ease of use that consumers demand. Gatekeeper will be a crucial element in the evolution of the next-generation network," said *elemedia* President Joe Mele.

Customers are enthusiastic about the new product, especially eFusion, which provides Internet solutions for enhanced interactive communications and depends on other *elemedia* products to connect calls between the public switched networks and the Internet. "Based on our experience with *elemedia*'s superb support and technology, eFusion is evaluating Gatekeeper for use in our application gateways," said Ken Keeler, eFusion's vice president of product operations.



Bug Buster

The problem: Microchips manufactured today often contain millions of transistors, and designers are constantly

working to pack in even more. As chips become increasingly crowded, designing and testing them become extremely complex and time-consuming. How can manufacturers ensure reliability, save money and speed up chip production?

Lucent's solution: A verification tool called FormalCheck that lets engineers spot errors in chips at a very early stage.

True to its word, Lucent was fast to market with this product, which was developed in just 18 months and is now the industry's leading tool for error-checking microchips.

"We have to be fast because our customers have to be fast — or they will fade away. It's that simple."



— Dan Stanzione

In addition to Lucent's Micro-electronics Group, customers like Texas Instruments, Cray Research, Silicon Graphics, Nortel and National Semiconductor are lining up to buy our product.

FormalCheck grew out of an Advanced Technologies program designed to help quickly commercialize the fruits of Bell Labs research. Work began when a group of mathematicians and computer scientists realized chip reliability could be maintained by more powerful algorithmic checks of designs. Early checks meant bugs could be eliminated earlier, speeding up the entire process.

Traditionally, chips were checked by running time-consuming simulations that often didn't reveal every error, according to Ravi Sethi, vice president, computing and mathematical sciences research. With FormalCheck, an engineer simply specifies high-level behaviors, and the tool does the rest. Unlike simulations, proof of errors is comprehensive and mathematical. If an error is found, FormalCheck can pinpoint its location, Sethi said.

The Bell Labs Design Automation Lab, headed by Bill Evans, worked very closely with Research to quickly ready the product for market. "Usually, researchers hand off their ideas to developers and drop out of the picture," said Robert Kurshan, who devised the algorithms. "With this product, researchers worked with developers to continually make improvements and immediately incorporate them into FormalCheck."

And customers are delighted with the results.

"When the tool was released in April 1997, two customers made purchases and both came right back to buy more copies," said Gary DePalma, the product manager. "A major semiconductor company bought two copies to start with. Its engineers ran the tool on a chip that was ready to go into the silicon stage of production and found two bugs in a design. This saved a huge amount of money, and the two copies almost immediately paid for themselves."



"We can't be afraid to replace our own technology with new and better innovations because

if we don't, our competitors will."

— Arun Netravali

Cray Research has purchased \$1.25 million worth of FormalCheck software for developing its next-generation "massively parallel processor" — a computer made up of more than 1,000 processors.

And EDN Magazine, a publication on electronic design and engineering, recently chose FormalCheck as an "Innovation of the Year."

"Being ahead of your time is what research is all about," said Michael Garey, director of Bell Labs' Mathematical Sciences Research Center, who oversaw most of the initial work.

"FormalCheck is a great example of quickly turning high-quality research into powerful products."

Quick Chip Design

In its quest for market leadership, Lucent is looking outside as well as inside for innovative ideas.

Lucent recently announced a venture equity investment of up to \$10 million in Chip Express, a leader in laser-based technologies that can rapidly customize semiconductors. The partnership is hastening Lucent's existing chip-design capability and helping to develop next-generation technology for a class of integrated circuits known as laser-programmable system chips. Those chips help designers develop new application-specific integrated circuits (ASICs) for use in computers, communications equipment, and business and consumer electronics products.

"Using technology developed with Chip Express, we expect to cut several weeks, even months, from the time it takes us to design and build complex new system ICs for our customers," said Mark Stibitz, Integrated Systems vice



Lucent's R&D leaders hold seminars with customers around the world on a regular basis. Above, Bell Labs' Technology Officer Bob Martin (left) greeted customers at a Bell Labs Seminar held in Paris on April 3. Looking on are Marie-Francoise Harris and Robert Chidiac (center) of Lucent Technologies BCS France.

ANNA CLOPNET

president. "This, in turn, will help our customers bring their products to market much faster and gain a competitive advantage."

Lucent and Chip Express will develop laser-programmable gate array (LPGA) technology for chips with components that measure one-quarter of a micron wide — some 200 times thinner than a human hair. Lucent will then incorporate the technology as a building block in its system-on-a-chip offerings. Systems-on-a-chip combine different functions — such as logic, memory, digital signal processing and analog circuitry — onto a single piece of silicon so that electronic products can deliver more advanced capabilities.

