



# BusinessWeek

► Close Window

JUNE 25, 2007

COVER STORY

By [Spencer E. Ante](#)

## Telecom: Back From The Dead

All those YouTube videos and MySpace pages zipping back and forth on the Net have revived the telecom industry—and charged up the economy



Peals of laughter rippled through the ether in April when hundreds of thousands of people clicked on YouTube.com ([GOOG](#)) to watch comedian Will Ferrell's short video, *The Landlord*. It's pretty hilarious, after all, to see a tiny 2-year-old girl in a party dress playing the part of an irate landlord, squeaking, "I am tired of this crap...I want my money!" at Ferrell, her distraught, bushy-haired tenant.

COVER  
STORY  
PODCAST



Slide Show >>

What chuckling viewers couldn't see was the sprawling framework that companies have cobbled together to zap millions of clips like this one around the Internet every day. After a student, say, at Rutgers University in New Brunswick, N.J., clicked on *The Landlord*, one of hundreds of thousands of computer servers in Google's ([GOOG](#)) numerous California data centers pushed the video through Web networking gear from Cisco Systems ([CSCO](#)) and Juniper Networks ([JNPR](#)). Last year, Google, YouTube's parent company, spent \$1.9 billion, or 18% of its sales, on technology systems and other capital expenditures to serve videos speedily and process search-engine queries.

From Google's facility, the video shot across the U.S. on Level 3 Communications Inc.'s fiber-optic network, which encompasses 47,000 miles of cable. Reaching New Jersey, the clip was then handed off to a new fiber loop run by Verizon Communications Inc. ([VZ](#)) Milliseconds later, Verizon served up the video to an apartment in New Brunswick through a broadband connection wired directly into the building.

In those taken-for-granted wires, cables, and computers lies a remarkable tale of resurrection. Seven years ago the communications business, made up of companies providing everything from phones to computer networks to routers and switches, was laid low by the worst collapse to hit a U.S. industry since the Great Depression. With breathtaking speed and little advance warning, high-flying companies like Global Crossing Ltd. ([GLBC](#)) and WorldCom Inc., which had loaded up on debt to build out fiber-optic networks and buy up companies in anticipation of a never-ending e-commerce boom, collapsed into bankruptcy. Giants such as AT&T were ripped apart as they scrambled to recover from free-falling sales and profits. Hundreds of thousands of workers lost their jobs. Prices of some inflated stocks—boasting price-to-earnings ratios that topped 400 in the most extreme cases—tumbled 95% or more.

Investors saw some \$2 trillion of market value vanish in a little more than two years—twice the damage caused by the parallel bursting of the Internet bubble. Amid the wreckage, some predicted it could take a decade or more before the industry would climb back and fill all those empty pipes that starry-eyed executives had buried beneath the earth and oceans.

Over the past year, however, the telecom industry has roared back to life. Credit a steady rise in appetite for broadband Internet connections, which enable easy consumption of watch-my-cat video clips, iPod music files, and such Web-inspired services as free Internet phoning. Indeed, this year broadband adoption among U.S. adults is expected to cross the important threshold of 50%. Capital spending is on the rise as companies invest to build high-speed networks. Private equity players are placing enormous bets on the industry, such as the \$8.2 billion that Silver Lake Partners and the Texas Pacific Group agreed

to pay for networking gearmaker Avaya on June 5. And the glut in broadband communications capacity is all but gone.

About half of the Internet's transmission capacity was going unused in 2002. Today that pipeline has almost doubled in size, and yet the unused portion is down to about 30%. As a result, the price that companies pay for bandwidth in some parts of the U.S. is on the rise after six years of declines. "All of us are planning expansions of our backbones in order to support growth in Internet applications and video," says Dan Yost, executive vice-president for product at Denver-based communications provider Qwest Communications International Inc. (Q)

Perhaps the best indicator of the telecom revival is this startling data point: Profits for the industry this year are expected to reach an all-time high of \$72 billion, topping for the first time the high-water mark of \$65 billion in 1998.

You don't have to tell investors that telecom is back. It has been one of the hottest sectors in the stock market over the past 18 months. In 2006 big phone company and other stocks represented in the Telecom HOLDERS (TTH) exchange-traded fund rose 34%, after a nearly 10% decline in 2005. And the fund is up 14.8% so far in 2007, compared with a 7.7% gain for the Dow Jones industrial average.

