US IT Spending; Also Broadband Trouble

○ Information tech is important for getting work done.

○ But there was a big “bubble” in IT during 1998 – 2001.
  - The investment was way too high.
  - The IT stocks got much too high.

○ Now in mid-2002, there is more sanity, and there is still pain.

○ Will the prices of technology stocks come back? (p 54)
  Not likely. See this comparison with the 1929 stock market.

○ There are 34 items here and 55 pages.

Roy Jenne
27 Aug 2002
US IT Spending; Also Broadband Trouble

Roy Jenne
30 July 2002
Rev 27 Aug 2002

There are 34 items here and 51 pages plus 4 pages in front.

1. Some Comments About These Articles (R. Jenne, Aug 2002, 1 p)

2. IT anxiety of 2002 has its precedents (Computerworld, Jan 29, 2001, 1 p)

3. Telecomeback (Forbes, Jan 21, 2002, 1 p here)

4. The Tech bubble (Forbes, Mar 25, 2002, 1 p here)
   • The bubble during 1998 – 2001 was like sheep going off a cliff.

5. The giant local phone companies (Aug 12, 2002, 2 p)
   • Did they really escape trouble? Probably not.
   • Another page, “What’s alarming the Bells?” (Sep 2, 2002, 1 p)

6. Raising prices won’t fly (Business Week, June 3, 2002, 2 p)
   • Plus…10 gigabit Ethernet… (1 p)

7. The sinkhole of “synergy” (Business Week, Aug 25, 2002, 1 p)
   • The media industry bungled its foray into the world of the Internet. It was a very costly blunder.
   • Now the main jobs are going back to the media people, not the tech people.

8. CEOs: Flamboyance is out of style (Economist, Aug 10, 2002, 1 p)
   • This is a very interesting story! There was a lot of bad hype. Now the good things are back in style.

9. Tech spending in USA (Jan 22, 2002, 1 p)
   A chart shows that government spends about $115 billion on Information Technology (IT);
   professional services, $90 b; retail and distribution, $66 b; non-bank financial, $60 b; health care,
   $54 b. Government is the big spender. Does this make sense?

10. Federal IT spending: Mostly sunny (May 6, 2002, 1 p)
    Federal IT spending will go up about $5 billion (or 10%) from the year that started 10/2001 to year
    10/2002 (FY03). This is a big increase. I know of some waste. How good is most of this spending?

11. “IT job market dips; no upswing in sight” (Computerworld, May 13, 2002, 1 p)
    • Last year, IT jobs fell from 10.4 to 9.9m.

    A lot of Silicon Valley companies are trying to unload on a free-spending federal government the same stuff they are having an ever-harder time selling to regular customers.
13. Bush budgets $52b for IT
   • In Feb 2002 Bush asks for a 15.6% increase in federal information technology spending, for a total of $52b in FY2003 (Oct 02 – Sep 03).


15. Mr. PC goes to Washington (Economist, June 1, 2002, 2 p)
   • Get big $ for info tech.

16. IT vital to defense (May 6, 2002, 1 p) - 25

17. How fiber barons plunged the nation into a telecom glut (June 18, 2001, 1 p)
   • Telecoms have some $650 b in debt.
   • A shakeout is going on.
   • One more page here about the economy in 2001.

   • And US private investment, 2000 – 2002, 1 p

19. More trouble for AOL; cable rivals may push net prices even lower (Apr 22, 2002, 1 p).
   • Another page about AOL, Aug 10, 2002

   • There is a problem with high speed Web service: a lack of customers.
   • What is missing from broadband is a reason to use it.
   • Cable broadband prices in Europe, Japan, Korea, Canada are about $30 per month, much cheaper than in the US. (Part of this may be the effect of the strong dollar in money conversions.)

21. Too many debts; too few calls (Economist, Jul 20, 2002, 2 p)

22. DVDs take wind out of sails for video on demand (USA Today, May 7, 2002, 1 p)
   More than 25 million homes have a DVD player and 70 million will by 2006.

23. SEC takes a hard line on Qwest (June 2002, 1 p) - 38

24. Broadband failure has a political cause (June 2001, 1 p)
   The author says we need to either trust the monopolists or trust competition.

25. Modern warfare strains capacity to communicate (Wall Street Journal, Apr 10, 2002, 1 p)

26. WorldCom admits $3.8 billion error in accounting (June 26, 2002, 1 p)
   • In Aug 2002, we learn WorldCom discovered $3.33b more in errors to add to the previous $3.85b. Wow!

27. Colorado’s techs, telecoms still reeling (Denver Post, Aug 5, 2002, 2 p)
   The values of the techs and telecom stocks are down $307b or 87.5% since 2000. Wow.
28. The tech sector is growing at a much slower pace and that is good news (*Wall Street Journal*, May 20, 2002, 1 p)

29. Qwest CEO gets $1.5m bonus (Apr 10, 2002, 1 p)
   - Qwest is in bad shape and workers are being laid off.

    There had been frantic overbuilding of fiber optics and this triggered a high-speed collapse. There is also the problem of “the last mile.” A high-speed link does not help much unless it goes all the way to the users.

31. Lucent: One step forward, two steps back (*Business Week*, Apr 8, 2002, 2 p) — Page 49

32. Productivity Lost (Computerworld, Sep 24, 2001, 2 p) — Page 51
   - And US vs Europe, Nov 10, 2001, 1 p

33. Will star technology stocks ever come back?
    The lessons from the crash of 1929 and then the 1930s is that these will not come back to their old highs. Remember that their high prices were often based mostly on sheer hype.

34. Two other documents (not here):
   - Is it always smart to buy more technology? No, No, No, No; July 2002, 8 p (RJ0221)
   - Another bundle of papers (RJ0125)
Some Comments About These Articles

Roy Jenne
8 Aug 2002

a. I just wonder how Europe and Japan were able to supply broadband services cheaper than in the US. The companies want everyone to pay a high price per month on each of a dozen comm. Services. Many users will balk at the cost.

b. There was a stupid amount of hype about the new economy, the Web, and tech during 1998 – 2000. There was far too much investment in technology. Then there was the stock bubble. Now the adjustment process has been going on for almost 2 years.

- US companies now are spending less on tech.
- Businesses are demanding that tech and capital spending will be a real help to the company, not just a fuzzy game.
- But it is not at all clear that the government is doing a more sane job on tech spending. I see too many things getting worse: fuzzy goals, huge projects that have a poor track record, etc.

   The firms are working even harder to sell tech to the government. Where is the hard-nosed attitude that asks the questions: Is it good? Do the costs make sense? Do we really need this? Is there a better method?

d. Compare the size of IT spending by the government.
   Does the cost of IT make sense when compared with the spending in other parts of the economy?

e. A bunch of companies want the government to subsidize the task of putting broadband into homes and schools. The problem is that this would likely decrease competition and make sure that the tasks cost more than they should, and that monthly bills remain higher than in Europe and Japan.
DAVID MOSCHELLA

IT Anxiety of 2001 Has Its Precedents

NOT SINCE the early 1990s has the IT industry begun a new year under such a barrage of bad news: the wipeout of vast sums of paper wealth, the rising dot-com body count, sagging vendor earnings, a severe drought in venture funding and a 1970s-style energy crisis in the very epicenter of the global technology industry. If you believe in symbols, it's hard to ignore the fact that it's the man from oil country, not the "inventor of the Internet," who has moved into the White House.

Perhaps the only bright side is that we no longer have to listen to naive and haughty references to the emergence of a "New Economy," nor to vapid assertions about why the Web "changes everything." It wasn't long ago that anyone who dared dispute such dogma was dismissed as some poor lost soul who obviously "just doesn't get it." For those of us who resented the implicit arrogance of these once-common assertions, there's a certain sense of justice in seeing our industry get its comeuppance.

More important, this industrywide humbling is the simplest way to understand what has happened. The world has lived through many such economic bubbles, and although much has been written about their similarities (most notably the indispensable Extraordinary Popular Delusions and the Madness of Crowds, by Charles Mackay), it's their differences that I find most instructive. Consider the following:

■ The oft-cited Dutch tulip bulb craze of the 1630s had its roots in individual vanity and status, as the bizarre idea that a man of leisure was somehow incomplete without a sufficiently elegant tulip bulb collection took hold. Being founded upon such obvious flimsiness, the whole notion completely collapsed and never returned.

■ The great speculative international trading bubbles of the early 1700s were founded largely on the thrill of exotica, as Europeans suddenly convinced themselves that the New World would prove an easy source of unfathomable wealth. In the end, this basic belief proved more right than wrong. The wealth was there; it just didn't come easily or quickly.

■ The U.S. stock market bubble in the late 1920s stemmed from an almost admirable societal optimism. New technologies such as automobiles, airplanes and radio, as well as all manner of electrical appliances and machinery, promised a better, richer life for all Americans. Unfortunately, it wasn't until the 1950s that these promises began to be fulfilled.

■ The Japanese bubble of the late 1980s was ultimately based on an overconfidence that spilled over into arrogance. Investors came to believe that Japanese companies were destined to conquer just about all major world markets, and therefore it only made sense that Tokyo's land prices should make New York seem like Montana.

Obviously, all of these bubbles share a common tale of greed and speculative frenzy, followed by collapse and prolonged decline. But otherwise, they are far from alike. Personal vanity, exotica, excessive optimism and arrogance have each taken the lead at various times. The dot-com collapse adds yet another twist.

Historians will likely view the Internet bubble for what it was: an overzealous belief that the new world would quickly supplant the old and that Net-based organizations would run circles around their brick-and-mortar rivals. Maybe they eventually will.

But as we saw with the New World in the 18th century and the wondrous inventions of the 1920s, even when such predictions ultimately prove true, it can take decades for the real rewards to be reaped.
Telecomeback

Telecom's turmoil bled $1 trillion from investors in a frenzy of fundraising that fueled a capacity glut and plunging prices. By picking through this titanic wreckage, new fortunes will be made.

BY NEIL WEINBERG AND SCOTT WOOLLEY

Jan 21, 2002

Forbes

No business has wreaked greater devastation in the recent tech-stock crash than telecom. Over $1 trillion in market value has vanished since March 2000, more than in any other sector. Household titans like WorldCom, Qwest and SBC have gotten clobbered. Brazen upstarts that spent billions building new networks now are in bankruptcy proceedings—Winstar, PSINet, Teligent, NorthPoint, Covad, Rhythms, 360networks and others. More are headed their way. Some 225,000 people have lost their jobs, more than in any other industry, and many have seen their stock-based retirement funds disappear in the plunge.

Greed and broadband dreams conspired to produce this corporate calamity. Investors pumped up the business with more capital than it could sensibly spend—$1.3 trillion since 1996. Deregulation spawned a takeover frenzy, and investors grabbed all the stock they could. As dowdy old telecoms glommed onto the Internet craze, an aura of invincibility sucked all into believing ridiculous market research and demand forecasts.

In the aftermath, telecom stocks are startlingly cheap, and hard assets are selling for pennies on the dollar. That sets up the next telecom revolution, the next bout of wealth creation. It offers riches for the survivors and for investors bold enough, or crazy enough, to bet on the coming chaotic consolidation.

Even in this grim landscape, telecoms won't go the way of dot-coms. Carriers will do $900 billion in sales globally this year, and equipment vendors will turn another $170 billion. Crash aside, U.S. carriers netted $27 billion in aftertax earnings in 2001, Value Line figures. AT&T is on the verge of being dismantled by its Baby Bell offspring with all the tenderness of schoolboys tearing the wings off a fly; its teetering finances led credit-raters to ratchet down its debt to a notch above junk. Yet AT&T generated $15 billion in earnings before interest, taxes, depreciation and amortization last year.

"Telecom is still a great industry," says AT&T President David Dorman. "The notion that every man, woman and child would soon be streaming video from their cars was ridiculous, but, long term, this is still an 8% to 10% growth business." In an economy growing 1% or 2% a year, that is extraordinary.

With valuations dirt cheap and competitors' ranks thinned by bankruptcies, some are now betting on a telecom comeback. This month Aerie Networks paid less than a penny on the dollar, or $8.25 million, for the billion-dollar wireless-data network known as Ricochet. Winstar, with $5 billion in assets and $200 million in annual revenue, just got bought out of bankruptcy for $42.5 million by small-time carrier IDT. "The deal might not top the Dutch settlers buying the island of Manhattan for $24, but it comes pretty close," says Howard Jonas, IDT's chairman.

Some stocks left for dead are reviving, somewhat. Cisco Systems, despite a 33% drop in sales in the three months through October, has managed to cut inventory in half. Though its stock...

Was like sheep going off a cliff

Biotech Is HOT, HOT, HOT!

The hot-air machine is back! Look who showed up at the 20th annual JPMorgan H&Q Healthcare Conference in San Francisco. For the first time in memory a Vanity Fair reporter was sitting at the press table next to trade journalists and analysts. And he wasn't hunting for a pregnant Demi Moore, either. He was trolling for “rock stars” among the geeks. What next? Will Annie Leibovitz click away at J. Craig Venter, mapper of the human genome?

The starmaking magazine, which gushes over such luminaries as Gwyneth Paltrow and Tom Cruise, is not alone in being lured to biotech. Keynote speakers at past H&Q conferences tended to be industry experts. But by last year the conference was already heading mainstream. Newly minted biotech convert Nathan Myhrvold, Microsoft’s former chief technology officer, was the keynote speaker. This year’s address was delivered by a self-deprecating, still-bearded Al Gore, who’s morphed into an L.A.-based investment adviser on high tech and biotech.

The richest men in technology, including Bill Gates, Paul Allen, Gordon Moore, Larry Ellison, and Jim Clark (in addition to Myhrvold), are investing in health care and biotech.

And venture capital investments in health care/biotech, which plummeted to 8% of total VC funding during the Internet bubble years, were back up to 24% in the fourth quarter of 2001, according to tracking firm VentureOne.

Can you sense the next bubble coming?

KAREN SOUTHWICK
The giant local phone companies appear to have escaped unscathed in the telecom crackup. Look again: They may well become the final pillar to crumble.

BY SCOTT WOOLLEY

20 million
Bell phone lines now leased by competitors at wholesale prices.

1.7 million
The number of cable company lines now used for local phone service.

9 million
The net number of local phone lines cut off in 2001.

WALL STREET HAS A PERVERSE NAME FOR THE BABY BELLS. THEY ARE "COCKROACHES." AN ASTEROID HAS DESTROYED THE whole long-distance and fiber-optic sectors, but somehow the local service providers have survived. Verizon, SBC and BellSouth made a combined $20 billion of profit last year and have a collective market value of $240 billion.