"Our customers were asking for help and we provided it fast by an intelligent marriage of technologies," said Tony Parker, ASIC product line manager. "Often minor design changes can have a major impact on schedules and result in missed market share. By getting access to Chip Express expertise, we can accelerate time to production by implementing customer design changes in days."

Bottom Line: Speed

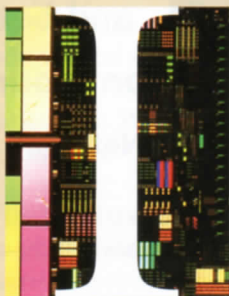
Speed should be our collective mantra. "Momentum is a great motivator," said Sethi. "People like to have their innovations used, and our best people jump right in when they can see how their work will get to market. Together, we all need to sense and seize market opportunities."

Netravali concurred. "Our biggest achievement is the passion of our researchers to innovate faster and better." He added that keeping the customer happy meant always having the best people for the job. "It's important that we keep focused on hiring, developing and retaining the best technical people," he said, "and we've been doing just that."

"Technology is at center stage," Stanzone said. "The golden age is still ahead of us. We need a sense of urgency in bringing new ideas to market." ○

— Saswato Das

Lucent Nurtures Its Innovative Nature



If there's a way to grow innovation, Lucent has planted the seeds.

Bell Laboratories, with an R&D budget that's 11 percent of Lucent's revenues, churned out 809 patents during the last fiscal year — roughly three patents each business day. The company's inventors are rewarded with cash for each idea that becomes a patent application. And the New Ventures Group turns Bell Labs innovations into self-sufficient internal or external ventures. Meanwhile, outside the corporation, technological innovation is accelerating at a dramatic clip, according to the U.S. Patent and Trademark Office. Lucent also intends to nurture external seeds of innovation.

New technologies in many industries are creating opportunity for small, nimble start-ups. Garage operations that start on the strength of an idea blossom into major players in their industries. Small shops grow into some of our toughest competitors. How can we leverage that innovation? One answer is Lucent Venture Partners (LVP), the venture capital subsidiary created in February to invest in new technologies, products and companies of strategic importance to the corporation.

"Innovation is becoming a Lucent trademark," said Henry Schacht, Lucent's former chairman and now LVP's chairman. "Lucent will continue to invest in innovation in our key growth markets via Bell Labs and the New Ventures Group — that has not changed. What's new is LVP, which will invest in innovation that stems from external sources to bring long-term strategic growth potential to Lucent."

LVP will make Lucent more competitive through earlier exposure to new opportunities, technologies and innovations. In venture capital terms, we're gaining an "early window" to technology. "In a lot of ways, the capital we invest is like additional funding for research and development," said John Hanley, managing general partner, LVP. "The industries and markets that Lucent plays in are much broader than any R&D budget can cover. We will supplement what we're doing internally with a more proactive stance toward external developments." LVP has set aside \$100 million for these investments.

Adventure Capital

The concept of venture capital funding was made famous in the United States by Silicon Valley entre-

Lucent Venture Partners aims to gain an "early window" to technology, says Hassan Parsa.



preneurs, who had to rely on major financial backing before becoming the Netscapes, Suns and Ciscos of today.

Typically, venture capitalists scrutinize the business plan, market potential and management team of a start-up company before they decide to invest in an ownership stake. Last year, venture capitalists invested \$12.8 billion in about 2,700 companies, according to the Price Waterhouse Technology Industry Group, which tracks quarterly investments in U.S. companies by venture capitalists. Compared with 1996, a record year for venture capital investment, funds invested in 1997 were up about 33 percent. What's more, 80 percent of that increase went to technology-based companies.

"Corporations are now playing a much more significant role in venture capital funding," said Hassan Parsa, venture partner, LVP. "About 30 percent of funds raised last year came from corporations." Some companies are passive investors that rely on venture capital funds to make decisions, he explained. Others make direct investments in companies or establish partnerships.

Lucent will use both avenues, although direct investments are expected to make up the majority. In early April, Lucent invested in venture capital firm Accel Partners' Internet Technology Fund II, a fund that complements our internal Internet strategy. Other investors in the fund include Microsoft, Compaq Computer and Nortel.

Competitors like Cisco, Intel, Microsoft, Nortel and Texas Instruments have been very active in corporate venturing programs within the past three years or so, added Hanley.

