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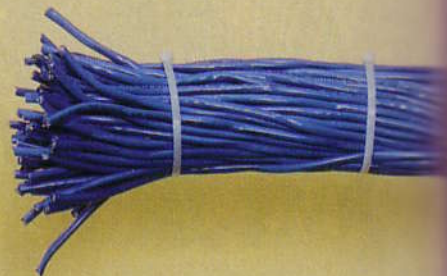
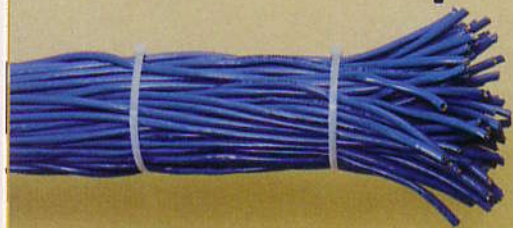
WIFI GUY Larry Brilliant, co-founder of Cometa Networks, says business users will pay for secure wireless Web access



Unwired

Users love **WIFI** Web access, but can anyone profit from it? Some big players are betting Larry Brilliant has the answer

Will You Buy WiFi?



Tech giants from Intel to Cisco bet that road warriors will pay for wireless Web access

BY CHRIS TAYLOR SAN FRANCISCO

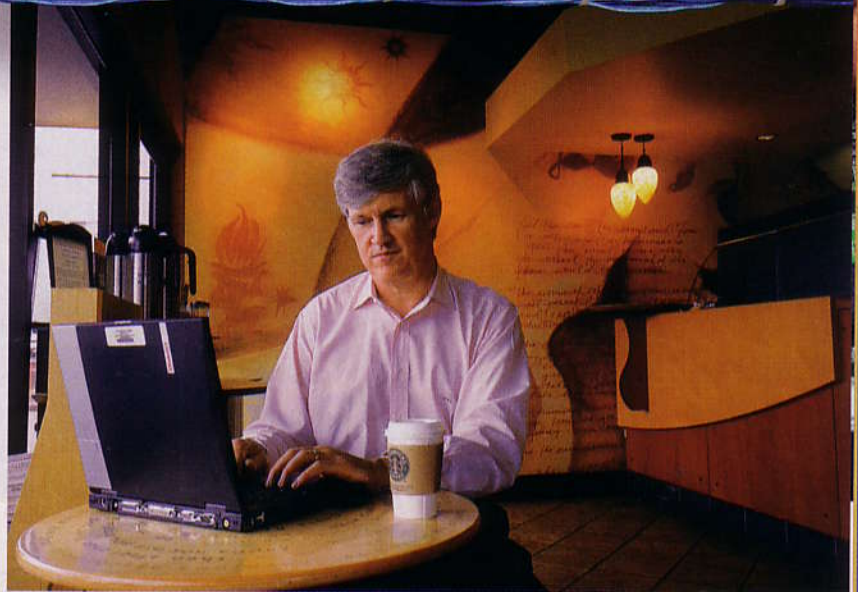
If there is one lesson Larry Brilliant likes to distill from his life, it is this: Never settle for one career when nine will do. Starting out in the 1960s as a hippy kid from Detroit with a medical degree and a vague desire to change the world, Brilliant drifted into a surreal series of roles: physician to the Grateful Dead, co-star of a movie called *Medicine Ball Caravan*, seeker of enlightenment in India. The turning point came when, on his guru's advice,

Brilliant joined the World Health Organization's effort to stamp out smallpox. "For a doctor, eradicating a disease is like climbing Mount Everest," he says. "It makes you want to find other mountains."

Brilliant has been scaling peaks ever since, not in medicine but in technology. Understanding the body, he discovered, helped him understand computers—the science of physiology translated into that of networks. In 1985 he founded one of the world's first commercial Internet ventures, an online community called the Well. Membership cost all of \$2 a month, and the Well was a huge hit, a precursor of every online business from **Amazon.com** to **eBay**. Brilliant had established a reputation for seeing the future before anyone else and being able to make money out of it.