So far the Bells' stamina on Wall Street has been remarkable. The stock prices of Verizon, SBC Communications and BellSouth have fallen on average 30% in two years, easily beating the overall market and trouncing Sprint, Qwest, Level 3 and WorldCom, whose shares are off anywhere from 70% to 100%. Investors sought refuge in what had long been one of the most predictable and reliable businesses on the planet. Local phone service has grown, in good years and bad, for seven decades.

Let the shareholder beware: These telecom behemoths are nowhere near as healthy as they appear. While they aren't about to become extinct, neither are they the cash machines they seem to be. Most of those glorious profits are being poured into maintaining equipment or upgrading to meet new competitive threats. In the five years from 1998 through 2002 the Bells will have sunk $140 billion into capital expenses in their local, long-distance, data and international markets. This monstrous outlay will bring them annual revenue growth in those same areas of less than 1%. Philip Jacobson, an analyst with Network Conceptions in Vienna, Va., puts it succinctly: "The Bells have shown the ability to invest a lot of money with very little result."

Even as the Bells stand triumphant, the 20th-century foundations of their business have begun to fracture. The Baby Bells could one day be exposed as the last great telecom illusion, undone by a combination of an overwhelming wave of new competition—from cable, wireless, resellers and elsewhere—and their own underwhelming success at diversifying into new services such as Internet access. They are on a capital-spending treadmill, and the treadmill is picking up speed.

Competition and price-cutting that first struck the long-distance business and then cell phone service are now spreading to local service. The Bells' phenomenal strength is rooted in their absolute lock on the nation's 180 million local phone lines and the seeming inevitability that, each year, they will continue to lay still more. But last year the total number of local phone lines declined...
4.7% from the year before as customers cut off 9 million more lines than they added, according to the Federal Communications Commission. Since AT&T was founded in 1885, government statisticians have recorded a drop in phone lines only once before, during the Great Depression.

The line decline in 2001 was a direct result of the ferocious assault on the Bells from all sides. As many as 3 million customers decided to forgo a home phone last year, going wireless instead. Cable operators are beginning to offer local phone calls on their rebuilt lines, and poached 600,000 Bell customers last year. Another 2 million households canceled the second phone lines they were using for poki dial-up access to the Internet; high-speed cable access and DSL don't interfere with regular phone service, making second lines superfluous. BellSouth workers used to go into new suburbs in the Southeast and confidently bury thick bundles of wires containing 1.5 to 2.5 phone lines for every home in the neighborhood; this year its workers began burying just one phone line for every home its wires pass.

The erosion began to show up last month in BellSouth's second-quarter report, as sales fell 3.5% and earnings plunged 67% on one-time charges, sending the stock down 18% in a day. Verizon and SBC were also expected to report further phone line losses.

It gets worse. The Bells now lease 20 million lines to resellers, up 32% last year, and they're forced to rent out these precious tendrils at regulated prices that are often just two-fifths of what they get from consumer accounts. Competitors leasing those lines can exploit weaknesses in the Bells' kooky pricing structures, relics of their days as regulated monopolies, to steal the most profitable customers. The Bells count on 95%-plus operating margins on newer features such as caller ID and voice mail to juice their earnings, since basic monthly fees remain regulated. MCI's new Neighborhood Complete plan offers unlimited local and long-distance calling for $50 or $60, depending on the region, with caller ID, call waiting and voice mail—so valuable to the Bells—thrown in free of charge. Since launching the plan in April MCI has landed 600,000 customers and is signing up 200,000 more each month.

The Bells will have a hard time holding off the panoply of new competitors, says David Dorman, recently named chief executive of AT&T and a former chief of Pacific Bell. As newcomers steal the fattest customers, the Bells will get stuck serving the low-spending, high-cost ones. "Inexorably," he says, "cable and wireless are going to eat into their share."

For six years the Bells have been bracing for this onslaught, steered by the passage of telecom deregulation in 1996 and eager to counterattack by moving into long distance and Internet access. But their foray has been expensive, and the new-growth markets have proven disappointing. The Bells fought hard for the right to sell long-distance service, something they were banned from doing in the 1984 antitrust breakup of AT&T. It has been a Pyrrhic victory. As of April Verizon and SBC (the only Bells to have won the right to sell long distance in their home states) handled long-distance calls for 13.5 million customers, almost double the total of 18 months ago. Yet their long-distance revenue in that same period declined. In the most recent quarter it was $1.5 billion, off 6% in a year and a half (see chart, p. 88).

Verizon is the most extreme case of a Bell burning through all its cash just to stay even. By the end of this year the company will have piled up five-year spending of $75 billion sprucing up the networks of its myriad pieces (the former Bell Atlantic, Nynex and GTE). Its revenue will have grown 5% a year in this time, to $68 billion this year, with all of that growth due to an influx of new cellular customers. (Verizon owns 55% of Verizon Wireless and consolidates the subsidiary on its own financial statements.) With all that cash plowed into capital projects, Verizon was reduced to issuing new debt to fund $17 billion in dividend payments. Verizon now cracks under $61 billion in total debt, including the money owned by Wireless. Moody's recently put Verizon on credit watch for possible downgrade from its current A1 rating.

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**TELE-TROUBLE**

As millions cut home phone service, Bell executives have spent billions looking for new growth. They're still looking.

**verizon**

Ivan Seidenberg

Total local phone lines

$1 billion

Lines cut off, last 12 months

27 million

Capital expenditures per year

$15 billion

Revenue growth

5%

**SBC**

Ed Whitacre

Total local phone lines

$2.5 billion

Lines cut off, last 12 months

34 million

Capital expenditures per year

$10 billion

Revenue growth

4%

**@ BELL SOUTHERN**

Duane Ackerman

Total local phone lines

$2.5 billion

Lines cut off, last 12 months

20 million

Capital expenditures per year

$8 billion

Revenue growth

2%

Capital expenditures and revenue growth are averages based on wireline businesses over the last five years. Sources: Company reports; Morgan Stanley.

86 FORBES • August 12, 2002
WHAT’S ALARMING THE BELLS

Rivals are finally cutting into their local-phone monopolies

By any conventional measure, the Telecommunications Act of 1996 was a failure. The landmark law was supposed to dismantle the nation’s last great monopoly by opening the residential local-phone market to competition. But after brief forays that produced hundreds of millions of dollars in losses, contenders such as AT&T filed the $50 billion local market. Today, the Bells still dominate, with a 95%-plus share.

Their iron grip, however, is finally loosenimg. Since the beginning of this year, under the much-derided aegis of the TeleCom Act, regulators in a dozen states including California, New Jersey, and New York are finally forcing the Bells to lower wholesale rates for local service. That includes the phone lines that rivals lease from the Bells and resell under their own names. As a result, competitors like AT&T have charged back into the market, accompanied by upstarts such as Talk America, Z-Tel Communications, and Supra Telecom. And together, they will more than double their total share of local phone lines captured from the Bells under the new pricing system, to 7.2% this year, according to IBB Warburg telecom analyst John Hodulik.

Competition, if it can be sustained, will be a boon to consumers and a catalyst for growth and innovation in this troubled sector. And it will also crimp the Bells financially. Forced to rely more on low-margin long-distance revenues, they’ll have to aggressively roll out new services like high-speed Internet access, says C. Michael Armstrong, the out-going AT&T CEO and chairman: “The TeleCom Act is beginning to work.”

Riveted by the bankruptcies and scandals shaking WorldCom Inc., Global Crossing Ltd., and others, many on Wall Street missed the dawn of competition in local services. The wake-up call came with the Bells’ second-quarter earnings’ reports, which revealed a big increase in the number of residential phone lines lost to rivals—most notably to AT&T. In total, the Bells surrendered 1.1 million lines, up from a loss of 700,000 in the first quarter. And they are expected to lose 1.6 million lines in the third quarter and 2.1 million in the fourth quarter as AT&T expands its local operations into more states.

“The winners in this early round are a diverse crew. The biggest is AT&T, which has reentered the local market this year in eight states, gaining more than 1.5 million customers at the Bells’ expense. Then there’s troubled WorldCom, which is operating in bankruptcy but continues to offer residential local service in 33 states. And should WorldCom disappear, newcomers will quickly take its place. Tiny Supra Telecom captured 120,000 lines in Florida during the second quarter alone. And Talk America Inc. boosted the number of subscribers by 50,000 to 244,000 in the second quarter.

The new competition is a bitter pill for the Bells to swallow. “In its current form, [competition] will end up destabilizing the network providers,” warns SRC Communications President William M. Daley. Bell companies, he notes, are responsible for nearly all the capital costs associated with phone lines. Furthermore, says Warburg’s Hodulik, the Bells must win five long-distance customers for every local customer they lose if they’re to retain their current 30% operating margins. Warburg expects Bell earnings to fall 1.8% next year instead of rising 2.6% as initially forecast.

Indeed, the Bells are fighting back. SRC has asked regulators in Ohio to allow it to raise the wholesale price it charges competitors who lease its lines. It claims that the $13.22 monthly rate set by state regulators is 67% below the retail rate that competitors can charge customers. If they lose their appeals at the regulatory level, they can file suit in state or federal court, or seek relief from the Federal Communications Commission. “This is not real competition. It’s a freebie for our rivals. It’s a tremendous, great arbitrage game for them,” Daley says. The courts, however, are usually reluctant to step on regulators’ toes. This time around, it is unlikely that the Bells can turn back the tide of competition.

By Steve Rosenbush in New York, with Roger O. Crockett in Chicago
RAISING PRICES WON'T FLY

WHO IS ABLE TO RAISE PRICES?

They have virtually no pricing power. It's impossible to raise prices, and often, the pressure to slash them continues unabated. The pricing pinch is affecting business across the spectrum of manufacturing and services—everything from chemicals and autos to hoteliers and phone-service. “We're seeing pricing pressures of a severity that we have never seen before,” says John Lonski, chief economist at Moody's Investors Service. “I don't know of too many companies that are factoring price increases into their budget with any certainty.”

You'd think that might be cause for celebration—proof that inflation is dead in its tracks. But for all of the U.S. Federal Reserve's success at getting inflation under control, the pricing pressures befalling many companies suggest that the pendulum may have swung too far the other way (page 37). While price cuts are a boon for consumers, the lack of pricing power is a key reason corporate profits remain anemic. “I don’t think we’ll be back to 2000 earnings until 2004 or 2005, largely because of the pricing environment,” says David A. Wyss, chief economist at Standard & Poor's.

That’s bad news for the broader economy. Without a surge in corporate profits, companies may defer the heavy capital investment that’s so essential for restoring robust growth to the economy. Wyss says that he expects capital spending, which fell 4% in 2001, to dip another 0.2% this year, before rising 10.5% in 2003. Even that will be less than the pace of the late 1990s. Says Wyss: “I’ll kick in later than usual and not be as strong as usual.”

The pain is most pronounced in manufacturing, where the makers of telecom equipment and autos, as well as commodities such as fertilizer and wood pulp, are battling overcapacity. Total finished-goods prices have fallen 2% over the past year, while prices for core consumer goods have dropped 1%. That’s the sharpest decline since the early 1960s—and it’s in stark contrast to the last time the economy emerged from a recession, in 1991. Then, consumer-goods prices rose 3.9%.

Even where companies are starting to see a little lift, it’s hardly much to write home about. In such industries as airlines and wireless-phone service, companies have been able to eke out moderate price gains in recent weeks and months. But those increases haven’t been able to compensate for the sharp price cuts that have accrued over the past few years. While the average domestic fare, for instance, has risen 2.9% so far in 2002, to about $125, that’s still significantly less than the $150 or so the airlines were able to charge as recently as February, 2001.

Although prices in services have risen more than 3% over the past year, there may be less there than meets the eye. Economists say the gains were confined largely to the red-hot housing market and a few sectors, such as health care and education, that have been historically immune to price competition. Some other industries in unique...
quality, Addis has nonetheless had to trim the number of staffers on each project. "If a client wants to pay less, they get fewer people on the project and lower-paid people," he says.

To be sure, it is not uncommon for companies to struggle to raise prices coming out of recessions. But the situation is exacerbated this time around by a stronger-than-usual dollar, which is keeping the pressure on.

Consider CP Kelco, a Wilmington (Del.) maker of chemicals used in everything from drilling fluid to food products such as jelly and mayonnaise. Thanks largely to a sharp rise in Chinese imports, the prices for CP Kelco's xanthan gum fell as much as 25% over the past four years. "The procurement directors at the Krafts and Unilevers of the world have been very good at negotiating," says Senior Vice-President John Falcetta. When CP Kelco announced an 8%-to-12% price hike in January, most customers balked. But about a third of the company's food clients relented after the company convinced them that its product was more reliable. "As we talk to people, our pricing is gaining a stronger foothold," says Falcetta.

Many industries also suffer from years of overinvestment. For all industries, capacity utilization is down to 75.5%, and the rate is much lower in such troubled sectors as aerospace, machinery, semiconductors, and paper products. That's not only positions—to tobacco and insurance—have also succeeded in pushing through considerable price hikes (page 36). But the vast majority of service firms, from restaurant chains to retailers, are having just as much trouble as manufacturers in getting price increases to stick.

That's especially true of advertising, marketing, and other creative services, since many companies have cut such "discretionary" spending heavily. Steve Addis, president of Addis Group, a $6 million branding firm in San Francisco, notes that as clients have pressured him for concessions, he has had to cut his fees by as much as 30% to retain accounts. "It has been across the board," says Addis. "Clients are under tremendous pressure to reduce their costs." While he works hard to maintain well under the 81% average of the past decade but also lower than the 78% level coming out of the 1990-91 recession. Given the slow improvement that many sectors face, Moody's Loneski believes that it could take until early 2004 to break the 80% barrier—the historical threshold, say economists, where manufacturers' price hikes stick.

For now, many producers of goods are just doing their best to weather the pricing drought—often by making cuts
Will 10-Gigabit Ethernet Have a Bright Future?

Steven J. Vaughan-Nichols

Researchers, engineers, and vendors are readying the newest Ethernet standard, which promises not only faster speeds than previous versions but also important new features.

The proposed 10-Gigabit Ethernet (10 GbE) standard, known as IEEE 802.3ae, would not only provide data rates of 10 Gbits per second but would also work with metropolitan and wide area networks (MANs and WANs), where ATM (asynchronous transfer mode) and Sonet (synchronous optical network) currently dominate. Ethernet and Fast Ethernet were designed to work primarily with local area networks (LANs), where they are the dominant technologies. The IEEE expects to formally adopt the 802.3ae standard this year.