Relationship Leverage

Through an ownership stake, Lucent intends to forge strategic relationships early on with key start-up companies. What kind of strategic relationship? That depends. The list of possibilities is long, according to Parsa: "Maybe we'll do joint marketing, maybe joint technology development, or a distribution arrangement, technol-

ogy licensing, standards integration or even an acquisition." The key is to create the linkages early — before it becomes too expensive or too late to do so.

"At the end of the day," said Hanley, "we are looking for more than a great return on investment."

LVP's objective is to create strategic advantage for Lucent while getting a decent return on investment. "LVP is going to make substantial returns, don't get me wrong," he said. "But we first intend to contribute to Lucent's long-term growth."

— Shirley Chan

Sowing Seeds of Innovation

Lucent's Innovation Week, held April 27 to May 1, was a celebration of innovation, technical excellence and teamwork. On a day-to-day basis, however, the company continues to promote innovation through:

Bell Laboratories

Brings innovations and breakthrough technologies to every Lucent business group. Key areas include leading-edge communications technologies, and applied and longer-term research vital to our future.

Lucent Venture Partners

Brings external innovations to Lucent business groups. Invests in external technologies, products and companies that fall into Lucent's key strategic growth areas, including mobility/wireless, optical and data networking, and network access.

New Ventures Group

Speeds to market Bell Labs innovations for internal or external stand-alone businesses. Expects to create about one company every quarter. Venture companies established so far:

- **Electroplating Chemicals and Services** — Provides electroplating products and services to companies in the electronics, automotive, aerospace and decorative industries worldwide.
- **elemedia** — Markets software components and subsystems that enable high-quality, low-complexity communications over the Internet and intranets.
- **Inferno** — Offers the Inferno platform, a unique network operating system that allows any device to communicate or share information with any other device, over any network.
- **Lucent Digital Video** — Develops and integrates products and systems that make digital video broadcasting possible.
- **Lucent Public Safety Systems** — Offers integrated hardware and software systems for the emergency response industry.
- **Veridicom** — Offers Bell Labs-patented fingerprint-authentication technology in advanced software and hardware components for identification verification.
- **Visual Insights** — Offers software products that uncover and display trends and patterns often buried in large amounts of data, helping businesses to make faster, better decisions.

*Lucent Leaders Take to the Road
To Drive Home a Message:*

Become A Global 'Take-Share' Company

Rich McGinn in shades?
That's right.

At the recent all-employee broadcast in Holmdel, N.J., Lucent's chairman and CEO donned dark glasses to deliver a powerful message to employees: Lucent has lit up the industry in the past two years and our future will shine even brighter if we're fast and first to market with products that meet customers' needs worldwide.

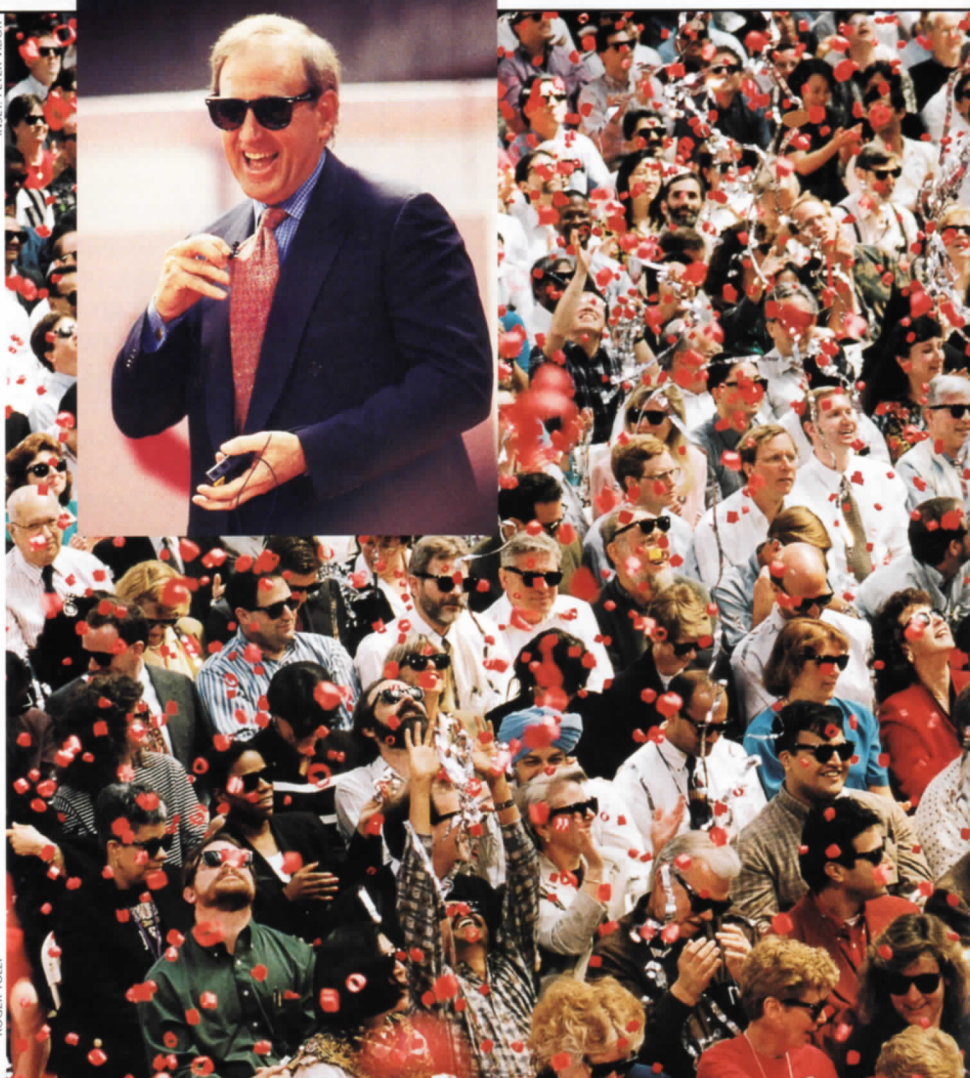
McGinn and other senior leaders are traveling the world to rally employees around a common cause: the need for Lucent to constantly move quickly to compete against a field of very aggressive, very focused and very fast competitors.