Now 58, Brilliant is engaged in his most audacious climb yet. The business plan he wrote for **Cometa Networks**—a joint venture of **AT&T**, **IBM**, **Intel** and others—is every bit as obstacle filled as trying to cure smallpox or getting people to pay to talk to others via computer. Cometa's goal is to take a technology that is exploding in every major city in the U.S., Europe and the

A doctor by training, Larry Brilliant found that his study of human physiology helped him understand computers and digital networks



John Stanton of T-Mobile has partnered with Starbucks and surfs the net wirelessly in one of the chain's cafés in Bellevue, Wash.

Pacific Rim—grass-roots wireless Internet service that is as accessible as any radio signal, and often as free—and figure out a way to make you pay for it. In the long run, Cometa aims to be nothing less than the Windows of business Wi-Fi.

Wi-Fi stands for wireless fidelity, and the name is apt. Most who try it love it faithfully. No wonder: they are browsing the Internet on laptops untethered by cables, and at the high speed of 11 megabits a second—fast enough to let you watch a movie while you're downloading it. "I wasn't much of a surfer before," says Donna Gallagher, 37, an office manager and Wi-Fi fan in Wilmington, N.C. "Now I'm totally addicted."

She's not alone. In 2002, 20% of business laptops were Wi-Fi enabled. By 2005, analysts believe, that number will be more like 95%. **Apple** started things rolling in 1999 with its Wi-Fi system, known as AirPort, and in January unveiled a speedier upgrade called AirPort Extreme. Last month, in a bid to boost demand for laptops (and Intel processor chips), Intel released Centrino, a mobile technology that features a new microchip and a built-in Wi-Fi receiver.

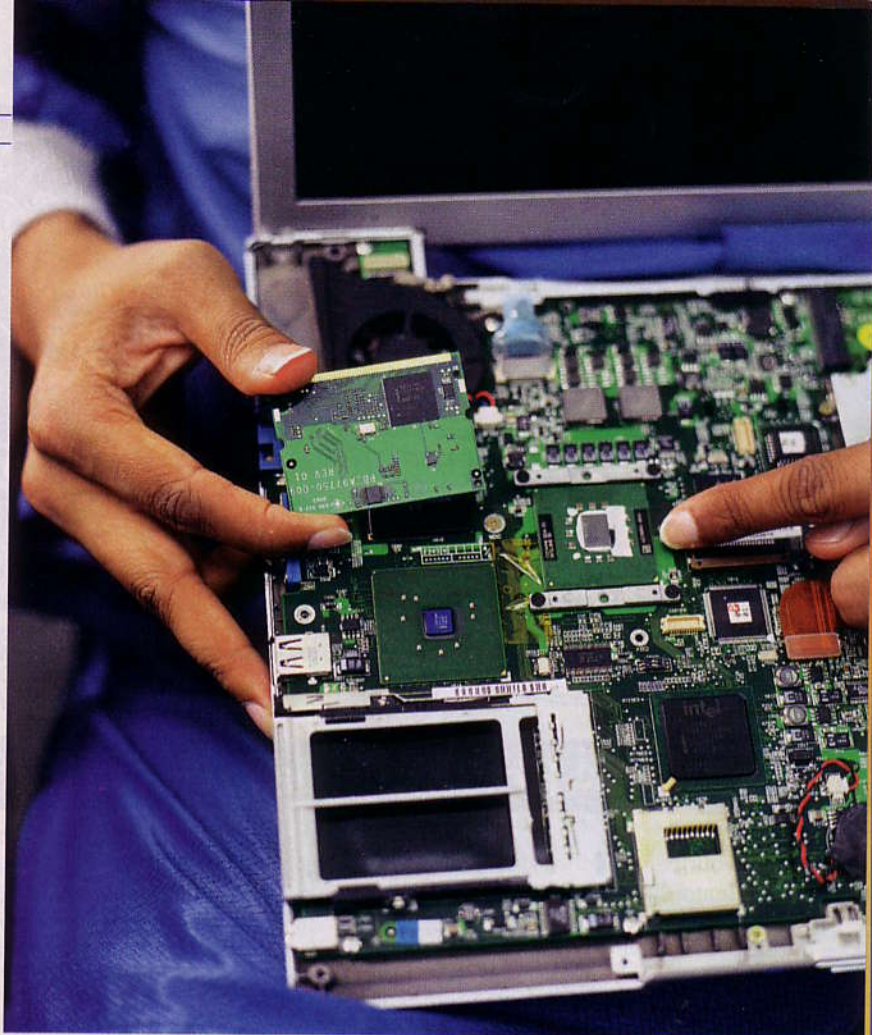
Whether anyone will make serious money off the technology is an open question. Wi-Fi is shaping up to be one of those destructive technologies—like the Internet—that