Proponents say the new technology’s promise of high speeds at low Ethernet prices will offer numerous advantages. For example, 10 GbE could let corporate LAN users work more effectively with multimedia and other data-intensive applications. In addition, organizations could incorporate the technology into multiple network types, and service providers could establish their far-flung networks with a unified Ethernet topology.

However, 10 GbE also faces significant challenges, such as price, reliability, quality of service (QoS), and users’ reluctance to abandon their current networking equipment.

Nonetheless, the technology’s potential appears to be appealing enough to encourage numerous companies—such as Cisco Systems and Nortel Networks—to release prestandard 10-GbE equipment, including core switches and optical-networking platforms.

The 10 Gigabit Ethernet Alliance (http://www.10gea.org), an industry consortium, designed the technology for prestandardization adoption, noted Val Oliva, a member of the group’s board of directors and Foundry Networks’ Layer 2/3-product marketing manager.

The Dawning of a New Ethernet

"Ethernet has become a prevalent technology because it’s inexpensive and easy to use. 10 GbE is just the next evolutionary step," said Seamus Crehan, senior analyst for the Dell’Oro Group, a telecommunications-market research firm.

Few current applications require 10 GbE, he noted, but users don’t want to wait until the need exists for a faster networking technology. Therefore, he explained, they are already beginning to push for 10 GbE.

Another force driving 10 GbE adoption is service providers’ desire to push Ethernet into MANs and WANs. This means far-flung networks, which currently use Sonet or ATM for long-haul transmissions, could be based entirely on Ethernet technology. This would simplify network management and make operations more efficient and less expensive by eliminating the need to convert transmissions between Ethernet, ATM, and other network types.

10-GbE equipment would also be less expensive because it would be based on a widely used technology. Ethernet technology has an installed base of about 250 million ports, noted Bruce Tolley, the 10 Gigabit Ethernet Alliance’s vice president and Cisco’s manager of emerging technologies.

This will be very important in the marketplace, he explained, because “in the end, economics always matter.”

10 GbE technology

10 GbE, whose architecture is shown in Figure 1, uses traditional Ethernet’s frame format and minimum and maximum frame size. However, researchers gave 10 GbE the capability to run transparently over other fast technologies, such as Sonet. Researchers also made 10 GbE faster and extended its maximum transmission range—40 kilometers, compared to Gigabit Ethernet’s 5 kilometers—by optimizing it to run efficiently over high-bandwidth, long-range optical fiber. Previous forms of Ethernet run only on copper.

Traditional Ethernet also offers half-duplex communications, in which signals can flow in only one direction at a time. 10 GbE permits full-duplex communications, in which transmission signals between parties can flow in both directions at the same time. Therefore, 10 GbE doesn’t need carrier sense multiple access with collision detection technology, which other Ethernet versions use to resolve conflicts when two parties send signals simultaneously. 10 GbE thus offers less
THE SINKHOLE OF ‘SYNERGY’

It’s no secret how horribly the media industry bungled its foray into the world of the Internet, costing companies tens of billions and immeasurable amounts of shareholder trust. The failures are still making headlines: One by one, some of the most visible poster boys for so-called synergies between media and the Internet—Vivendi Universal CEO Jean-Marc Messier, AOL Time Warner Chief Operating Officer Robert Pittman, and Bertelsmann CEO Thomas Middelhoff—have been deleted from their jobs this summer.

The buzz created by these juicy ousters must seem like a promotional godsend to John Motavalli, author of Bamboozled at the Revolution: How Big Media Lost Billions in the Battle for the Internet. His book is a timely, if sometimes disjointed, chronicle of how, from 1993 to early 2002, one member of the media’s Old Guard after another blew it in the Brave New World. "When companies try to do things they’re not geared up to do, they mostly mess up," writes the former New York Post columnist who later worked at Internet incubator CMGI. "It’s like a Volkswagen assembly line suddenly being asked to start building Cadillacs. They simply don’t have a clue and the machines are configured wrong."

Bamboozled also casts a critical look at the media’s Net coverage, making reference to several magazine cover stories, including some in BusinessWeek, that lionized execs who later took a fall. Motavalli completed his work in the spring, before the latest spate of news that includes the Securities & Exchange Commission and Justice Dept. accounting probe at AOL Time Warner Inc. Now, renewed questions about all the media companies’ convergence strategies make Bamboozled compelling.

On the basis of scores of interviews, Motavalli considers the maneuvers of several of the Big Media players, from News Corp.’s unsuccessful $2 billion online partnership with phone company AT&T Group to Walt Disney Co.’s failed Go Network, which led Disney to take a $790 million non-cash charge in 2001. But Bamboozled focuses on Time Warner Inc., whose January, 2001, sale to America Online Inc. is widely viewed as the biggest bust of all. AOL Time Warner’s stock has plunged more than 70% since the merger closed, wiping out $100 billion in market value. The merged entity failed to deliver the profit growth it had promised, in part because of the ongoing advertising drought but also thanks to AOL’s flubbed broadband strategy. Adding to AOL’s humiliation, Time Warner execs are once again running the show.

Motavalli begins his tale in 1993, when Time Warner CEO Gerald M. Levin was proclaiming that the future had arrived in the form of a new service in which Time Warner would invest $5 billion, the Full Service Network. This high-tech system would allow Time Warner cable subscribers to use TV interactively, ordering movies or shopping. But the venture never took off, marking the first of several Time Warner new media debacles, including the failure to make the company’s Pathfinder Web site a major portal. Those failures only heightened Levin’s desperation for an Internet strategy. Fearful that AOL might make a deal elsewhere, he sold Time Warner to AOL at the peak of the tech bubble.

Motavalli has assembled a remarkable collection of anecdotes showing clueless media executives fumbling the ball in cyberspace while clashing with their Polo-shirt-wearing, entrepreneurial counterparts. In one episode, which takes place shortly after the AOL deal was announced in January, 2000, Time Warner CFO Richard J. Bressler (now CFO at Viacom Inc.) asks David Colburn, AOL’s president for business affairs, to explain pop-up ads. Can Colburn send more information about them? Amazed at Bressler’s lack of Net acumen, Colburn replies: “Rich, why don’t you invest $21.95 in an AOL subscription and consider it due diligence.”

Elsewhere, the author recounts a 1994 meeting that highlights the tech guys’ arrogance. AOL had proposed a joint venture with Time Inc., but, as AOL Chairman Stephen M. Case had just learned, Time Inc. New Media head Walter Isaacson had rebuffed the offer. “You know, you’re probably right, Walter, you know how to get subscribers better than us, you know how to program better than us,” Case says sarcastically. “But if whatever you do fails, you will get the job as editor-in-chief of Time magazine.” True enough, Isaacson had risked little—he went on to be the the top editor at Time and today runs Cable News Network.

All such tales are great for media junkies and media investors. But the level of detail may be too much for the average reader. And often, the author will simply describe events, providing little interpretation. Finally, it would have been instructive to include a chapter devoted to a media company that resisted the temptations of the Internet. Sony Corp., for example, refused to take the plunge. These days, its chief executive, Sir Howard Stringer, is having the last laugh.

In his conclusion, Motavalli anticipates a new pragmatism. He believes that trends favor the Web and electronic distribution of some types of content but that media companies would do well to return to their old ways of doing business. Perhaps the lessons from the scary days of 1999 and early 2000, along with the memory of the billions lost, will help Big Media avoid being bamboozled the next time around.

BY TOM LOWRY

Media Editor Lowry covers AOL Time Warner from New York.

A TIMELY CHRONICLE OF HOW THE MEDIA’S OLD GUARD BLEW IT IN THE BRAVE NEW WORLD
CEOs: Flamboyance is out

Chief executives
The case against grey

Flamboyance is out. But keep the charisma

Sometimes, they step down for an older man. Thus 45-year-old Jean-Marie Messier, boss of Vivendi, a French media conglomerate, kicked aside for 63-year-old Jean-René Fourtou, a senior executive at Aventis, a drug maker. And thus 49-year-old Thomas Middelhoff of Bertelsmann, a German media group, eased out for 60-year-old Gunter Thielen. Sometimes, their replacement is grey in a different sense. Take, from the American media industry this time, Jonathan Miller, the down-to-earth operations man who is taking over the role at AOL that dangerously exciting Bob Pittman once filled (see page 53). Or take Edward Breen, a safe pair of hands from Motorola who has stepped in to try to rescue Tyco International, now mired in various scandals including the alleged tax evasion of its extravagant boss, Dennis Kozlowski. Mr Breen's first move was to promise "corporate integrity and trustworthiness", qualities that every company should possess, of course, but not perhaps feel the need to boast about.

A changing of the guard is taking place in the corporate world, notably in those sectors most affected by the technology boom and bust. Chief executives who "got it", in the parlance of the late 1990s, are being replaced with folk who didn't get it, or who at least wear a tie but not a beard. An enthusiasm for good corporate governance has replaced vision as the most desirable characteristic for a new boss. Today's board of directors has come to share Lou Gerstner's famous sentiment, uttered back in 1993: "The last thing IBM needs now is a vision."

Etc

- Chiefs who "got it" in the tech bubble of 1997 - 2000 are out.
- The new leaders are people who didn't "get it." They could see through the hype.
- An enthusiasm for good corporate governance is in.
- A "down-to-earth" operations man is taking over AOL.
- The chief of IBM said the following in 1993:
  - "The last thing IBM needs now is a vision."
  - Today's board of directors will agree with this 1993 statement.
  - We do need a plan and a vision but I fully agree with what IBM said in 1993. In too many cases, "vision" has come to mean soft thinking and hype.

Roy Jenne, NCAR
Aug 16, 2002
Suddenly, Silicon Stocks Lead
Tech shares way up of late, but some question true strength
NMCI gets green light

By Christopher J. Dorobek

The Navy's initiative to create a single unified network across more than 400,000 shore-based seats passed its most significant milestone since the contract was awarded 17 months ago when the Defense Department chief information officer gave the project the go-ahead to move forward.

On May 3, after an hour-long meeting with Navy officials, Defense CIO John Stenbit and Michael Wynne, deputy undersecretary of Defense for acquisition and technology, approved the $6.9 billion Navy Marine Corps Intranet.

"It was a significant milestone today," said NMCI director Rear Adm. Charles Munns in a briefing that afternoon. "We have achieved the milestone. We are off to order another 100,000 seats."

Under an agreement between Pentagon and Navy officials, the Navy has been permitted to roll out about 60,000 seats as a test of the project's feasibility.

Stenbit did raise three issues:

- The maturity of the system that will be used to monitor the network's performance.
- The ability of the Navy to continue to deal with the scores of legacy systems that are migrating to the NMCI network.
- The ability of EDS to roll out seats at a much faster pace as the project moves forward.

The Navy has also officially requested congressional approval to extend the NMCI contract, Munns confirmed. The Navy would like to adjust the NMCI contract so that the start date coincides with Friday's milestone one approval, thereby giving the Navy more time to use the new network before dealing with questions about the three option years.

NMCI has been plagued with the perception that it has been off-track. Navy officials acknowledge that it is behind the original schedule, but they note that the delays were beyond their control.

Federal Spending

Federal Sources Inc. forecasts that the government will spend $53.3 billion on information technology in fiscal 2003, a 9.5 percent gain over 2002 spending. The market research company is scheduled to release its full report May 8 at its annual Outlook conference.

FEDERAL IT BUDGET AND SPENDING FORECAST

Source: Federal Sources Inc.

FEDERAL COMPUTER WEEK

May 6, 2002
IT Job Market Dips; No Upswing in Sight

Technical support and customer service positions both suffered heavy job losses

BY JULIA KING
ARLINGTON, VA.

The good news is that U.S. companies hired 2.1 million IT workers last year.

The bad news is that they fired 2.6 million, reducing the overall IT workforce by about 5%, from 10.4 million to 9.9 million workers, according to a national IT workforce study released here last week by the Information Technology Association of America (ITAA).

At the top of companies' 2001 layoff lists were technical support workers, whose ranks were reduced by more than 911,000 positions. Other losing job categories included software programmers/engineers and database developers, which lost 487,000 and 445,000 jobs, respectively.

The groups that lost the fewest jobs were digital media specialists, technical writers and enterprise systems support workers.

Results of the ITAA study were based on interviews conducted in February and March with 532 hiring managers at companies with more than 50 employees.

According to ITAA President Harris Miller, hiring managers rated specific industry and technical experience as the top factors they considered when interviewing IT job candidates. Less important were technical certifications and general work experience.

This doesn't bode well for the millions of graduates from colleges and technical study and certification programs who are entering the job market. Adding to their struggle is the ITAA's finding that companies are targeting traditional entry-level IT departments like the help desk and customer service for reductions.

"Entry-level positions have been reduced significantly" since early 2001, said Scott Melland, president of Dice Inc., a New York-based online job posting service.

Despite the grim numbers, hiring managers in the ITAA's survey said they expect to create about 1.1 million IT jobs within the next year. But due to a so-called skills imbalance, they expect about 600,000 of those jobs to remain unfilled.

Ron Fijalkowski, CIO at Strategic Distribution Inc., a $300 million supplier of manufacturing maintenance and repair parts in Feasterville, Pa., questioned the ITAA's report.

"I don't think those numbers are at all realistic," said Fijal-

kowskii, noting that his company has no plans to hire new IT employees. "We have not let the water start flowing to go after projects on hold."

Fijalkowski is also skeptical about a skills imbalance.

"There are Java developers and skilled Microsoft individuals available for hire," he said. "I'm also getting numerous calls from [outsourcing firms] seeking work — and that includes offshore firms seeking work. I absolutely don't see an uptick in demand going on."

There are signs that IT jobs are returning, said Joanne Pe-

terson, president of Abator Information Service Inc., an IT recruiting firm in Pittsburgh. But Peterson also said she doubts the ITAA's arithmetic, specifically its claim that as many as 600,000 jobs will go unfilled due to a lack of qualified candidates.

"I think we could staff every real job that is open with people who are not working," Peterson said. "I don't think we need to go to India to get a job filled."

Reporter Brian Sullivan contributed to this story.
Tech Firms’ Juicy New Prospect: Uncle Sam

IF A PRODUCT doesn’t work as billed in the everyday corporate wars of the business world, is there any reason to think it will work any better in the war on terrorism?

No, but that hasn’t kept a lot of Silicon Valley companies from trying to unload on a free-spending federal government the same stuff they are having an ever-harder time selling to regular customers.

One example is Siebel Systems Inc., the top maker of what is known as “CRM software.” CRM stands for customer relationship management, and it’s one of those trends that regularly sweep through American business.

The premise behind CRM is that—hold on to your hats—customers become even better customers when they are treated well. CRM software might, for instance, allow a company to coordinate the operations of a call center handling customer queries and complaints.