But telecom's revival has implications way beyond Wall Street. A dollar spent on telecom infrastructure produces an outsize impact on the U.S. economy as a whole. Indeed, a growing body of research has found that telecom investment plays a vital role in stimulating economic growth and productivity—more so than money spent on roads, electricity, or even education. Communication assets generate massive benefits by slashing the cost of doing business across the economy. A high-speed data network suddenly makes it easier and cheaper for all kinds of workers to place orders, service customers, and drum up new business.

A 2001 paper in the *American Economic Review*, written by Lars-Hendrik Röller of Berlin's Social Science Research Center and Leonard Waverman of the London Business School, concluded that the spread of land-based telecommunications networks in 21 developed nations accounted for one-third of the increase in economic output between 1970 and 1990. Other studies suggest fiber-optic and wireless networks provide their own special jolt to the economies of rich and poor nations alike. "Out of the ashes of the tech crisis we got a world-class, spanking-new communications network," says Mark Zandi, chief economist for Moody Corp.'s (MCO) Economy.com Inc. "That has been key to outsized productivity gains ever since."

The \$900 billion industry looks far different than it did in 2000. The balance of power has shifted toward Web upstarts such as YouTube and MySpace that barely registered seven years ago. The Bell phone companies, meanwhile, have consolidated and are furiously developing services they hope will let them capitalize on the billions they're investing to build speedy new networks.

It's not clear, though, how much of the value flowing from those networks will be captured by the Bell companies themselves. The big phone companies don't have a history of developing game-changing technologies in a competitive arena. "They've got a high hill to climb," says William E. Kennard, a former Federal Communications Commission chairman who is now managing director of Carlyle Group, a large private equity firm that has purchased some telecom assets. Meanwhile, Web companies such as Google are making a push to introduce more competition into the wireless industry and loosen the Bells' control over the Internet's distribution.

The long-awaited arrival this month of Apple Inc.'s (AAPL) iPhone, which surfs the Web, takes pictures, plays music—and oh, yeah makes phone calls—may herald a new round of disruption for the big telcos. By allowing software developers to write applications for a better mobile Web device, Apple is attempting to shatter the so-called walled-garden model of wireless companies in which they control the wireless Internet gateway and the content that is featured on the handset screen. If the iPhone's Web browser performs as hyped, customers could start demanding a full range of Internet service on their phones and new freedom in their service plans. That, in turn, could create ever more demand for servers and routers, video services, and upgraded wireless networks.

Within the broad industry comeback are some remarkable turnarounds. Few companies got whipsawed harder by the bust than Level 3 Communications. Founder and Chief Executive James Q. Crowe started Level 3 in 1998 with a dream of building the world's largest, most advanced fiber-optic network—and with \$3 billion raised from investors that included Walter Scott Jr., an Omaha construction magnate and friend of Warren Buffett. Before long, the company was digging up earth in 20 time zones with 250 crews installing fiber at a blistering pace of 19 miles a day. In March, 2000, Level 3's stock peaked at \$130 a share. But with money flowing like water, by the end of the year at least 50 other companies jumped in to offer Internet backbone services. When it became apparent that Crowe's network was attracting more competitors than customers, the stock tumbled off a cliff, nearly killing the company. By October, 2001, it had bottomed out at \$1.98 a share, sticking investors with tens of billions in losses.

Today, Level 3 is alive and growing again. Over the past three years a strong bond market enabled the company to refinance its massive debt at lower rates and pull off 10 acquisitions worth more than \$4 billion. Level 3 says more than half of its network traffic today is from Web video, vs. no such traffic in 2000. High debt levels are keeping its business in the red; analysts don't expect Level 3 to generate positive cash flow until the end of this year. But over the past nine months, Level 3's stock has jumped 60%, to about 5 1/2, as it reaps a kind of survivor's premium. "For a long time they were on death watch, but now they are the last guy standing in the U.S. wholesale [bandwidth] business," says Stephan Beckert, an analyst with Washington-based TeleGeography Research.

Now even some initial public offerings are drawing interest on Wall Street. Shares in Dallas-based wireless service provider MetroPCS Communications Inc. (PCS) have jumped nearly 50% since the company went public on Apr. 22 at \$23 a share. The stock price of communications gearmaker Riverbed Technology Inc. (RVBD) has more than quadrupled, to 40, since a September, 2006, IPO. "There's a huge amount of startup innovation" in the communications industry, says Morgan Jones, a partner with Battery Ventures, a venture-capital firm in Waltham, Mass., that invested in MetroPCS.