JOHN CLARK FOR TIME

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An Intel engineer examines a prototype computer that uses new chips and other elements of the firm's Centrino Wi-Fi technology



deliver huge benefits to users while slashing profit margins for existing businesses (think of what the Net did to travel agencies). It's easy to see how a blazing-fast connection on a big-screen laptop—anytime, anywhere—might pose a threat to firms like **Sprint** and **Verizon**, which are investing billions of dollars to deliver fancy 3G data services over your cell phone or laptop at slower rates and steeper fees. Yet there's no proof consumers will pay. "No wireless data-only network in the world has ever made money," warns Andrew Seybold, a wireless analyst based in Los Gatos, Calif. That so many have rushed to invest in Wi-Fi is, he predicts, "the next dotcom disaster."

One hurdle is the technology's simplicity, and the ease with which anyone can provide it. Ignore the geeks who use Wi-Fi's painful official designation, 802.11. Here's a more familiar name for the technology: radio. The Wi-Fi card in your laptop is a receiver, and the Wi-Fi router—which plugs into a cable or DSL modem at your

LENNY GONZALEZ FOR TIME

More than 11 million U.S. road warriors regularly dial in to corporate networks, and 90% of them use slow-as-mud modems and lines

home or office or coffee shop—is nothing more than a short-range transmitter-receiver. (Here's a piece of trivia for your next cocktail party: the patent on which Wi-Fi technology is based was filed back in 1942 by actress Hedy Lamarr and composer George Antheil.) Wi-Fi uses a frequency long set aside by the FCC for quirky radio devices—the downside being that microwave ovens and some brands of cordless phone can play havoc with the signal.

The range of transmission is usually 150 ft. to 300 ft., which makes Wi-Fi ideal for home use. It also works in most workplace settings. Shipping companies were the first to see the value of Wi-Fi in warehouses; **FedEx** estimates its Wi-Fi-enabled workers are 30% more productive since they've been unleashed. Hospitals and college campuses came next. Today 57% of all U.S. corporations, including all of the **FORTUNE** 1,000, have at least a small-scale Wi-Fi network, although only a few tech-savvy firms like **Qualcomm** and **Novell** have so far dared to roll out wireless service company-wide.

Elsewhere, *Braveheart*-style battles rage between the IT department's obsession with security and the workers' demand for freedom. Slowly, freedom is winning—good news for equipment manufacturers like **Cisco Systems**, which recently announced it would acquire top wireless-router maker **Linksys** for \$500 million in stock. "Once people have wireless inside their offices," says Frank Keeney, co-founder of the **Southern California Wireless Users Group**, "they never want to go back. It's a tremendous productivity tool."

That goes double for road warriors, the real source of potential wealth in the wider Wi-Fi world. These are the field sales reps, insurance adjusters, real estate agents and delivery managers. There are more than 11 million road warriors in the U.S. alone who regularly dial in remotely to corporate networks, and 90% of them are using slow-as-mud 56K modems via standard phone lines. The advantage of untethering office workers is relatively unproved (Won't they just instant message one another during meetings?), but even the most technophobic CEO can imagine the benefit of her top salesman's being able to tap into the database minutes before he sits down with a client—and place his order immediately afterward. "Intuitively, I felt there was going to be a market for this in the business community," says Ted Schell, a venture capitalist with **Apax Partners** in New York City, one of the backers of Cometa.