But the real news about CRM is its decidedly mixed reputation in the tech world. Some studies show that half of all CRM projects never work out, despite the hundreds of millions of dollars companies sometimes spend on them. The title of a February Harvard Business Review article, “Avoid the Four Perils of CRM,” was typical in the cautionary tone it took.

It turns out that despite the oft-mentioned predictions of CRM suppliers, having good relations with customers isn’t just a matter of new software. Instead, it involves adopting all sorts of painful internal changes that companies often don’t want to make. Some CRM vendors, in other words, don’t do a very good job managing their own customer relationships.

Siebel was founded in 1993 by Thomas Siebel, a veteran of software maker Oracle Corp., who is often described in the same terms, such as “brash,” as Oracle CEO Larry Ellison. Siebel has grown quickly, and now has 7,400 employees and $2 billion in annual sales.

Lately, though, the company has found itself in the same funk as other onetime tech wunderkind; its stock is more than 75% off its record high. With its big corporate customers growing disillusioned with the sorts of giant technology projects represented by CRM, the billions of dollars being spent by the federal government to nab terrorists starts to look mighty inviting.

Mr. Siebel himself has leapt in, testifying before a congressional committee in February about the steps government should take to fight terrorism. One of his top recommendations: Change government purchasing practices so that the feds can quickly and easily buy off-the-shelf software—“just like the stuff his company sells!”

And in case people need a little persuading along the way, Siebel has a political action committee standing by. In fact, the $2.1 million it raised last year was more than any other technology company’s PAC took in—even more than Microsoft’s, according to tray.com, a Web site that tracks campaign finance.

In explaining what a customer-tracking company has to offer the security field, Siebel’s logic is simplicity itself: “You have a different type of customer: a terrorist,” says Matthew S. Malden, Siebel’s vice president for homeland security.

The company has put together a PowerPoint presentation about how its terrorist-tracking software would work, and has been giving the presentation in scores of Washington offices in recent weeks. (One nice thing about having a big PAC: It makes it easy to get on someone’s calendar.)

It’s an impressive demonstration, using the people and events that led up to Sept. 11 to show how the attacks could have been prevented. In it, an FBI agent sits at his Siebel-equipped PC and starts to wonder about Mohamed Atta, whose picture he sees on the screen.

During the course of several weeks, simulated in the demo, e-mails arrive and databases are queried; all manner of serious-looking charts and maps get drawn. Patterns begin to emerge, and connections and plots are uncoverd. Please Turn to Page 85, Column 1
Bush budgets $52B for IT

BY JUDI HASSON
AND DIANE FRANK

President Bush will seek $52 billion for federal information technology programs in fiscal 2003 — a dramatic 15.6 percent increase — to fund administration priorities such as homeland security projects.

The increase — up from $44.5 billion in fiscal 2002 — is also tied to the administration’s push for “better use of IT to drive performance,” said Mark Forman, associate director for information technology and e-government at the Office of Management and Budget.

“This IT budget represents an unprecedented review of the major systems in the federal government,” Forman said. The review included rating agencies on how well they implemented the president’s five management agenda items — including e-government — and how well agencies presented their business cases on why the systems would improve their performance.

In a telephone briefing with reporters Feb. 1, Forman said the budget request, scheduled for official release Feb. 4, includes an estimated $8 billion for more than 900 major projects and $11.5 billion for another 2,000 “significant” projects. The request does not include money for classified programs or for block grants for state and local IT investments in emergency personnel, he said.

Rep. Tom Davis (R-Va.), chairman of the House Government Reform Committee’s Technology and Procurement Policy Subcommittee, said the $52 billion request “reflects the importance of technology in winning the war on terrorism and the significant benefits of e-government for all government agencies.”

Information security funding, a significant part of the IT budget, is increasing faster than funding for other budget items and includes programs to support the Office of Homeland Security and Richard Clarke, the president’s cyberspace security adviser, Forman said.

Forman attributed the increase to two factors: OMB’s requirement that funding requests for information systems incorporate security needs, and agencies’ documentation of their security needs after conducting vulnerability assessments under the Government Information Security Reform Act.

The focus on results appears to be working, said Alan Paller, research director for the SANS Institute, a security education and consulting organization. “This kind of funding increase, and knowing what you’re going to do with the money, allows [the government] to fill a leadership role in this area,” he said.

The request for double-digit growth in the IT budget comes when overall discretionary spending is flat. “I think it signifies the recognition of the way technology can be applied to improve services...improve homeland security and contribute to the president’s goals,” said Alan Balutis, executive director of the Federation of Government Information Processing Councils.

Forman also said that Bush is committed to the three-year $100 million fund for cross-agency e-government projects. The fund only received $5 million in fiscal 2002.

DOD gets good marks overall

The Bush administration is asking for $379.3 billion for the Defense Department in fiscal 2003 — about a 13 percent increase — with more money for unmanned vehicles, intelligent communications systems, and research and development.

A senior DOD official, who spoke on the condition of anonymity, said the Bush administration’s proposal includes $27 billion for the war on terrorism. The money will primarily be used for force protection, counterterrorism and intelligence.

The budget proposal, scheduled to be delivered to Congress Feb. 4, includes $5.5 billion for “superior command, control and communications infrastructure that moves a high volume of warfighting information” and $826 million to develop a system to provide secure communications for warfighters.

The budget also allocates $1 billion for unmanned vehicles, from surveillance planes to underwater systems mainly used for mine detection.

The budget seeks $9.9 billion for science and technology research and development, which represents about 2.7 percent of the overall DOD budget, close to DOD’s stated goal of 3 percent.

DOD’s budget for research, development, test and evaluation (RDTE) totals $53.9 billion, a 10 percent increase over 2002 funding.

The Army is slated to receive slightly less money this year. That is because its RDTE program, the overall Army transformation initiative, is already under way and is “rolling along,” the DOD official said. “It’s a matter of continuing something good.”

— Christopher J. Dorobek
and Dan Caterinicchia
Tech Firms Bemoan Bush Talk

‘Broadband’ Policy Is Viewed as Lacking Significant Details

By YOCI J. DREZEN

Washington

Ever since President Bush took office, the high-tech world has been trying to get the White House to craft a detailed plan for bringing high-speed Internet access—commonly called broadband—to more Americans through a combination of regulatory changes, new legislation or tax credits.

The companies hoped President Bush, during a long-awaited speech on the issue last week, would unveil an ambitious timetable for bringing broadband to more people by a certain date, and specific policy recommendations for how to achieve the goal. They argue that the technology's relatively low penetration rate has rippled through the economy, leading to slower sales for such companies as Cisco Systems Inc., a network-equipment maker, and Dell Computer Corp., the personal-computer maker. They also insist rapid broadband deployment would boost providers of online content such as movies, music and games.

But when Mr. Bush walked to the lectern of a conference room in the Old Executive Office Building on June 13 to offer his first public remarks on the issue, he said almost nothing about what the administration plans to do, how it will do it, or how long it will take.

Instead, Mr. Bush offered only a general statement of broadband's importance and what was widely seen as an endorsement of the Federal Communications Commission's continuing effort to deregulate the phone companies' high-speed Internet offerings.

"There just wasn't much 'there' there," says Karen Kornbluh, the deputy chief of the FCC's mass-media bureau during the Clinton administration who is at the New America Foundation, a think tank here. "There are real questions about how to move forward, and he didn't offer many answers."

While executives are loathe to publicly criticize the president about a work in progress, many said they wanted more. Matt Flanigan, president of the Telecommunications Industry Association, said of the speech, "We would have liked to have seen more numbers. We would have liked a bit more detail."

Administration officials reject the criticism. "No one should underestimate the importance of having the president himself give a high-level speech about broadband," said Bruce Mehler, the assistant secretary of commerce for technology policy. "Those who accuse us of ignoring broadband and technology simply have their facts wrong."

Two factors are at play in the administration's tentative approach to the issue. First, the White House is trying to avoid being pulled into the bitter political fights that continue to divide many broadband views from the heads of several high-tech companies and trade groups. They praised the president for using his bully pulpit to endorse broadband's importance to the country's economic future, but said they would have liked to have heard more specifics.

But lobbyists and industry observers noted that the president didn't endorse congressional calls for tax credits for companies deploying broadband in rural and poor areas, or issue a timetable for

Wiring Cash

The stakes are high as the Bush administration slowly unveils its policy on broadband, a top priority of the high-tech and telecommunications industries.

Table: Donors

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<tr>
<th>Company</th>
<th>Amount (in millions)</th>
<th>% of GOP</th>
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<tr>
<td>AT&amp;T</td>
<td>$4.7</td>
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<td>SBC</td>
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Source: Center for Responsive Politics

The issue, vastly complicating its efforts at crafting a coherent strategy. Some aides, notably from the Commerce Department, have argued in favor of tax credits and other specific steps designed to help companies spread the technology. But White House economic adviser Lawrence Lindsey and several of his deputies oppose the idea of subsidizing a rapidly growing and young industry that hasn't proved its viability, even if it were to get government help. And they are wary of any policy that could ultimately pick winners and losers.

"There's been a big internal debate going on in the administration about what they should say and whether they should even say anything at all," says Rick White, chief executive of Technet, a trade group of Silicon Valley executives.

Mr. Bush could reap substantial political and financial benefits from taking a more-specific stand. To begin with, laying out an ambitious goal—like Senate Majority Leader Tom Daschle's call to bring broadband to every American by the end of the decade—would win the support of the high-tech, telecom and cable industries. Even some specific ideas, such as having the government become more involved in resolving digital copyright and local right-of-way issues, win the support of all three industries. The

The Bush administration defends its approach to broadband, citing its success in getting Congress to change the na...
High-tech companies

Mr PC goes to Washington

Get big $ for Info Tech

SAN FRANCISCO
America’s technology industry is increasingly intertwined with government

WHEN PC Forum, an exclusive shindig for technology bosses, venture capitalists and other digerati, recently celebrated its 25th anniversary, the motto was “back to the frontier”. But the panels and speeches suggested a different destination. Most debates were about what government should or should not do. The high-tech sector is more afraid than ever of government intervention—which is why it is becoming as involved as any other industry in Washington lobbying. The process has been accelerated by the new emphasis on homeland security.

To some extent, the industry has come full circle. It was tax dollars that first primed the technology pump. Without money from the Pentagon, Silicon Valley might still be covered with fruit orchards. The Internet was for years a government-funded research project, and some big technology companies would not exist without government contracts. For example, Oracle, the leading database vendor, grew out of a consulting job for the CIA.

The prevailing free-wheeling, libertarian stance of the industry, always somewhat hypocritical, has been changing since the mid-1990s. Some date Silicon Valley’s political coming-of-age to its 1996 campaign against a California initiative that would have made shareholder lawsuits much easier. This led to the creation of such groups as TechNet, a sort of high-tech lobbying group. There was also the catharsis of the Microsoft antitrust trial, which brought forth mass lobbying by both sides—as well as a noticeable rise in campaign-finance contributions.

Over the past few years, the industry has been beefing up its lobbying further. One pet issue is high-speed Internet access, known as broadband. Intel, Microsoft and others have long argued that the government should do something to get broadband more widely deployed (only about 9% of American households have a high-speed Internet connection). They argue that this would be a powerful driver of demand for computers, software and online services.

It was only after the Internet bubble popped and the technology industry went into recession, however, that companies really started pushing the issue. TechNet and others have called for a “national broadband policy”, which would give tax breaks to encourage innovation and prod the Pentagon and other government agencies into buying more broadband gear.

A controversial recent bill shows, however, that high tech’s lobbying efforts are still not on a par with those of other big industries. Technology companies were taken by surprise when Disney and other media giants persuaded Senator Fritz Hollings to introduce legislation that would require a piracy-detection system to be built into all digital entertainment devices, including PCs. At a Senate hearing in February, only Les Vadasz, a senior executive at Intel, was there to testify against the bill. It would, he claimed, turn PCs into “nothing more than a more expensive version of a ‘dumb’ DVD player.”

Nobody expects the Hollings bill actually to make it through Congress. But it may have achieved its main objective: to prepare the ground for more indirect regulation. Hollywood hopes that such legislative threats will pressure hardware makers to agree to copy-protection standards that could then be ratified by Congress.

The new climate
Arguably, all this could be called business as usual in Washington: industries defend their competing interests and, more often than not, end in stalemate. Yet recent events have changed the climate. For a start, there is the fallout from Enron’s collapse. The firm’s bad practices have led Congress to take a close look at the accounting treatment of stock options, the lifeblood of Silicon Valley.

Then there is the new emphasis on homeland security. This has not only brought about a sweeping anti-terrorism bill, called the Patriot Act, which gives law enforcers new surveillance powers, such as monitoring Internet traffic without a court order. Government is also becoming a key customer once again. It accounted for 23% of Oracle’s revenues in the past fiscal year, for instance, although this impressive share may now shrink. It emerged recently that the firm sold the state of California (and, perhaps, other states) far more software than it needed.
One reason for government's return as a customer is that it has the means. The administration has proposed increasing the federal high technology budget from $46 billion in the current fiscal year to $52 billion in 2003. Big software firms are angling for a piece of the bigger pie. Oracle, Siebel and Tibco have all launched "homeland security initiatives" aimed at offering the government technology to integrate its disparate databases—and so helping it to identify possible terrorists. Moreover, since Washington expects technology to do much to improve security, vendors have made their top researchers available as government advisers.

Even start-ups are learning to love the government—after having been traditionally discouraged by venture capitalists from getting involved with the bureaucracy of public procurement. One sign is the sudden interest in In-Q-Tel, the CIA's venture-capital fund (yes, the spooks have one too). Since September 11th, the fund's chief executive, Gilman Louie, has been asked to review 1,200 business plans, compared with only 1,000 from the fund's creation in October 1999 to the terrorist attacks.

Since its inception, In-Q-Tel has invested in more than two dozen firms, such as Graviton, a maker of tiny wireless sensors, and SafeWeb, which is developing software that allows users (and thus secret agents as well to surf the web anonymously. The fund was first seen as a pet project of the CIA director, George Tenet, who wanted to give the agency early access to technology developed in the commercial world. But several other federal agencies are now considering using In-Q-Tel's services or starting their own venture-capital funds.

It is not clear what the long-term effects of all this will be. Security is likely to play a bigger role in the design of technology—to the detriment of such things as additional product features, ease of use and performance. A more problematic outcome could be that the closer relationship due to the emphasis on homeland security will lead to a heavier regulatory environment for technology.

The rapprochement will, in any case, settle the question of whether the high-tech industry and government can remain at arm's length. As Intel's Mr Vadasz was heard saying at PC Forum: "We cannot say the net will have a huge influence on everyday life, and also say 'Hey Washington, keep out of it'."