Of course, that's how it felt back in 2000--in spades. Then, it seemed as if demand for optical routers, "pump lasers," and other whiz-bang broadband technologies would grow forever. But when dot-coms started flopping in the spring of 2000, the absurdity of projections calling for Internet traffic to double every three months was revealed. The capital spigot, which had been gushing with cash for upstart phone companies and established carriers alike, shut off. With too many bandwidth providers chasing falling demand, wholesale Internet connection prices began falling by 50% a year.

The first big dominos fell in 2001, when broadband providers Winstar Communications and 360Networks filed for bankruptcy. Over the next three years 655 telecom companies, with a combined \$749 billion in assets, filed for bankruptcy, according to BankruptcyData.com. On July 21, 2001, after an accounting scandal revealed billions of dollars of overstated profits, WorldCom Inc., the giant that embodied the boom era's promise, filed the largest bankruptcy claim ever.

The scope of the wipeout was breathtaking, conjuring comparisons with the savings-and-loan crisis of the 1980s. But this time it was private investors who ate the losses, not the government. And the speed of creative destruction had one advantage: By early 2004, recovery was already under way. In a key deal in February of that year, Cingular Wireless agreed to buy AT&T Wireless Services for about \$41 billion. Soon the consolidation shifted into overdrive. In December, Sprint announced a deal to buy Nextel Communications for \$35 billion; a month later, SBC Communications said it would buy AT&T for \$16 billion; a month after that, Verizon struck a deal to acquire MCI, the former WorldCom, for \$8.4 billion.

But while the phone and cable companies tightened their grips on the transmission pipes, an army of upstarts went to work filling them. It's no accident that the explosion of online video and the rebirth of telecom happened around the same time. A typical video consumes 1,000 times as much bandwidth as a sound file. (Likewise, high-definition video, which consumes 7 to 10 times as much bandwidth as normal video, could trigger the next surge in network growth.)

Online video barely existed in 2000. Today, fully one-third of all Internet traffic comes from Web videos, *The Landlord* included. Thanks to bandwidth-hungry services such as YouTube, global Internet traffic from 2003 to 2006 grew at a compounded annual rate of 75% a year, according to TeleGeography. "When you compound those numbers, I don't care how much inventory you have, it's going to disappear off the shelf," says Level 3 CEO Crowe.

To understand the velocity at which video is taking over the Web, consider the experience of VideoEgg Inc. While not nearly as well known as YouTube, VideoEgg in less than two years has grown to become the largest video service for social-networking Web sites. Instead of building their own Web video services, big online communities such as Bebo and hi5 use VideoEgg technology to let members broadcast videos on their sites.

Today, VideoEgg serves up about 15 million videos a day across 70 Web sites. To deliver them, the company works with giants such as AT&T and Verizon as well as Web content-delivery service Akamai Technologies. (AKAM) By yearend, VideoEgg CEO and co-founder Matt Sanchez believes the company could more than triple its current traffic.

Mainstream organizations also have knit broadband networks into the fabric of their daily operations. Take something as simple as mail delivery. Since 2005 the U.S. Postal Service has been using wireless scanners so mail handlers can keep tabs on the location of every one of the 200 billion pieces of mail it delivers in a year. And it is now testing a wireless system that will keep track of thousands of mail trailers parked in its 22 bulk mail centers. Since 2001 the Postal Service has boosted its network capacity tenfold to support these systems. As a result, the service has become a major buyer of telecom infrastructure, spending hundreds of millions of dollars a year on communications services provided by Verizon and AT&T.

Indeed, while companies remain tightfisted in their spending on computers and other information technology, many of them believe new networks provide a big bang for their bucks. Global spending on communications equipment for corporations is forecast to grow 20% over the next three years, according to Infonetics Research of Campbell, Calif. Consider the experience of clothing maker Liz Claiborne Inc. (LIZ): In late 2005 employees were becoming increasingly frustrated when it was taking up to half an hour just to open up a 40-megabyte spreadsheet. After the company installed new gear from Riverbed Technology that compresses the files and stores the most popular data closer to the users, documents popped open in a few minutes. "People were like, Wow, I can't believe how fast this is," says Rakesh Patel, Liz Claiborne's technical architect.