▶▶ A How-To Guide to Getting Untethered

Fourteen months ago, after mulling a list of defunct Wi-Fi start-ups, Schell brought AT&T, IBM and Intel together to discuss a jointly funded \$30 million Wi-Fi network blanketing 50 U.S. metropolitan areas. He dubbed the venture Project Rainbow. Each side could see the benefit: IBM sold approximately \$1 billion in Wi-Fi services in 2002, Intel was looking for a way to get into the wireless chip game, and AT&T provided the communications backbone for 8 million road warriors. But as IBM's representative John Boutross remembers, the talks were initially very static: "These large players were being very polite and careful not to infringe on anybody else's territory." To get these wallflowers to dance, a matchmaker was called for.

Enter Larry Brilliant, who had been doing a little consulting for Intel. Brilliant knew the benefits and pitfalls of Wi-Fi, and he was accustomed to working with start-ups. (In the years since the Well, Brilliant had created 14 networks including his own failed Wi-Fi company, AirZone.) The pace of the discussion frustrated him. "It was harder to negotiate a treaty between these three elephants than between India and Pakistan," he says. Brilliant should know. He once brokered a subcontinental smallpox treaty in six weeks. Talks among Project Rainbow's founders over the nondisclosure agreement alone dragged on for three months.

As Wi-Fi hot spots spread from airports to Mickey D's, it's getting easier to tap into them—and create your own.

■ **THE GEAR** Apple laptops have come Wi-Fi ready since 1999, and Intel's new Centrino chip is doing the same for many Windows-based machines. To adapt an older laptop, buy a wireless PC card (about \$50) from a company like **Linksys**, **D-Link** or **Netgear**. **Toshiba** offers a Wi-Fi-enabled PDA, the e750 (\$599). Many brands of PDAs may accept specialized Wi-Fi cards costing \$100 to \$300.

■ **THE SERVICE** As in the early days of cell phones, consider first the number and locations of service areas. Some choices: T-Mobile has 2,000-plus U.S. hot spots, including many in **Starbucks** and **Borders** bookstores. Unlimited use is \$29.99 a month; pay as you go, 10¢ a minute (one-hour minimum).

Surf and Sip offers service on both coasts and in Britain in many coffee shops, libraries and hotels. A one-year contract is \$20 a month; pay as you go, \$5 a day or \$40 for 30 days.

Wayport, with service in 525 hotels and 10 major airports, is aimed at business travelers. Daily hotel access costs \$9.95; unlimited access is \$29.95 a month with an annual contract.

Boingo, the largest service aggregator, boasts more than 1,200 hot spots in 300 cities. Pay as you go for \$7.95 a day, or get unlimited access for \$49.95 a month.

■ **FREE ACCESS** Public hot spots dot metro areas. Sites like 80211hotspots.com, wifinder.com and yourwireless.net find free ones. Note: Most community free hot spots aren't secure!

■ **HOME WI-FI** If you have high-speed Web access, you can get untethered at home too. Buy a home router with Wi-Fi built in (about \$150) from a vendor like Linksys or D-Link. Turn on the router's security features, a step many users ignore.

The new company, today called Cometa after the Italian word for comet, was unlikely to get funding without a CEO. So Brilliant agreed to fill the role for as long as it took him to draft a business plan and find a suitable replacement. His chosen successor was Gary Weis, 55, an engineer and M.B.A. who had worked at AT&T and IBM. Weis wanted the job, but it took more elephant wrangling—six months of negotiation—to secure his services.

Meanwhile, Brilliant threw himself at the question of how exactly Cometa was going to make money. It wasn't 1999 anymore. The company had to be able to show skeptics a return on investment. Signs from abroad weren't good: in 2001, **KT Telecom** spent more than \$14 million setting up 8,900 access points across South Korea. Two years on, only 123,000 out of a country of 45 million—most of them tech sophisticates—have signed up. (One reason is that South Korea's cell-phone data technology and service offerings are vastly superior to those in the U.S.)