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**German wine**

**A bubbly little tale**

*From eastern Germany, a rare success*

ROTKÄPPCHEN, where Peter Clausen, the marketing director, has nothing to do with the fairy tale (known in English as "Little Red Riding Hood'"). This stein or sparkling wine, takes its name from the red cap on its bottles. Rotkäppchen's rise, however, is almost a fairy tale itself. Eastern Germany has produced few companies or brands that can take on western rivals. Rotkäppchen, founded in 1886 and still based in Freiberg, a town in Saxony-Anhalt, Germany's poorest state, is an exception.

It remains, it's true, an overwhelmingly eastern drink. It has more than 5% of the eastern sparkling wine market and only 3% in the more fragmented west. However, in January Rotkäppchen bought Mumm, a top western German Sekt house, from Britain's Diageo. With Mumm's brands, the company has become the country's biggest Sekt producer. Mumm's distribution system should also help to get more red-topped bottles on to western supermarket shelves. Thoroughly Rotkäppchen has used independent distributors.

A century ago the drink was enjoyed; it is said, by Kaiser Wilhelm II. In communist times, it was a favourite of the authorities and an expensive tipple for ordinary folk. But it has not always fizzes. In 1990, the year of German unification, when liberal easterners turned to western goods, sales were a flat 13m bottles, down from 15m in 1989. Since a management buyout in 1999, however, sales have taken off, as easterners have returned to "their" Sekl, and capacity has increased to meet the added up demand. Around 500 bottles were shipped in the year to March 2001.

Few other eastern brands have made much headway in the west, even if easterners still swear by Bautzner, their mustard of choice, Käthchen cake mix, and Spee, a detergent now owned by western Germany's Henkel. Yet Rotkäppchen is not quite alone. This month sending a brewery in Frankfurt in the west, decided to rename itself Radeberger, after an eastern subsidiary. Nationally, Radeberger is the stronger brand.

Rotaokäppchen's success is likely to be confined to Germany. Mr Clausen says there are no exports to speak of. Just forays into neighbours Austria and Liechtenstein yielded little. Germany's image as a land of breweries rather than wine makers does not help. In any case, satisfying Germany's thirst is demanding enough. Germans do not reserve the bubbly stuff for special occasions; the average household, says the national statistical office, gets through the best part of a bottle a month.

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**Fiat**

**Running on empty**

**Where does salvation lie?**

ITALY'S top bankers usually keep their weekends strictly for relaxation. On Saturdays and Sundays, they turn out only for big mergers or corporate crises. It was the second of these that persuaded the main lenders to Fiat, the country's leading industrial group, to gather in Rome on Saturday May 25th.

The bankers have been under pressure from Italy's central bank to reduce their exposure to Fiat, whose financial liabilities amounted at the end of March to a massive €35.6 billion ($31.2 billion), of which €13.4 billion was short-term debt. The Fiat group's net financial indebtedness, which takes account of financial receivables, cash and marketable securities, was €6.6 billion, an increase of €60 million in the first quarter.
IT vital to defense

Brookings proposes government spend $10 billion more than Bush budget request

BY DIANE FRANK

The Bush administration is headed in the right direction with its homeland security budget, but in the absence of a national strategy, the ways that information technology can help have not been realized, according to a report released April 29 by the Brookings Institution.

The administration does not plan to make its homeland security national strategy public until July, and without it, there are too many opportunities for gaps in applying resources, said Rep. Jane Harman (D-Calif.), ranking member on the House Permanent Select Committee’s Terrorism and Homeland Security Subcommittee, speaking at a panel discussion in connection with the Brookings report’s release.

The report, “Protecting the American Homeland: A Preliminary Analysis,” is Brookings’ proposal for creating a comprehensive national strategy as soon as possible.

“We need a strategy and we need it now,” Harman said.

The report outlines proposals in four areas: border security, domestic prevention, site defense and contingency planning.

Information technology can be used in each area to take advantage of knowledge and information across the many organizations and agencies involved, said Michael O’Hanlon, a senior fellow in the Brookings Foreign Policy Studies group, which worked on the report.

Without a national strategy, it would be a shot in the dark to project a homeland security IT budget. Organizational issues will have a significant effect

EXPANDING HOMELAND SECURITY SPENDING

A Brookings Institution report estimates that even if the Bush administration spends its entire $38 billion homeland security budget for fiscal 2003, between $5 billion and $10 billion in additional federal spending — and up to $10 billion in private-sector spending — would still be needed each year to ensure the nation’s security.

Some of the information technology projects proposed in the report and their estimated costs include:

- Real-time tracking of cargo containers — $5 billion.
- An integrated database to connect the Customs Service, the Immigration and Naturalization Service, the U.S. Coast Guard and private shipping companies — $1 billion.
- New IT architecture and IT management initiatives at INS — $1 billion.
- A national identity card program, including biometric identifiers and database — $10 billion.

Brookings believes several billion dollars are necessary for investments in the system at the federal, state and local levels.

“When you modernize a large national information technology system you often have to spend a few billion dollars to get it right,” O’Hanlon said. “What we’re seeing so far out of the Bush budget is a total of $700 million in the 2003 proposal for all information technology efforts across the entire country, preventive as well as defensive or protective.

This is simply not enough effort.”

IT can play the largest role in information-sharing systems, but it also is a critical tool for streamlining every program and making each more efficient, O’Hanlon added.

This includes efforts such as inspecting cargo ships, where IT can be used to provide a central system for ports and personnel dispersed throughout the United States, he said.

An inspection system would take a two-pronged approach, he said.

First, efforts should be made to combine IT with international cooperation when inspecting goods and monitoring shipping at foreign ports — before the ships even enter U.S. waters.

“Coast Guard and [the Customs Service] should be more in the business of spot checking, of creating databases so we know who’s cooperating and who’s not, making sure we inspect those who are not cooperating or potentially even turn them away from doing business with our ports,” O’Hanlon said.

Technology can also play a crucial role in verifying identity, especially through the use of smart cards and biometric technology, but only if there is sufficient security in the application process to guarantee that the wrong people are not authorized, Harman said. ■
Overbuilt Web
How the Fiber Barons Plunged the Nation Into a Telecom Glut
Qwest and Level 3 Battled While Demand Stalled; Outlook Is Tough for One

A Clash of Two Billionaires
JUNE 18 — 2001

BY REBECCA BLUMENSTEIN
STAFF REPORTER OF THE WALL STREET JOURNAL
DENVER — As he rushed to lace America with fiber-optic cable, James Crowe wasn’t the sort to let anything stand in his way—not the Rocky Mountains and certainly not his crass-town rival, Joseph Nacchio.

By 1999, when Mr. Crowe’s Level 3 Communications Inc. started digging a line connecting Denver and Salt Lake City, Mr. Nacchio’s Qwest Communications International Inc. had already threaded its own cable through the most direct route, a seven-mile railway passage through the granite of the Continental Divide. Undeterred, Level 3 swerved an extra 70 miles through southern Wyoming, installing fiber at a blistering 19-mile-per-day pace.

But now, Level 3 has hit a wall even Mr. Crowe may have trouble overcoming. The company’s original ambition—to build his

Telecom Trauma
Gear makers, communications carriers and data centers wrestle with the gap between capacity and demand:

• Nortel reeks from a ‘disastrous’ downturn in telecom spending, page A3.
• Shares in Web-hosting companies take a hit, page B6.
• 360networks misses an interest payment, as bandwidth prices sink, page B8.

pand nationwide networks laid some $90 billion of fiber during the past four years. Merrill Lynch & Co. estimates that only 2.6% of the capacity is actually in use. Much of it may remain dark forever.

The fiber glut underlies much of the uncertainty plaguing the telecom sector—and has even spilled over into the economy at large. Billions of dollars in shareholder value have evaporated in some of the biggest owners of fiber networks, including Global Crossing Ltd., Williams Communications Group Inc. and Genuity Inc. Many are struggling with massive debt: On Friday, 360networks Inc. said it was delaying a $10.9 million interest payment while it studies ways to preserve cash.

The carnage has spread to suppliers such as fiber-maker Corning Inc. and Lucent Technologies Inc. Also on Friday, Nortel Networks Corp., which makes gear for the Internet and telecom sectors, predicted a staggering $19.2 billion loss for the second quarter.

Level 3, meanwhile, is fast retrenching. Its stock is off 94% from its high, and executives are expected today to announce plans to lay off as much as 20% of the work force, among other cost-cutting moves. The company’s game plan: live off its stockpile of cash—some of it raised from Omaha construction magnate Walter Scott Jr., a close friend of investor Warren Buffett—until competitors die off and demand returns.

“The shake-out that is occurring is good for Level 3 in the long term, although it is awfully hard to convince someone who is sitting in a dentist’s chair being drilled that this is a good thing,” says Mr. Crowe. “It hurts.”

Level 3’s troubles represent an even bigger threat to the economy than the first round of the dot-com meltdown because the telecom companies involved are so much bigger. As a group, telecoms have gorged on some $650 billion in debt and are now falling in record numbers for the industry. The debacle is shaping up to be one of the biggest financial fiascoes ever, with losses to investors expected to approach the $150 billion government cleanup of the savings-and-loan industry a decade ago. And as more companies recognize the depth of their problems, the damage is likely to get worse.

To understand the origins of the mess, it helps to take a close look at two of the industry’s pioneers, Qwest and Level 3. Located just miles apart in the Rocky Mountain foothills, each sprang from the ambitions of an old-style Western billionaire. Each dazzled investors early on with visions of rapidly expanding demand for telecommunications bandwidth, only to run into difficulties when Internet usage didn’t soar as expected. But in the end, only one of the companies would figure out a way to shelter itself against the coming storm.

It has been said that the fiber...
U.S. Industrial Output Falls For 8th Consecutive Month

WASHINGTON, June 15 (Reuters) — Industrial output fell for the eighth consecutive month in May and plants operated at their slowest rate since 1983, the Federal Reserve said today.

The Fed's report showed a drop of 0.8 percent in industrial production. Analysts had expected a decline of 0.4 percent. The weakness was broad based with the exception of autos.

"It was a disaster," said David Orr, chief economist at First Union in Charlotte, N.C. The sustained decline exceeded the six-month drop in the last recession, in 1990-91, he said.

The report fed expectations among some economists that yet another aggressive quarter-point cut in interest rates might be in store when Fed policy makers meet on June 26 and 27 rather than the slimmer quarter-point reduction the markets are now anticipating.

Adding weight to this view were tame numbers on underlying inflation released by the Labor Department today, as well as a drop in a crucial measure of consumer sentiment.

The Consumer Price Index rose 0.4 percent in May, the Labor Department said, matching expectations. But that increase was mostly because of higher energy costs.

The closely watched core CPI, which strips out volatile food and energy costs, rose only 0.1 percent.

The University of Michigan's consumer sentiment index, meanwhile, fell to 91.6 in its preliminary June reading from a final May reading of 92.0. While not as weak as the 88.4 scored in April, it was below consensus forecasts for 91.9.

Within the industrial production report, the May drop in output at the nation's factories, mines and utilities was twice as steep as the decline of 0.4 percent forecast by economists in a Reuters survey. The May decline followed a drop-off of 0.6 percent in output in April.

Factory production, the largest component of industrial output, fell 0.7 percent in May after sliding 0.6 percent in April.

In May, industrial concerns operated at 77.4 percent of full capacity, down from 78.2 in April and the lowest since August 1983. The high-technology sector, which includes computers, semiconductors and communications gear, continued to slow, with production slipping 1.2 percentage points, to 70.3 percent, the lowest rate in 25 years, the Fed said.

Auto output, on the other hand, churned out a 2.4 percent increase. Vehicle assembly rose to an 11.84 million annual rate, up from an 11.54 million annual rate in April.

But manufacturers have been able to keep cars rolling off the assembly lines mainly by offering buyers big rebates and other incentives — a trend that might not last.
### No. 1122. Gross Domestic Income in Information Technologies (IT) Industries: 1992 to 2000

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Total all IT industries (X)</td>
<td>371,080</td>
<td>491,292</td>
<td>665,530</td>
<td>746,092</td>
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<td>Percent share of the economy</td>
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<td>6.7</td>
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<td>155,409</td>
<td>210,914</td>
<td>229,214</td>
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<td>37,036</td>
<td>39,171</td>
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<td>59,845</td>
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<td>81,060</td>
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<td>Computers and equipment retail sales</td>
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<td>3,407</td>
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<td>Telephone lines</td>
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<td>927</td>
<td>1,025</td>
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<td>Semiconductors</td>
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<td>3,566</td>
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<td>Passive electronic components</td>
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<td>Passive electronic components (X)</td>
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<td>Laboratory analytical instruments</td>
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<td>1,462</td>
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<td>Laboratory analytical instruments</td>
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<td>111,350</td>
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<td>Software/services</td>
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<td>16,624</td>
<td>26,120</td>
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<tr>
<td>Prepackaged software</td>
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<td>14,565</td>
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<td>44,497</td>
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<td>11,914</td>
<td>13,599</td>
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<tr>
<td>Computer processing and data preparation</td>
<td>7374</td>
<td>12,654</td>
<td>21,844</td>
<td>28,082</td>
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<td>2,879</td>
<td>5,910</td>
<td>8,977</td>
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<td>Computer services management</td>
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<td>1,910</td>
<td>2,090</td>
<td>2,842</td>
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<td>Computer rental leasing</td>
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<td>Computer related services, n.e.c.</td>
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<td>Communications hardware</td>
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<td>Telephone and telegraph equipment</td>
<td>3668</td>
<td>10,261</td>
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<td>Radio and TV and communications equip.</td>
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<td>Communications services</td>
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<td>120,400</td>
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<td>Television broadcasting</td>
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<td>Cable and other pay TV services</td>
<td>4841</td>
<td>14,992</td>
<td>21,778</td>
<td>29,798</td>
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</table>

X Not applicable. 1 1987 Standard Industrial Classification code. See text, Section 15, Business Enterprise. 2 Excludes other industries, not shown separately. 3 N.e.c. means not elsewhere classified.