Greeting people from all walks of Lucent life — salespeople to factory workers, researchers to service technicians — the officers, who so far have stopped in 11 U.S. cities as well as The Netherlands and Brazil, found their audiences eager to help Lucent reach higher and drive harder. Employees were clearly energized by what

INSET: PETER VIDOR



ROGER TULLY



*"We're going to beat our competitors by being
a 'take-share' company that accepts nothing less than being
first to market with new technology."*

— Rich McGinn

"Speed means having a sense of urgency in all we do."

— Pat Russo



ROB NELSON

Top: Pat Russo chats with Luwana Mondy, communications equipment installer, during Pat's recent visit to the Morrow, Ga., Customer Support Center, which assembles and ships installation materials to any customer, anywhere. Some 150 installers turned out to hear Russo's talk and to ask her questions.



Left: A sea of sunglasses and confetti greeted Rich McGinn as he concluded a recent town meeting in the sunny atrium area at Holmdel, N.J. If we all do what it takes to continue growing, McGinn tells the Innovation Week gathering, our future is bright.

Below: Don Peterson emphasizes the importance of speed in our manufacturing facilities—and throughout Lucent—as he meets with employees in the Reading, Pa., facility.



THEO ANDERSON

they heard. In fact, 93 percent of people responding to surveys said the meetings were excellent and exceeded their expectations.

"The meeting gave me a good sense of where the rest of the company is headed," said Ivona Orcholski of the National Service Assistance Center in Denver. "It's important that all of us have the opportunity to see beyond our own world at what it will take to help Lucent compete."

"McGinn said all the right things and made me feel good about the future," noted Frank Ayala of the DENPORT Manufacturing Store Room. "I'm more motivated now than I've ever been."

California Cheering

McGinn began his tour in February with a trip to Boston to address an audience that included Lucent newcomers Prominet and Agile Networks. In March, he headed west for Denver and Pleasanton, Calif., to welcome another Lucent addition — the Remote Access Business Unit, formerly Livingston Enterprises, Inc. There, a long hallway subbed for an auditorium because the group has grown so fast that its meeting rooms have been turned into



Don Peterson calls on everyone in his audience to reach higher to help satisfy customers and ensure Lucent's continued growth.

**"The Key to Lucent's
growth is you —
an energized workforce."**

— Don Peterson

Reaching for Global

Market Potential: Strong in U.S. Greatest Outside

- Value* of Lucent exports = \$1.8B
- Value* of Lucent imports = virtually \$0



Above: In San Jose, Calif., Rich McGinn makes it clear that Lucent has to move fast to take advantage of the enormous market opportunities that are opening up around the world.

Right: In Denver, McGinn praises the accomplishments of a small but very hard-working team from BCS Global Learning Solutions. Team members Donna Berry (left) and Snow Schaefer used new hardware and software to dramatically improve courses and customer satisfaction among BCS "students."

workrooms. The next day, McGinn traveled to San Jose, Calif., where 900 people — from Business Communications Systems, the Microelectronics Group, the Octel Messaging Division, Data Networking Systems and Wireless Broadband Networks Division — streamed into the ballroom of a local hotel to hear his talk.