And what about those 11 million U.S. road warriors: How can they be sold on Wi-Fi? **Starbucks**, in partnership with T-Mobile, had already launched its in-house Wi-Fi network, which you could pay for by the minute or subscribe to by the month. The San Francisco-based **Surf and Sip** network offered a similar service in independent coffee houses. If the typical road warrior turned out to be a fan of Grande Double Lattes, Cometa could be sunk before it started.

Another big question: What kind of threat is the free-Wi-Fi movement? In major cities, many home users are leaving their networks open—either as a public service or, in more cases, accidentally—meaning anyone can use those networks to surf freely without a password. The practice of looking for those networks—known as wardriving, in homage to Matthew Broderick's wardialing in the movie *War Games*—got a boost when the descendants of ham-radio



Anthony Townsend, a professor of urban planning, runs 141 free Wi-Fi hot spots in New York City, including this one in Bryant Park

enthusiasts figured out that you could pick up a much stronger signal by welding an empty Pringles can to your Wi-Fi card.

Then came the habit of warchalking—which began in London and spread around the globe—in which wardrivers would mark the presence of free networks with a strange hieroglyph—parentheses in reverse order—in chalk on the sidewalk for all to see. “The beauty of Wi-Fi is that it is so decentralized,” says Anthony Townsend, an N.Y.U. professor who runs a network of 141 free access points called NYCwireless. Even Brilliant keeps his home Wi-Fi network open, and is happy for his Mill Valley, Calif., neighbors to use it.

If Cometa was going to work, Brilliant knew, it had to think big.

Despite the expense, it had to build 20,000 access points across America. These access points have to be as secure as Fort Knox and support Virtual Private Networks, or VPNs (think of a VPN as a solid, encrypted tunnel of data in the middle of any signal). Free Wi-Fi rapidly loses its appeal when you realize those home users could potentially take a peek at the data on your laptop as part of the bargain.

Brilliant also insisted that Cometa had to make deals with corporations, not individual road warriors. “We need to sign them up 50,000 at a time,” he says. If consumers use the service, it will be through potential partners like **AOL Time Warner** (parent of **TIME**) or **EarthLink**. Cometa would still be in charge



The new CEO of the Cometa wireless joint venture is Gary Weis, 55, an engineer and M.B.A. who has worked for AT&T and IBM

It will take 72 people connecting to an access point daily for three years to recoup the cost of building it, says a Wi-Fi skeptic

shake machine’s maintenance schedule can be accessed at a moment’s notice. The company has Wi-Fi in Australian, Japanese, Swedish and Taiwanese restaurants.

Brilliant’s big thinking isn’t enough to convince some skeptics. Seybold says it would take 72 people connecting to an access point every day for three years to recoup the cost of constructing it. And if each access point covers only a 300-ft. radius, that’s going to leave a lot of urban America outside the Cometa canopy.

But time and technology are on Brilliant’s side. The Institute of Electrical and Electronics Engineers—those geeks who came up with the name 802.11—tentatively announced the creation of a new Wi-Fi standard earlier this year. It’s called 802.16a, or more memorably, Wi-Max. It can comfortably cover a square mile, meaning it would take only 49 transmitters to blanket San Francisco. As Brilliant says with a grin, “Now it gets interesting.” If you can cover entire cities with wireless Internet access, you suddenly have a very cheap alternative to cellular networks. But even Wi-Max won’t kill 3G, which works much better when you’re driving at high speed.

Brilliant will stick around to see the outcome, even now that Weis has taken over the CEO role. “I’m on the board of directors,” Brilliant says. “They can’t get rid of me.” After all, there’s still one more mountain to climb.

—With reporting by Leslie Berenstein/
Los Angeles, Joshua Macht/New York, Laura A. Locke/San Francisco and Donald Macintyre/Seoul