### No. 1123. Information Technologies (IT)—Employment and Wages: 1992 to 1998

<table>
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<tr>
<th></th>
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<tr>
<td>Total private</td>
<td>89,956</td>
<td>97,885</td>
<td>106,007</td>
<td>113,400</td>
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<tr>
<td>Total IT-producing industries</td>
<td>3,875</td>
<td>4,130</td>
<td>4,400</td>
<td>4,660</td>
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<td>Hardware</td>
<td>1,436</td>
<td>1,475</td>
<td>1,708</td>
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<td>Electronic computers</td>
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<td>1,062</td>
<td>1,083</td>
<td>1,100</td>
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<td>Computers and equipment wholesale sales</td>
<td>50455</td>
<td>59,845</td>
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<tr>
<td>Computers and equipment retail sales</td>
<td>75342</td>
<td>95</td>
<td>94</td>
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<td>Computer terminals, office &amp; accounting,</td>
<td>3572</td>
<td>91</td>
<td>105</td>
<td>119</td>
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<td>machines, &amp; office machines, n.e.c.</td>
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<td>58</td>
<td>58</td>
<td>61</td>
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<td>Electronic tubes</td>
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<tr>
<td>Semiconductors</td>
<td>3674</td>
<td>217</td>
<td>225</td>
<td>239</td>
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<td>Printed circuit boards, electronic capacitors</td>
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<td>157</td>
<td>187</td>
<td>208</td>
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<td>Industrial instruments for measurement</td>
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<td>Instruments for measuring electricity</td>
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<td>Prepackaged software</td>
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<td>Computer integrated systems design</td>
<td>7373</td>
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<td>130</td>
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<td>Computer processing &amp; data preparation</td>
<td>7374</td>
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<td>223</td>
<td>254</td>
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<td>Information retrieval services</td>
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<td>Computer maintenance &amp; repair</td>
<td>7376</td>
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<td>Computer services management, rental</td>
<td>7377</td>
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<td>205</td>
<td>387</td>
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<td>&amp; leasing, &amp; maintenance &amp; repair</td>
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<td>129</td>
<td>153</td>
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<td>Communications equipment &amp; communications</td>
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<td>1318</td>
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<td>equipment, n.e.c.</td>
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<td>885</td>
<td>900</td>
<td>1007</td>
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<td>Telephone communications</td>
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<td>26</td>
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<td>Telephones &amp; telegraph communications</td>
<td>4833</td>
<td>115</td>
<td>153</td>
<td>151</td>
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<tr>
<td>Cable &amp; other pay TV services</td>
<td>4841</td>
<td>131</td>
<td>156</td>
<td>161</td>
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Survey of Current Business, July 2002
(by US Dept of Commerce)

See Table 5.4 below

- Spending on computers in 2001 was down to $87.7 billion
- Spending on software was $189.6 billion in 2001
- Spending on industrial eqpt., transport eqpt., etc. are big numbers (but they are not talked about much)

---

**Table 5.4. Private Fixed Investment by Type**
(Billions of dollars)

<table>
<thead>
<tr>
<th>Type</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>Seasonally adjusted at annual rates</th>
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<td>Private fixed investment</td>
<td>1,718.1</td>
<td>1,692.4</td>
<td>1,748.3</td>
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<tr>
<td>Nonresidential</td>
<td>1,293.1</td>
<td>1,246.0</td>
<td>1,312.2</td>
<td>1,262.3</td>
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<tr>
<td>Structures</td>
<td>313.6</td>
<td>300.3</td>
<td>301.8</td>
<td>305.8</td>
</tr>
<tr>
<td>Nonresidential buildings, including farm</td>
<td>227.0</td>
<td>224.2</td>
<td>241.3</td>
<td>230.4</td>
</tr>
<tr>
<td>Utilities</td>
<td>58.7</td>
<td>57.3</td>
<td>60.5</td>
<td>59.4</td>
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<tr>
<td>Mining exploration, shafts, and wells</td>
<td>20.8</td>
<td>20.5</td>
<td>21.3</td>
<td>21.5</td>
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<tr>
<td>Other structures</td>
<td>7.3</td>
<td>10.1</td>
<td>8.7</td>
<td>19.4</td>
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<tr>
<td>Equipment and software</td>
<td>975.9</td>
<td>915.8</td>
<td>959.4</td>
<td>921.7</td>
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<tr>
<td>Information processing equipment</td>
<td>406.5</td>
<td>427.1</td>
<td>460.4</td>
<td>431.1</td>
</tr>
<tr>
<td>Computers and peripheral equipment</td>
<td>109.3</td>
<td>87.7</td>
<td>102.9</td>
<td>98.6</td>
</tr>
<tr>
<td>Software 1</td>
<td>183.1</td>
<td>189.0</td>
<td>193.5</td>
<td>190.0</td>
</tr>
<tr>
<td>Other</td>
<td>174.1</td>
<td>150.4</td>
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<td>152.2</td>
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<tr>
<td>Industrial equipment</td>
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<td>182.1</td>
<td>175.8</td>
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<tr>
<td>Transportation equipment</td>
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<td>178.0</td>
<td>179.0</td>
<td>175.7</td>
</tr>
<tr>
<td>Other</td>
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<td>145.5</td>
<td>150.3</td>
<td>165.5</td>
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<tr>
<td>Residential</td>
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<td>440.3</td>
<td>437.0</td>
<td>446.2</td>
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<td>Structures</td>
<td>415.6</td>
<td>436.8</td>
<td>427.5</td>
<td>438.7</td>
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<tr>
<td>Single family</td>
<td>220.3</td>
<td>226.5</td>
<td>220.5</td>
<td>223.6</td>
</tr>
<tr>
<td>Multifamily</td>
<td>51.2</td>
<td>31.4</td>
<td>30.5</td>
<td>31.0</td>
</tr>
<tr>
<td>Other structures</td>
<td>150.3</td>
<td>157.8</td>
<td>171.4</td>
<td>176.1</td>
</tr>
<tr>
<td>Equipment</td>
<td>9.4</td>
<td>9.6</td>
<td>9.5</td>
<td>9.8</td>
</tr>
</tbody>
</table>

1. Includes new computers and peripheral equipment only.
2. Excludes software "embodied," or bundled, in computers and other equipment.

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**Table 5.5. Real Private Fixed Investment by Type**
(Billions of chained (1996) dollars)

<table>
<thead>
<tr>
<th>Type</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>Seasonally adjusted at annual rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private fixed investment</td>
<td>1,716.2</td>
<td>1,642.6</td>
<td>1,740.3</td>
<td>1,698.4</td>
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<tr>
<td>Nonresidential</td>
<td>1,356.7</td>
<td>1,308.0</td>
<td>1,373.9</td>
<td>1,329.9</td>
</tr>
<tr>
<td>Structures</td>
<td>273.8</td>
<td>276.2</td>
<td>291.7</td>
<td>282.3</td>
</tr>
<tr>
<td>Nonresidential buildings, including farm</td>
<td>194.9</td>
<td>185.9</td>
<td>202.0</td>
<td>191.6</td>
</tr>
<tr>
<td>Utilities</td>
<td>31.5</td>
<td>22.6</td>
<td>25.1</td>
<td>30.5</td>
</tr>
<tr>
<td>Mining exploration, shafts, and wells</td>
<td>28.5</td>
<td>28.4</td>
<td>28.3</td>
<td>30.4</td>
</tr>
<tr>
<td>Other structures</td>
<td>63.7</td>
<td>62.3</td>
<td>63.3</td>
<td>65.9</td>
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<tr>
<td>Equipment and software</td>
<td>1,070.4</td>
<td>1,039.0</td>
<td>1,077.7</td>
<td>1,043.2</td>
</tr>
<tr>
<td>Information processing equipment</td>
<td>609.5</td>
<td>597.1</td>
<td>609.0</td>
<td>598.1</td>
</tr>
<tr>
<td>Computers and peripheral equipment</td>
<td>293.0</td>
<td>294.3</td>
<td>314.4</td>
<td>297.3</td>
</tr>
<tr>
<td>Software 1</td>
<td>187.6</td>
<td>191.8</td>
<td>192.9</td>
<td>191.1</td>
</tr>
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<td>Other</td>
<td>196.5</td>
<td>163.9</td>
<td>162.0</td>
<td>163.5</td>
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<tr>
<td>Industrial equipment</td>
<td>162.6</td>
<td>157.3</td>
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<tr>
<td>Transportation equipment</td>
<td>123.7</td>
<td>175.5</td>
<td>177.6</td>
<td>174.4</td>
</tr>
<tr>
<td>Other</td>
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<td>141.0</td>
<td>143.3</td>
<td>141.1</td>
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<tr>
<td>Residential</td>
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<td>376.9</td>
<td>372.9</td>
<td>378.3</td>
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<tr>
<td>Structures</td>
<td>261.8</td>
<td>292.6</td>
<td>349.3</td>
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<td>Single family</td>
<td>109.9</td>
<td>131.2</td>
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<tr>
<td>Multifamily</td>
<td>22.4</td>
<td>22.4</td>
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<tr>
<td>Other structures</td>
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<tr>
<td>Equipment</td>
<td>9.6</td>
<td>9.7</td>
<td>9.7</td>
<td>9.7</td>
</tr>
</tbody>
</table>

1. Includes new computers and peripheral equipment only. Because of rapid changes in relative prices, the chained-dollar estimates for computers are especially misleading as a measure of the contribution or relative importance of this component; accurate estimates of these contributions are shown in table 8.4.
2. Excludes software "embodied," or bundled, in computers and other equipment.

Note: chained (1996) dollar series are calculated as the product of the chain-type quantity index and the 1995 current-dollar value of the corresponding series, divided by 100. Because the base year for the chain-type quantity indexes uses weights of more than one period, the correspondence between chained-dollar estimates and usually not additive. The residual line is the difference between the first line and the sum of the most detailed lines.

Chain-type quantity indexes for the series in this table are shown in table 7.6.

Contributions to the percent change in real private fixed investment are shown in table 8.4.
More Trouble for AOL: Cable Rivals May Push Net Prices Even Lower

SOME AMERICA Online users have already defected, abandoning AOL's dial-up service in favor of zippy high-speed connections. But if things are tough for AOL now, wait until it sees the next salvo from big cable companies: bargain broadband.

If you use the Internet, you'll want to follow this development. Bargain broadband will likely appear as part of a bigger shift in the way cable companies sell Internet services. Instead of a one-size-fits-all price, operators are increasingly looking at the potential for "tiers"—different charges for different levels of service.

Here are the numbers: AOL charges $23.90 a month for its dial-up service, which connects customers to the Internet at a top speed of 56 kilobits a second. Cable-modem services have typically charged $45 a month, delivering speeds up to 1.5 megabits a second, which is more than 25 times as fast as a dial-up connection.

But now cable companies are gearing up to compete head-on with AOL's dial-up charges. Already, Cox Communications is testing a price of $26.95 a month with customers in Las Vegas. You won't get the full speed of cable-modem service at that price. The bargain rate delivers 256 kilobits per second, roughly one-sixth the speed of a full-fledged cable service.

Yet that's still four times as fast as the maximum speed offered by AOL and other dial-up services—a measly $3 more a month. Since dial-up connections rarely connect at the full 56-kilobit speed, the bargain broadband will seem even faster in comparison. On top of that, cable modems provide "always-on" connections and don't tie up a phone line.

There are a few caveats: To get the $26.95 price you must purchase a cable modem for about $100, or rent one for an extra $10 or so a month. Customers must also subscribe to cable TV service to get the cheap price.

Cable companies see tiered pricing as a way to recruit consumers who haven't yet been tempted by high-speed services. "We want to make that first step to broadband much easier," says David Pugliese, vice president of sales and new-product marketing at Cox.

Tiers could aim even more squarely at dial-up prices, Mr. Pugliese says. Other tests have included a 128 kilobit service that could be priced at $24 a month—more than doubling dial-up speeds for the same price. Other big cable companies—rivals of Time Warner Cable, owned by AOL's parent company, AOL Time Warner—acknowledge that they are considering tiered pricing.

That's the good news for consumers. Now for the bad news. If price tiering offers bargains for users on the low end, services with extra bells and whistles may well wind up costing more. Heavy users and early adopters who flocked to broadband could face higher fees in the future.

To understand where all this is going, forget about the Internet and think instead of the airlines. Why does a plane ticket cost hundreds of dollars more if you're not including a Saturday stay-over at your destination? Because that's one way for airlines to separate out business travelers—who put airfare on their corporate cards—and charge them more.

Broadband companies want to slice and dice the market just as the airlines do. Telephone companies have done this for a while with DSL service, offering different prices for different speeds (though without dipping low enough to compete with dial-up pricing). There are indications that cable companies will push the envelope a lot further.

Some cable companies have already sought extra fees for virtual private networking connections, or VPNs. These connections, riding on top of a standard Internet connection, give employees at home a secure means of tapping into a corporate network. Comcast, for instance, restricts VPN use to customers paying $95 a month for its "Pro" service.

When a consumer uses a VPN connection, it doesn't actually cost Comcast any extra money. But people who are using VPNs are probably work-at-home types, and are therefore more likely to use their connections a lot. VPN use has also become a way to identify business users—the Net equivalent of the Saturday night stay-over.

Will users sit still if providers resort to such tactics? "They'll have to, as long as they don't have a choice," says David Willis, a Meta Group analyst who tracks broadband strategies. Many believe competition between cable and phone companies won't be enough. Unless satellite and wireless providers wind up in the mix, consumers could suffer from a cable and phone oligopoly.
AOL

New boss, same problems

Time for an outsider

THE naming this week of Jonathan Miller as the new head of AOL follows to AOL Time Warner's battered Internet division its third boss in four months. Mr Miller replaces Bob Pittman, who was ousted from that job, as we as from his post as chief operating officer at the parent media giant, last month. Mr Pittman himself had been installed at AOL only since April, when Barry Schuler, its former head, was shunted aside. After all the upheaval, AOL may at last experience some management stability. But will this be enough to turn around the troubled business?

One possible benefit of recent management changes is that, for the first time, outsiders will be in charge of sorting out AOL. In theory, this could help to revitalise an inbred geeky culture that has suffered from complacency and self-importance. The little-known Mr Miller arrives, after a short spell with a private-equity firm, from USA Interactive, Barry Diller's interactive-commerce business. That he is not a Time Warner man could help to soothe the lingering tensions between the new and old media bits of the AOL-Time Warner empire. Mr Miller will report directly to Don Logan, the former boss of the Time Inc publishing group, who was elevated last month to run one of the two new overarching divisions at AOL Time Warner under Richard Parsons, its chief executive.

While Steve Case, AOL's founder and former boss, remains group chairman, the two newcomers to the AOL division will be in charge. Yet they face a daunting job. Morale is sagging, particularly since the launch of an SEC investigation into AOL's accounting practices. And the pair will urgently need to bring stability and direction if they are to overcome AOL resentment at the triumph of the Time Warner clan.