On every stop, McGinn made Lucent's mission clear: We're going to beat our competitors by being a "take share" company that accepts nothing less than being first to market with new technology.

"Lucent has accomplished great things," McGinn said. "The launch of our business energized us. But that's like graduating from school. We got good grades. But what will we make of our lives — especially in the face of such strong challenges from our competitors? In terms of products, sales and business relationships, we generate news — and create a lot of excitement —

all the time. But we're not growing as fast as the market itself or as fast as some of our competitors. For Lucent to grow, we have to adapt to market changes and opportunities, and we have to be nimble.

"We also have to reach higher to satisfy customers," he said. "We have to be a fast, responsive business partner because if we fail to deliver, our competitors will be right there to take our place. And every dollar we spend must be an investment for growth."

McGinn noted that Lucent knows what it needs to do to win. "We're focusing our resources to take advantage of growth opportunities in the marketplace. And through the Lucent GROWS initiative, we're focusing our culture on a high-performance mindset. Without a doubt, all of the GROWS elements are critical to our success, none more so than speed.

"Getting to market first makes a difference — not only in our stock price, but also in the eyes of our customers," McGinn said. "We can't afford to miss market windows and come in second or third, especially if we have the technology first. Speed translates to growth, and growth means more jobs and more job security."



Energy in Allentown and Reading

Executive Vice President and Chief Financial Officer Don Peterson echoed the importance of speed throughout Lucent's culture when he met with employees in two Microelectronics Group factories in Allentown and Reading, Pa.

"The key to Lucent's growth is you — an energized workforce bent on satisfying customers and increasing market share," he said. "People in Allentown and Reading clearly understand that challenge because to succeed in the semiconductor industry, companies have had to undergo a great deal of change."

"Everyone in Lucent has a stake in our success," he added. "We must sell well, market well, manufacture well and deliver today's products on time while already designing tomorrow's offers. We can't be over-confident or complacent; we always have to work harder and reach higher."

Excitement in the South

Pat Russo, executive vice president, corporate staff operations, set her own fast pace, visiting several Lucent locations in three days — Atlanta and Morrow, Ga.; Shreveport, La.; Mesquite, Texas; and Greensboro, N.C. In Atlanta, she held back-to-back employee meetings so she could reach workers on both the day and evening shifts.

"Speed means having a sense of urgency in all we do," she said. "We must commit to best-in-class intervals for every process, product and customer — in every market and geography. We must act on our decisions. And we must build a culture based on Lucent GROWS."

"We are creating that culture, but there's still work to be done, according to a recent employee survey," Russo noted. "Ninety-four percent of the people in the survey said they would recommend Lucent as a good place to work. Let's use the energy from that feeling to drive up our personal performance and drive our efforts to win and keep more customers."

From their comments, employees appear to welcome the challenge to act faster — and the chance to hear directly from Lucent officers.

"I found the meeting enlightening, informative and entertaining," said Ken Norton, production specialist, Atlanta Works.

Added Janice Darnell, evening shift production specialist, Atlanta



Works, "The town meeting was upbeat and inspiring. I appreciate hearing how Lucent is doing and what our goals are. It made us feel good to know that what we do on the manufacturing line is important to the growth of the company. I think we left the meeting inspired to do our best because we know it makes a difference."

"The talk helped paint a big picture of where Lucent stands in relation to its competitors and the opportunities that we have in the global market," said Allentown engineer Carl Dorsey. "It's great to hear about just how far we can go by focusing on the right things."

McGinn couldn't agree more: "By targeting the right markets, executing our strategy and moving fast, our future will be so bright, we'll all be wearing shades." ○