If the old telecom world was dominated by bloated regional monopolies, the new world is a competitive mosh pit stocked with sinewy players. That's reflected in how much more productive the industry has become. While telecom revenues are now 19% higher than they were in 2000, that money supports just 1.1 million workers, down nearly 30% from boom-era levels. "It has gotten unrelentingly competitive in every area: broadband, land line, and wireless," says AT&T's new CEO, Randall Stephenson.

For the big carriers such as at&t, Verizon, and Qwest, the main challenge is to slow defections of traditional land-line customers while producing faster revenue growth in new markets such as wireless, Internet service, pay TV, and advertising. The carriers must overcome their reputation for being "dumb pipes" and prove they can fill their networks with innovative bundles of products and services that strike a chord with customers—all while battling cable operators, which are poaching millions of phone customers, and fending off or making peace with aggressive new entrants such as Google and Apple. (AAPL)

There is reason to believe the phone companies are reinventing themselves. Verizon, for example, will soon offer services that allow consumers to personalize and share photos, videos, and other media among their cell phones, PCs, and TVs. Five years ago, Verizon employed about 100 software developers who were mostly focused on installing products developed outside the company. Today, Chief Technology Officer Shaygan Kheradpir oversees more than 1,000 developers. In July the company will launch an interactive media guide for Verizon's FiOSTV service; by clicking on it, couch potatoes can access all of the photos, music, and videos they have stored on a PC. Further down the road, Verizon says it will steal a page from YouTube and allow TV customers to create their own personalized video channels. "We don't have to own every service," says Verizon CEO Ivan G. Seidenberg. "We just have to package a lot of them and help the customer find the things they like."

It doesn't help that American phone companies can no longer rely on the wireless business for growth as much as they have in the past. Mobile telephony is a maturing market. For the first time, this year the growth rate for new wireless subscribers in the U.S. is expected to decline. To continue generating double-digit revenue growth, wireless carriers must steal customers from one another or persuade more consumers to buy next-generation phones and purchase so-called 3G services such as games, music, and videos. Every major wireless service provider is upgrading its networks to provide faster speeds for uploading and downloading wireless content. But only 15% of the wireless handsets in the U.S. are capable of handling 3G services.

That raises a troubling question: Could another unpleasant surprise await investors who have bought into this shiny image of telecom transformation? Maybe. Some of the projections for new mobile-phone businesses, especially video downloads, seem over-the-top in a late-'90s kind of way. But there's nowhere near the sense of limitless expectations that drove telecom investors off the cliff last time. Despite strong performances of late, stocks such as AT&T, Verizon, and Cisco Systems are trading today at 15 to 20 times 2007 earnings. Cisco's price-earnings ratio in 2000 hit 145.

Perhaps Cisco, the No. 1 seller of network gear, is emblematic. In what seemed at the time like a milestone in the Net's ascendency, Cisco briefly passed Microsoft Corp. in March, 2000, to become the most valuable company on the planet. Soon after, Cisco had to write down \$2 billion of unsellable routers and other equipment. By July, 2002, its stock price had tumbled from 77 to 12. Cisco cut costs, laid off workers for the first time, and weathered the storm. Today, it is flowering again, selling equipment to cable and phone companies that are expanding their services, and branching out into new business and consumer markets. In the most recent quarter, the company reported profits of \$1.9 billion, up 34%, on strong sales of \$8.9 billion. On June 12, the stock was trading around 26.

CEO John Chambers tells a post-bust story that sums up how quickly things have turned around. Back in 2004, he recalls, critics laughed when Cisco rolled out an audacious new router, the CRS-1, capable of transmitting the entire contents of the Library of Congress in a few seconds. Analysts predicted only a handful would sell. This year, thanks to the video bandwidth hogs, sales of the CRS-1 are expected to hit \$1 billion, more than double the figure for 2006. Says Chambers, who has never lacked for confidence throughout the boom, bust, and boom again: "The market is going exactly where we thought."

With Peter Burrows in San Mateo, Calif., and Roger O. Crockett in Chicago

[Advertising](#) | [Special Sections](#) |  
[MarketPlace](#) | [Knowledge Centers](#)

**Xerox Color. It makes business sense.**

[Terms of Use](#) | [Privacy Notice](#) | [Ethics Code](#) | [Contact Us](#)

**The McGraw-Hill Companies**

Copyright 2000- 2007 by The McGraw-Hill Companies Inc.  
All rights reserved.