In many ways, the appointment of Mr Miller and of Mr Logan, who will spend two days a week at the AOL campus in Virginia, indicates the way in which AOL has changed. What was once primarily a technology company, which grew by selling a one-size-fits-all dial-up service, now faces a market in which demand for such an undifferentiated product seems to be saturated. Subscriber growth has slowed (see chart), and advertising has dried up: e-commerce and ad revenues in the second quarter of 2002 fell by 42% on the same period last year. "When your market has begun to mature," says Peter Kreisky of the Kreisky Media Consultancy, "you need to segment the market and develop a family of must-have services targeted to different customer groups." This is where Mr Logan, who knows all about selling subscriptions and advertising, and segmenting the magazine market, comes in.

AOL's other challenge is to persuade its subscribers (it prefers "members") to part with more of their money, whether through upgrading to a high-speed broadband connection or buying things online. At USA Interactive, which concentrates on selling things genuinely suited to the Internet, such as airline tickets and hotel rooms, Mr Miller ran such businesses as Ticketmaster and Expedia. He may not be an industry heavyweight, nor accustomed to the media glare that now awaits him, but he does have experience in selling stuff interactively. And he knows all about big media conglomerates and the politics that go with them. In the mid-1990s he worked for Viacom, setting up branded channels, such as Nickelodeon and the Paramount Comedy Channel, in Europe.

As for broadband, AOL has been slow to promote such high-speed services. It serves less than 5% of the broadband market in America, but 37% of the dial-up business. Among the many ironies exposed by the collapse of AOL's status within AOL Time Warner is this: one of the chief motivations for AOL's merger with Time Warner in 2000 was to secure access to the old media group's cable pipes in order to put broadband services at the centre of the multimedia experience.

German utilities

E.ON, E.OFF

FRANKFURT
The controversial takeover of Ruhrgas is held up by a court

SINCE its creation in 2000, E.ON, Germany's biggest energy company, has seemed unstoppable. It has bought abroad, sinking in Powergen, a British electricity firm with interests in the United States. It has bought at home, this week purchasing 25.1% of THÜGA, a gas company of which it already owned 62%. It has sold, too, unloading non-utility businesses and promising still more sales in order to concentrate on its gas-and-power core.

Now a court has put a stop to E.ON's progress by blocking its takeover of Ruhrgas, Germany's biggest gas supplier, for the time being. The deal has been controversial from the start. In January Germany's Federal Cartel Office said the deal would harm competition and should be stopped. The economics ministry reversed this decision last month, even though the Monopolies Commission, which advises it in disputed cases, had denounced the merger.

A few days later, though, four energy companies persuaded a court in Düsseldorf to put the merger on hold while it considered their objections. On August 2nd...

Aug 10, 2002
Big Pipe Dreams

There's a problem with high-speed Web service: a lack of customers

BY PAUL ANDREWS

After three years of high-speed Internet access, Priscilla Niles recently threw the towel. The Chelmsford, Mass., cable-modem user endured forced E-mail address changes, two-hour support calls, and a 50 percent hike in her monthly tab before deciding enough was enough. "I've switched to a modem and my phone line," says the 83-year-old Niles, who watched her bill go from $30 to $45. The low cost of dial-up—around $20 a month—more than offsets its reduced speed, she says: "I mostly use the Internet for E-mail, anyway."

Erratic service. Poor support. Rising costs. Broadband was supposed to be the holy grail of the digital revolution. Instead, it resembles a business plan from Dot-bomb Inc. In Seattle, gen X'er Jonathan Bostwick found himself shaking with rage after repeated cable-modem breakdowns and hourlong waits on the phone for help. "I'm not technically averse, but this was a nightmare," he says. A poll commissioned by Voices for Choices, a coalition of telephone industry companies, found that 48 percent of respondents have "no interest" in moving to high-speed service. Even AOL Time Warner, broadband's onetime poster child, is slowing its push after reporting a record $54 billion quarterly loss last month.

Future shock. The broadband bust puts a new twist on tech's favorite mantra, suggesting that if you build it, they may not come. Fewer than 10 percent of the nation's 107 million households subscribe to broadband, even though 80 percent could, and 97 percent live in ZIP codes served in part by high-speed providers. That's a far cry from the vision of the 1990s, a world where Internet users would be rocketing along a fiber-optic information superhighway of teleconferencing, distance learning, E-tailing, and Hollywood movies. Undeterred by the slow adoption, and fretting over American competitiveness, technologists are pursuing a national commitment along the lines of the 1960s quest to put a man on the moon. TechNet, a Silicon Valley computer-industry lobbyist group, is pushing the lofty goal of 100-megabit-second connections—100 to 200 times as fast as a typical high-speed link today—in 100 million homes by 2010. Building a robust nationwide broadband network will create more than 1.2 million jobs, concluded a report by the New Millennium Research Council, a research arm of Issue Dynamics, a Washington, D.C.-based consulting firm.

Yet the government's Internet track record is decidedly spotty. The landmark Telecommunications Act of 1996 opened
broadband to a variety of start-ups offering fast—but not as quick as cable—data links over traditional telephone lines. Many of these, however, have gone bankrupt, unable to compete with entrenched phone companies' pricing and service advantages. Recent legislation sponsored by Reps. Billy Tauzin and John Dingell has been attacked as a phone-company "remonopolization." The legislation squeaked by in the House but appears to lie fallow in the Senate. "The government needs to play a role," says former Rep. Rick White of Seattle, now CEO of TechNet. "But it's not optimized to provide technological leadership."

What's clearly missing from the broadband equation is, simply, a reason to use it. Many consumers find dial-up perfectly acceptable for E-mail and Web browsing. The PC gained mass-market appeal via the spreadsheet and word processor. Big-screen TVs and home theaters benefited from videotape and, now, DVDs. Where's broadband's killer app? Some point to the music-sharing service Napster, which gained 20 million users in its first year. Napster alternatives have sprung up, but none with its singular popularity. And the prospect of a similar scenario for movies has Hollywood threatening equally draconian legal sanctions. "Lawyers are killing the golden goose," says longtime broadband advocate George Gilder.

Others foresee distributing voice telephone calls over the Internet as the real calling for broadband. Through its acquisition of AT&T Broadband, Comcast will offer this service to 7 million households. "All phone calls will travel over the Internet by 2010, if not before," proclaims Tom Evslin, chairman of ITXC, a leading Internet phone provider.

For now, though, it is amateurs armed with increasingly powerful PC tools who are boosting broadband the most. When Clayton, Calif., mountain biker Pete Fagerlin, 36, posts video of his latest expedition, he gets hundreds of visits within hours. Particularly among teens, webcams and video clips are replacing still photos on personal Web sites.

Pricing power. Ultimately, broadband's chief selling point may be its "always on" asset. Trend-watcher Jupiter Media Metrix recently reported that of the 25 percent of dial-up users considering the switch to faster access within the next 12 months, nearly 5 out of 5 say the big incentive is not having to dial in each time they log on.

Whether they and others take the plunge, however, may come down to simple economics. When introduced three to four years ago, broadband cost about $30 a month. The cost has risen to around $45 to $50—primarily because real competition is lacking, observers say. Although the Telecommunications Act of 1996 opened broadband to cable, phone companies, and a variety of Internet service providers, less than half of the country—43 million households—can choose between DSL and cable. Asked how former regional Bell company Qwest justifies its fee, Steven Starliper, vice president for DSL services, responds: "Cable still costs more money—it's as simple as that."

To spur growth, some broadband providers may adopt a pricing scheme reminiscent of cable TV. In Las Vegas, Cox Communications is experimenting with a monthly rate of $27 for 256 kiblits per second, compared with $45 to $55 for the mainstream service. The discount hookup provides the slowest broadband speed possible. But speed-based fees have been tried before: DSL providers found early on that most users went for the cheapest speed, figuring the Internet itself usually was slower than 256Kbps.

The lack of meaningful competition leaves the United States with broadband costs 50 to 75 percent higher than in other industrialized countries. In Canada, South Korea, Japan, and European countries with high broadband penetration, service averages about $30 a month—only slightly higher than much slower dial-up in the United States. "Cable [modem] prices are
a third higher than they would be with competition," says Dave Burstein, editor of DSL Prime, an Internet news site. He figures DSL prices will be $15 to $20 higher than they were competitively priced. As overlap between cable and DSL increases, "we should start to see some flexibility in pricing," says Imran Khan, senior analyst for the Yankee Group.

Wireless Web. But with cable access already outstripping DSL by 7.2 million subscribers to 3.4 million, and with cable aiming to provide voice phone service over the Internet, some believe DSL is doomed. "Twisted pair [DSL over traditional phone lines] is maxed out," argues Gilder, whereas fatter coaxial cable can carry data five times as fast as it now does with the advent of new network technology. A smarter approach for local telephone companies—assuming they get regulatory approval to toss in the sweetness of nationwide long distance—may come with bundling of phone services with DSL. "Bundling opportunities create a far stickier customer and offer different price-point opportunities as well," says Rick Ellenberger, chairman of Broadwing, a pioneering Internet provider serving 700,000 Cincinnati-area households, about 8 percent of which use high-speed access.

Other high-speed options are becoming available: Satellite broadband service offers fast download potential, though upload is limited to phone-line speeds. In Washington State's Grant County, the public utility district has created a fiber-optic network offering its unused bandwidth to customers. Wireless is another possibility. Networks using so-called wi-fi technology are springing up in airports, hotels, cafes, and other public places. But wi-fi’s range is limited, typically restricting the service to local neighborhoods. Wi-fi "is definitely an end run around the telcos," acknowledges Tim Pozar, a wireless engineer who is trying to set up a San Francisco Bay Area public network. "But first we have to see if the thing works."

Whatever the method, there seems less doubt about whether universal high-speed Internet access will become the norm than over how long it will take. Says Broadwing's Ellenberger, pointing to the market for cellphones in the late 1990s: "Once you reach 25 percent adoption, the market moves very quickly to 50." But cellphones had been around for 15 years before they caught on with mainstream America. By that yardstick, broadband—widely available for only the past couple of years—has many more miles to go. •

MONEY & BUSINESS

Make-or-break TV

With ad revenues down and their futures on the line, TV networks assemble their fall schedules

By Betsy Streisand

ow that the Bachelor has hooked up, those scheming Survivors are about to head home, and the dearly departed are doing the talk-show circuit, what will television's creative geniuses dream up next? How about teenage sextups living in their parents' hotel, the trials of a 5-foot ghostwriter for a supermodel, and a family of Wutan temple warriors who battle evil? No kidding. These are just a few of the audience-grabbers that could debut next week in New York when the broadcast networks unveil their new fall lineups to advertisers. They, in turn, will commit billions of dollars to lock in commercial time on the shows they believe will be hits. Ai though as 80 percent of ad time is sold during the "upfront" event, accounting for over half the networks' annual revenues.

After a yearlong advertising drought—including a record 13 percent drop in upfront sales last year—the media industry's recovery could be at stake. Most analysts believe that growth, if any, will be 3 percent to 5 percent or about $250 million over last year. "But until advertisers start buying more product off the store shelves, we're not going to see big increases in ad budgets," says Mel Berning of MediaVest, a large media-buying firm in New York.

Things could be worse. Although a down economy means many advertisers can't afford to buy TV time, it also means many others can't afford to not. Despite inroads made by cable channels, broadcast TV still delivers the biggest and best-quality audiences.

Best buy. Competition has never been keener for consumers, particularly among automakers, long-distance phone providers, and pharmaceutical companies. Even though firms like AT&T had substantial first-quarter losses, they still plan to spend tidy sums on TV ads this fall. "Everyone is watching their competitors very closely," says one media buyer. "They aren't going to sit out network television just because it's expensive."

In another competitive twist, top-quality ad time is in unusually short supply, thanks to plummeting ratings at two of the four major networks. NBC and CBS are strong, but Fox and ABC have been struggling. No one is in worse shape than ABC, which has given away so much free ad time to make up for poor ratings that it has missed out on the ad rebound entirely. Company management is also in turmoil. Steve Bornstein, president of ABC Television, resigned abruptly last week, just a few months after entertainment president Stuart Bloomer, who built ABC's schedule around Who Wants To Be A Millionaire, was fired.

But as Millionaire and Survivor have proven, one show can save a network. That show could be lurking in the 118 plots, covering everything from solar panel salesmen to war correspondents in Uzbekistan, that the networks are now pondering. And if all else fails, the usual spinoffs, Survivor and The Bachelor, will be back. •

CBS will set a spinoff of CSI in Miami in hopes of another blockbuster hit.
Too many debts; too few calls

The telecoms industry is in a mess. What went wrong, and how can it be fixed?

THE bigger they are, the harder they fall. And in recent times nothing has got much bigger, or fallen much harder, than the telecoms industry. WorldCom, a disgraced industry giant embroiled in an accounting scandal, teeters on the verge of bankruptcy. Its collapse, were it to happen, would be the biggest in corporate history. But it would also be only the latest in a line of telecoms firms to have gone under.

WorldCom is currently subject to a criminal investigation, as is Qwest, another American telecoms giant. But telecoms firms untainted by scandal are also struggling to service their huge debts. Banks' global exposure to the industry is estimated at $1 trillion, according to Ovum, a consultancy. Some analysts reckon that as much as half of that may yet have to be written off.

Telecoms share prices have plunged and chief executives are being steadily booted out. This week it was the turn of Ron Sommer, the boss of Deutsche Telekom, who was forced to resign on July 16th. But the job losses extend far beyond the boardroom. Telecoms operators and equipment vendors have laid off nearly 500,000 people in America alone since the beginning of last year, according to figures from Challenger, Gray & Christmas, a firm of headhunters.

The dotcom crash, it turns out, was merely the warm-up. The telecoms crash is many times bigger. Michael Powell, chairman of America's Federal Communications Commission (FCC), surprised nobody when he declared this week that the industry is facing "utter crisis". The situation is being likened to the Dark Ages. The old empires have fallen and a prolonged period of uncertainty looms. How did telecoms companies get into such a hole, and how can they climb out of it?

Fallacious foundations

Now that the crash has happened, there is no shortage of theories to explain it. The simple one is that too many firms got caught up in Internet mania, assumed astronomical rates of traffic growth and, egged on by bullish investors, started building networks to carry that traffic. The trouble is, this construction boom was founded on a number of fallacies.

The first, says Allan Tumolillo, an analyst at Probe Research and a long-time telecoms sceptic, was the old saw of "build it and they will come". Alas, they did build it—but they did not come. Since 1997, Internet traffic has roughly doubled every year. But much of the industry was betting on it doubling every 100 days (see box on next page). This mythical growth rate was then expected to apply to all forms of telecoms traffic. And what better way to prepare for the coming deluge than to lay vast amounts of fibre-optic cable?