— by Eudora Martin, Jack Molets, Kelli Harris-Wong and Maureen Dvorak

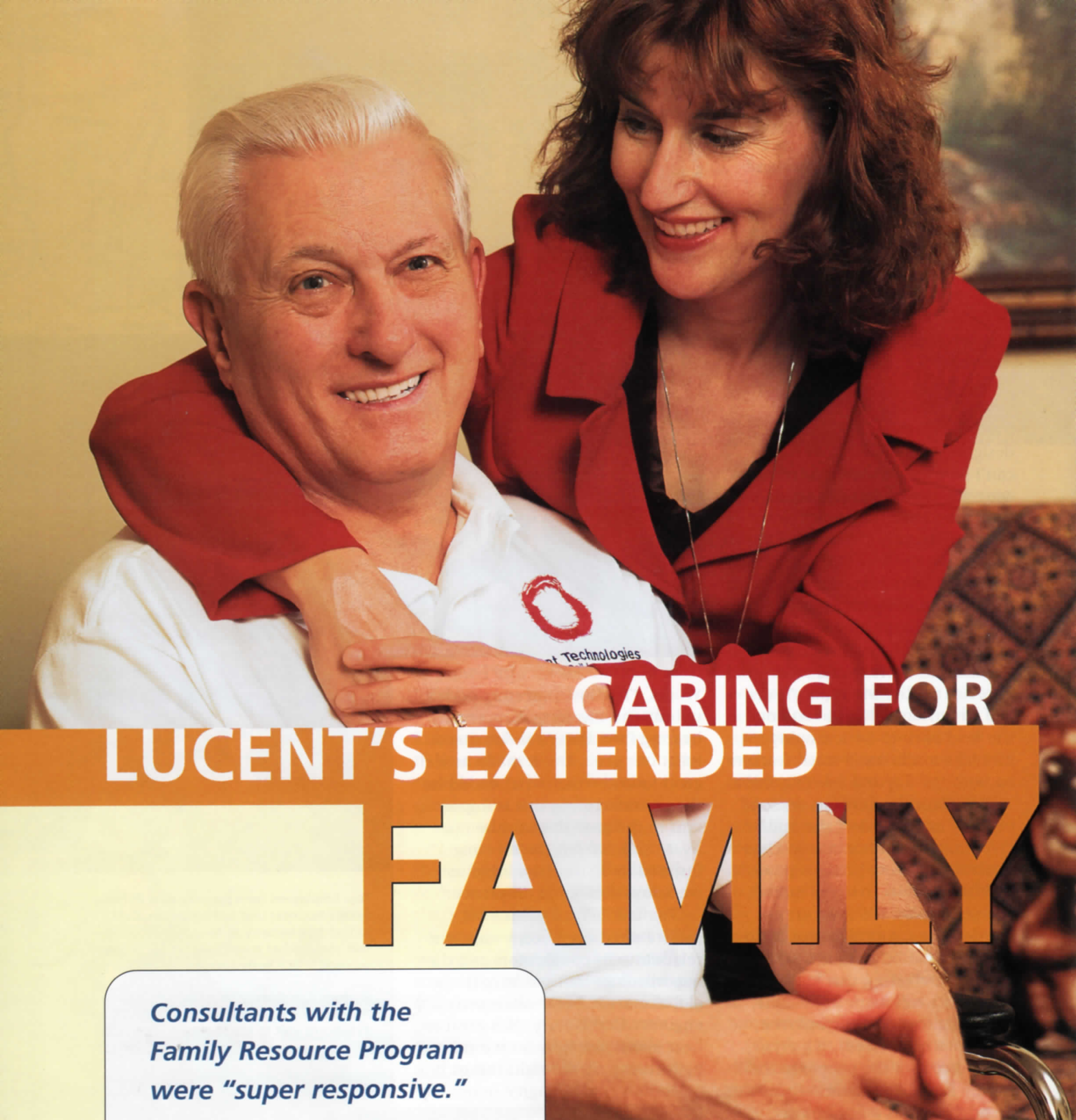


Top: Employees from Lucent's new Remote Access business unit in Pleasanton, Calif., gather in a hallway to hear Rich McGinn talk about what it will take for Lucent to succeed in our hotly competitive industry.

Bottom: Carl Dorsey, planning engineer in Allentown, Pa., asks a question during Don Peterson's visit to the facility in early April.

*"Speed translates to growth,
and growth means more jobs
and more job security."*

— Rich McGinn



CARING FOR LUCENT'S EXTENDED FAMILY

*Consultants with the
Family Resource Program
were "super responsive."*

— Marianne Dyer

Kelsey and Amy Kay Ledford combine learning and fun at their after-school center. Joe and LaVon Hejnar are glad they don't have to relocate to an assisted-living facility. And Elisabeth McBride soon will have a sibling.

These are just some of the everyday outcomes of Lucent's landmark U.S. work and family programs — created in 1989 — that help employees care for their dependents.

"Today, Lucent is shaping a high-performance work environment by competing for and retaining the best talent around," said Curt Artis, senior vice president, Human Resources. "To grow and support high-performance behavior within

the workplace, Lucent looks to help employees manage their responsibilities outside the workplace."

"People have complicated lives," added Shayne Parker, manager, work/family programs, U.S. Compensation and Benefits, Human Resources. Lucent and its unions — the Communications Workers of America (CWA) and the International Brotherhood of Electrical Workers (IBEW) —

recognize that an individual's ability to integrate work and non-work responsibilities varies, said Parker, and the task is not easy. "We seek to understand the stress points and to build programs that address them."

Lucent's U.S. work and family benefits are wide-ranging. They include the ability to set aside pre-tax dollars for child- or elder-care expenses; leaves of absence to care for newborn or newly adopted children; and short-term confidential counseling to deal with issues affecting productivity.

But three programs stand out. They are the result of collective bargaining agreements between Lucent (then AT&T), CWA and IBEW. These programs, which have attracted national media attention, have been called "revolutionary," "marvelously innovative" and in the "vanguard on family-care benefits." They are:

- The Family Care Development Fund, which provides financial support for projects that increase the supply or improve the quality of community-based child- and elder-care services available to employees.
- The Family Resource Program, a consultation and referral service for employees who are seeking child care, elder care or care for disabled adult family members; who are considering adoption; or who are seeking help with educational decisions or activities for school-age kids.
- The Adoption Reimbursement Program, which reimburses employees up to \$3,000 for eligible expenses related to adopting a child.

Left: Marianne Dyer, based in Lisle, Ill., used Lucent's Family Resource Program to search for local resources and referrals for her father, Joe Hejnar.

Right: Denise Ledford, based in Alpharetta, Ga., sponsored her day-care center for an \$11,000 grant from Lucent's Family Care Development Fund. As a result, her daughters, Amy Kay (left) and Kelsey, now go to "a place where learning is fun."

Although they were introduced nine years ago, these programs have a continuing impact and relevance. Here's a look at how these programs work for employees.

Family Care Development Fund

Last year, the fund awarded 122 grants totaling \$1.37 million. Funded projects include a new respite program for adults with Alzheimer's disease, new classroom equipment for an expanded toddler program, and instructor training for an after-school program. Programs vary according to community needs, said Parker. Any employee can sponsor a grant. All grant requests are reviewed by two committees, including one made up of union and management representatives.

Lela Foreman, CWA headquarters staff, women's activities and community services, has been on the joint union-management review committee since 1989. "Management and union are working together very well," she said. "We take our hats off and focus in on what's good for employees and good for the community. From the beginning of the relationship, when we set up guidelines, we were very clear and focused on what we wanted to accomplish." Foreman said she's proud of their work and calls the fund one of the best work and family programs around.

With most grants, dependents of Lucent employees gain priority enrollment. "We want to provide a better workplace for employees and help make Lucent a better neighbor," said Greg Boyle, manager, workforce relations, who also

serves on the joint committee. Communities share in the benefits, he said, as each grant helps employees, their dependents and their neighbors.

Having Fun Learning

Two years ago, Denise Ledford, correspondence clerk, Corporate Finance, based in Alpharetta, Ga., chose a new day-care center for her daughters, Amy Kay and Kelsey. "I thought if I can't be with them, I wanted to make sure they were getting attention and

"It's wonderful that you can work at a place that cares about your kids."

— Denise Ledford



ROB NELSON

going to a place where learning is fun," said Ledford. She told her day-care center, Steppin Stones, about the fund and they discussed adding an ecological curriculum at the center. With computers, software, teacher resources and playground equipment, the tab ran to \$11,000. Encouraged by Ledford, the center applied for — and received — the full amount.

"It's wonderful that you can work at a place that cares about your kids," said Ledford. "Lucent is helping its employees to benefit their children. Not a lot of companies would do that." Ledford's daughters are now going to school, but they continue at Steppin Stones' after-school program. "Kids may reach a point where they become bored with their center

and just don't want to be there," said Ledford. "My daughters ask me not to pick them up so early, so that they can stay a bit longer."

Family Resource Program

More than just a referral service, the program aims to help employees become smart consumers about family services. For example, consultants can advise employees evaluating child care and provide specific questions to help identify high quality, such as the teacher-children ratio and teacher training.

Last year, consultants responded to nearly 26,000 calls for information and referrals — and they saved each employee an average of 17 hours of research.

Why Move?

Marianne Dyer, administrative assistant in Lisle, Ill., asked friends for advice when her father became more confined to his wheelchair. "I looked at ads on assisted-living facilities, but my parents didn't want to move."

Then she called the Family Resource Program's Adult Disability Service. "They faxed me a list of assisted-living facilities and of people who do housing modifications for the disabled," said Dyer. "I gave the list to my parents. Mom called the next day and within a week my parents had estimates for a ramp at the rear entrance of their house." Dyer called the consultants "super responsive." "They did all the research. One phone call from me — that was it."

Adoption Reimbursement Program

In 1997, 78 employees received reimbursement of up to \$3,000 to help with the cost of adopting a child. "Lucent, the CWA and the IBEW respect all types of families," said Parker. That's why we also offer financial support for adoptions, she said.

Saving for a Second Child

John McBride, production technician, Switching and Access Systems, in Oklahoma City, says he wouldn't change his situation for the world. He and his wife recently adopted 20-month-old Elisabeth. When he joined Lucent in September 1996, he read the personnel guide and found he could apply for adoption reimbursement. "The jobs I had before had good pay, but not good benefits," he said. "I had been wanting to join Lucent for a long time because I knew it was a good place for employee benefits."

An average adoption costs \$7,000 to \$10,000, McBride pointed out. "The \$3,000 helps the savings account — so we can save up for our next adoption in a year." ○

— Shirley Chan

"The \$3,000 helps the savings account — so we can save up for our next adoption in a year."

— John McBride



Swinging a second adoption will be easier for John McBride, based in Oklahoma City, and his wife, Melissa, with their daughter, Elisabeth. Lucent reimburses up to \$3,000 for eligible adoption expenses.

For More Info

<http://ion.hr.lucnet.com> or
<http://bdec.web.lucnet.com>

Family Resource Program and Adoption Reimbursement Program
1-800-635-0606

Family Care Development Fund
1-888-700-2363

A Site to See



Lucent's new corporate intranet site — [today@lucent](http://today.lucent.com) — puts critical information about our growing company at your fingertips. In addition to breaking news about Lucent, the site offers links to 350 other internal and external sites, and will inform you about every aspect of our business — from compensation to competitors. There's a place for reporting sales leads, a section that seeks your opinion on a variety of business issues, an online org chart and much more. You can reach the site at <http://today.lucent.com> Visit soon — and often!

How do you stay

Focused on the Competition

in your job?



Susan Ayres,
material engineer,
Network Products Group,
Mesquite, Texas

"We're in a very competitive business, so we're always trying to understand what the competition is doing. Since the market is cost-driven, we have to constantly strive to reduce component costs and be careful about material selection and standardization."

Suggestion: Think creatively to find new and innovative ways to improve your products.



Vincent Ward,
production technician,
Switching and Access
Systems Group,
Oklahoma City

"If we take care of the customer, the customer will take care of the competition. We need to listen to customers' needs, bring a vision to their companies, and make sure we follow through on our promises. If we do, customers will remain loyal."

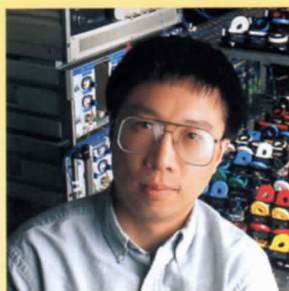
Suggestion: This is a big ship, and we need everyone's oars in the water — the competition is headed in the same direction.



Graeme Hodgson,
AirLoop systems engineer,
Wireless Networks Group,
Chippenham, England

"We sometimes forget that companies developing similar products at similar costs are chasing the same customers we are. That mindset leads to complacency, and we lose our edge.

Compared with our competitors, we must offer better functionality at lower cost."
Suggestion: Read the trade press and check our competitors' Web sites to stay informed.



Yan Sun,
lightwave systems researcher,
Bell Labs,
Holmdel, N.J.

"I am currently researching next-generation high-capacity optical networks to meet the need of exploding Internet and data traffic. Working with colleagues in development and marketing, we always keep competition in mind and focus on future technologies to deliver better products faster than our competitors."

Suggestion: We can only survive and grow if we focus on the competition and bring better products faster to our customers.



Gwen Hightshoe,
senior production specialist,
Network Products Group,
Omaha, Neb.

"Meeting our customers' expectations is the ultimate goal. Direct collaboration with our internal clients provides the final finished product to fill our orders. Getting a quality product to customers on time will keep us ahead of our competition."

Suggestion: Meet customers' needs by putting safety, quality and speed ahead of everything else.



Hugo Schacht,
installation group leader,
Global Service Provider
Business,
Buenos Aires, Argentina

"As field personnel, it is our job to maintain high quality in everything we do each day. We also need to deliver this quality on a speedier basis. This will differentiate us from the competition in our customers' eyes."

Suggestion: Perform our jobs responsibly, work as a team and bring added value to the customer.



Diana Yannes,
marketing manager,
Microelectronics Group,
Allentown, Pa.

"I market Lucent's Digital Signal Processor hardware/software development tools. When we introduced our DSP16000 core, we also provided customers with new, state-of-the-art development tools. An integral part of our marketing strategy was to evaluate and analyze competitive products, validate with our customers what product features were important to them, and use this information to make our own products even better."

Suggestion: Competitive analysis is a continual process. Use it to your advantage.