This was a big mistake. Between 1998 and 2001, says Andrew Odlyzko, a researcher at the University of Minnesota, the amount of fibre in the ground increased fivefold. Meanwhile, advances in the technology of feeding signals into fibres at one end and extracting them at the other increased the transmission capacity of each strand of fibre 100-fold. So total transmission capacity increased 500-fold. But over the same period, demand merely quadrupled.

To be fair, when digging up the ground and laying fibre, it makes sense to lay far more than is currently needed. If you are laying 24 strands, you may as well lay 240. The problem was not that individual firms laid too much fibre, but that there were so many firms building almost identical networks. In the United States, more than a dozen national fibre backbones were constructed; a similar duplication happened in Western Europe.

The second destructive fallacy, says Mr Tumolillo, was the almost ritual invocation of Metcalfe's Law, a finding from computer science which states that the number of possible cross-connections (and hence the usefulness of a network) is proportional to the square of the number of nodes or users. This was used to justify the building of enormous pan-European or
global networks, on the basis that bigger is exponentially better. But the real world is more complicated than computer science, notes Mr Tunolillo. When two American telecoms firms, SBC and Ameritech, merged in 1999, the combined firms' network became larger, but the value of the merged firm still fell.

A third myth is the notion of "Internet time", which Mr Odlyzko defines as "the perception that product development and consumer acceptance were now occurring in a fraction of the traditional time." He does not dispute that the Internet is a significant advance in communications technology, and he admits that 100% annual growth in traffic is not to be sniffed at. But, he says, new technologies take many years to diffuse, and the Internet is no exception. Telecoms firms, however, were betting on an overnight transformation that would translate into a sudden leap in demand.

As upstream firms splurged on vast infrastructure investments, the incumbents followed suit. The former national monopolies in Europe, AT&T in America and NTT in Japan all tried to transform themselves into global operators. They built new networks and bought stakes in foreign operators. European companies gambled that the supposed surge in demand for fixed communications capacity would be followed by a similar leap in demand for mobile capacity, and they paid over €100 billion ($90 billion) for licences to run "third-generation" (3G) mobile networks. In the process, they ran up huge debts.

When it became clear that the industry had bet on an increase in demand that was not likely to materialise in the near future, ferocious competition and frantic pricing ensued. Equipment vendors' sales dried up. And some firms resorted to fiddling to conceal the lack of revenue.

After the party

The industry's hangover has two components: overcapacity and debt. If it is to recover, it must tackle these two closely intertwined problems. When an operator goes bankrupt, its capacity does not go away. Instead, the new owner (or the original owner, operating under bankruptcy protection) can run the network far more cheaply, having been freed from much of the need to service the debts incurred in building it. The result is a domino effect: prices fall, driving other toterring operators into bankruptcy. If WorldCom fails to reach agreement with its creditors over its $32 billion of debt and seeks the protection of Chapter 11, it may well drag other firms with it.

By contrast, former national monopolies (such as France Telecom and Deutsche Telekom) can be sure that their governments will stand behind them. It is inconceivable that either would be allowed to fail. But they still have to do something about their debts: France Telecom owes €60 billion; Deutsche Telekom almost €70 billion. Both will have to sell assets, restructure in their home base, and raise new money from the capital markets.

Of Europe's former national monopolies, British Telecom has led the way in pursuing this kind of debt-reduction strategy.

Internet traffic

The power of WorldCom's puff

Exaggerated figures for Internet traffic inflated the telecoms bubble

It was an essential ingredient of dot-com business plans and conference slide-shows: Internet traffic, went the industry's favourite statistic, doubles every 100 days. The claim assumed unimpeachable status when it appeared in a report published by America's Department of Commerce in April 1998. Unfortunately for the telecoms firms that rushed to build networks to carry the reported surge in traffic, it wasn't true.

So where did the claim come from? According to Andrew Odlyzko, a former researcher at AT&T who is now at the University of Minnesota, the short answer is WorldCom. Every time that Mr Odlyzko tried to trace the claim to its source, he says, he was always "pointed at folks from WorldCom", typically Bernie Ebbers, its recently departed chief executive, or John Sidgmore, his replacement. The claim in the Department of Commerce's report, for example, is attributed to UUNET, WorldCom's Internet subsidiary. As the world's largest carrier of Internet traffic, UUNET was assumed to know the numbers.

To be fair, says Mr Odlyzko, Internet traffic did grow this quickly in 1995 and 1996, when the Internet first went mainstream. But since then, he estimates, annual growth has settled down at around 70-150%, a far cry from the 700-1,500% trumpeted by WorldCom. The myth of 100-day doubling, however, refused to die. In a press release from 1999 and 2000 WorldCom referred to traffic "almost doubling every quarter". At a conference in 1998, Mr Sidgmore's presentation included graphs that referred to 1,000% annual growth. In fact, he was referring to the growth of network capacity, not network traffic. But it was widely assumed that traffic was growing just as fast.

WorldCom executives made similar claims in interviews published in 2000. Rival telecoms companies believed the myth and cited UUNET's figures, even if their own traffic figures disagreed. That just meant their salesmen were not selling capacity fast enough. Mr Odlyzko recalls meetings at AT&T where his claims that growth was actually far slower were dismissed. Instead, he was told, "we just have to try harder to match those growth rates and catch up with WorldCom." Companies such as Global Crossing and Qwest soon resorted to "hollow swaps" and other dubious tricks to boost sales and traffic figures. Meanwhile, shares in Internet companies soared, and the telecoms industry engaged in an orgy of network construction in preparation for a deluge that never came. WorldCom executives, says Mr Odlyzko, are thus "more responsible for inflating the Internet bubble than anyone."
DVDs take wind out of sails for video on demand

Cable operators forced to change gears to compete with rentals

By David Lieberman
USA TODAY

NEW ORLEANS — Cable operators thought that this was the year they would begin taking on Blockbuster with their home video giant killer: video on demand.

The service will be available in about 4 million homes by year’s end, up from 900,000 last year — and in nearly 38 million by 2006.

Cable subscribers could call up movies on a whim, play and pause just like with a VCR and never pay late fees. Operators saw VOD winning much of the cash spent to rent tapes and DVDs, $8.4 billion last year.

But the year of VOD isn’t turning out that way, to the chagrin of operators here this week for cable’s annual convention. Far from predicting Blockbuster’s demise, many say they’ll be happy if VOD keeps subscribers from switching to satellite or gets them to spend $15 more a month for digital cable, needed for VOD.

What changed things was the DVD.

More than 25 million homes have players, and 70 million will by 2006, according to Adams Media Research. And Hollywood is hooked on discs that offer a crisp copy of a movie, often with extra features.

Studios sold $5.6 billion worth last year and are headed to $16.2 billion in 2006. And to protect that golden goose, they still offer films to video retailers weeks before they’re on cable. That’s saved the retailers: “80% of consumer demand is satisfied in the first four weeks after a movie is released,” says Blockbuster CEO John Antioco.

Another VOD issue: “There’s a sticker shock problem where people who already pay $60 a month for cable don’t want to see it go to $75 or $80 with VOD,” says Adams Media President Tom Adams.

Investors have heard enough to change their views. Over the past year, Blockbuster stock rose about 50% while suppliers of VOD to cable, led by Concurrent and SeaChange, recently plummeted after rocketing in 2001. Meanwhile, cable companies are down from 20% (Cox) to 60% ( Charter and Cablevision Systems).

But cable is adjusting to lowered expectations with new plans for VOD. Most operators will offer a subscription version called S-VOD for premium services such as HBO. Customers would pay as much as $10 a month over the fee for the channels to be able to watch their shows on demand.

There are other creative ideas. Rainbow Media has designed a VOD package called Mag Rack. It offers shows designed for people interested in 24 subjects as wide-ranging as gold, Shakespeare, photography, sports, wine, cooking, parenting, yoga and the bible.

And in September Comcast plans to give Philadelphia digital customers 750 free hours of news, sports, kids shows and more on demand from broadcast and basic cable channels. It will throw in HBO’s Showtime or Starz/Encore’s S-VOD for subscribers to those channels. “A consumer’s first choice would be, ‘Do I want to watch scheduled programming or on demand?’ ” says Comcast Cable President Stephen Burke. “This has the potential to transform television.”

Blockbuster isn’t taking its franchise for granted. In July it will test in New York City and elsewhere a $25-a-month subscription that lets customers take out three DVDs and swap for new titles, as they want.

And it wants to revive an ambition to use its marketing skill and customer database to build its own cable VOD or pay-per-view service.

People are renting movies on DVD discs.

People resist paying very much extra money for fast Internet.
SEC Takes a Hard Line on Qwest

Methods of Accounting
For Capacity ‘Swaps’
Are Under Close Scrutiny

By DEBORAH SOLOMON
And SUSAN PULLIAM

The Securities and Exchange Commission is taking a tough stance on how Qwest Communications International Inc. accounted for as much as $1.4 billion in sales of fiber-optic capacity and whether it was proper for the company to recognize the revenue right away, people close to the investigation said.

Qwest officials acknowledge they are trying to convince the SEC that it the beleaguered telecommunications company used proper accounting in recording the sales, which included “swaps” of capacity.

Although the sum in question amounts to roughly 4% of the company’s combined revenue for the two years, a finding that Qwest improperly booked the sales could be a serious blow to a company struggling to maintain its credibility with investors.

Shares of Qwest have fallen 85% in the past year, and its new management is trying to sell assets to relieve its crushing debt load.

Qwest’s outside attorney, Jonathan Schiller, said Qwest’s accounting, including for swaps, was “reasonable,” and added that “Qwest would hope to bring the SEC to that conclusion as well.”

A Qwest spokesman said the “things we are discussing with the SEC are the things we said we were discussing with them on March 11. There are no new issues that we are aware of.”

The SEC declined to comment.

Three top company officials, including Joseph P. Nacchio, who resigned under pressure as chief executive last week, have testified before the SEC’s Denver office. Qwest’s chief financial officer and its president also have testified, according to people close to the matter.

The SEC is also questioning executives of other telecom companies, including Global Crossing Ltd., which swapped fiber capacity with Qwest.

Mr. Nacchio and his top executives were heavy sellers of Qwest stock during the years that the swapping took place. Mr. Nacchio’s sales alone netted him about $130 million in profits during that period, raising questions about his motivation to keep the stock price as high as possible. Qwest insiders sold shares between January 2000 and July 2001 valued at a total of $550 million.

At issue in the SEC investigation is the difference between the way Qwest accounted for the sales and the method used by its competitors, such as Global Crossing, which is also under SEC investigation.

Like Global Crossing, Qwest sold capacity on its fiber-optic network to carriers and also purchased capacity from them. In some cases, the amount of the sale and purchase were almost identical.

But unlike Global Crossing and most other players in the industry, Qwest booked the revenue from these sales all at once time instead of deferring part of it over many years.

Global Crossing, by contrast, only

Adelphia Communications Files
For Bankruptcy-Court Protection

By DEBORAH SOLOMON

Adelphia Communications Corp. filed for Chapter 11 bankruptcy-court protection late yesterday, capping a tumultuous three-month descent from its position as

company and ultimately where the value is.” But it won’t be a quick process, he added.

Adelphia’s bankruptcy filing with the U.S. Bankruptcy Court for the Southern District of New York had been expected for weeks, as the company struggled to stare...
Broadband Failure Has a Political Cause

By James K. Glassman

"All this year, victims of the 'tech wreck' have been looking furiously for someone to blame," wrote Ethan H. Hugo of David L. Babson & Co. in a recent letter to clients. Who's the scapegoat? Alan Greenspan? Greedy underwriters? Day traders? Instead of the usual suspects, Mr. Hugo offered as culprit "the slow adoption of residential high-speed 'broadband' Internet access. This is the business factor that has been causing so many shattered dreams."

He's right. The agonizingly slow deployment of broadband has stopped the Internet in its tracks. The technology for fast connections is well established, but 19 out of 20 U.S. families are stuck with poky dial-up modems, so it takes them an hour to download a video file that broadband could handle in two minutes.

By now, if broadband were widespread, Web companies would be offering online sports and movies, zippy online banking, video telephone calls, useful education services and health care. With widespread broadband, Americans would be buying faster, better computers, and telecom firms would be making huge investments in infrastructure. Instead, orders for capital equipment have fallen 15% since last year. Meanwhile, e-commerce firms that were counting on broadband are going out of business, the economy is suffering and, as Mr. Hugo says, high-tech stocks have suffered a train wreck.

Mr. Hugo, however, is wrong in one important particular. The broadband disaster is not strictly a business matter. Its causes and its remedy are, in fact, political. The problem is the bottleneck at the "last mile"—the copper wires that lead into every American home. Today, 17 years after the court-ordered breakup of all-powerful AT&T, the local Bell monopoles—once seven companies, now merged into four—serve 95% of residences and small businesses.

Deregulating a monopoly built up through a century of government protection and subsidies isn't easy. If you do it all at once, the monopolist gets a windfall and blows away all potential competitors. So the Telecommunications Act of 1996 provided for a more sensible blueprint. In a replay of the system that successfully deregulated long distance (driving prices down 40% since 1984), the bill required the Bell to unbundle their networks and resell their services at non-discriminatory wholesale rates to competitors. But the law lacked timetables and penalties. Instead, it offered an incentive: Open up your local loops, it told the Bells, and, state by state, you will be allowed into long distance. This seemed a decent deal for getting the benefits of lower prices, higher quality and broader dissemination to consumers.

The Telecom Act was the catalyst for a new industry, as 300 feisty competitive local exchange carriers (or CLECs), like Covad and Northpoint, were born. The Bells, which had kept a broadband technology called digital subscriber line, or DSL, on the shelf for 10 years, finally began to deploy it. But the Bells dragged their feet on allowing the CLECs into the local loop. The Bells were fined $370 million for their lack of cooperation last year—a pittance compared to the tens of billions of dollars at stake. As Francis Rose wrote in Wired magazine: "The Telecommunications Act of 1996, which was intended to end the Bells' monopoly on local lines and transform the industry into a competitive free-for-all, has proved toothless."

But the CLECs' misery wasn't over. Last year, two powerful congressmen, Reps. Billy Tauzin (R., La.) and John Dingell (D., Mich.), introduced a bill that would immediately deliver the Bells into the data part of long distance (the "good" part, which now represents 75% of all long-distance traffic, and rising) without opening their local networks. It would also bar the CLECs from connecting with more advanced parts of the Bells' loops.

Merely the existence of the contentious bill—which passed Mr. Tauzin's Commerce Committee, got an unfavorable report from the Judiciary Committee and is now in the lap of the Rules Committee—has eviscerated the CLECs. I recently completed a study with William Lehr, an MIT economist, that found that the progress of the Tauzin-Dingell bill is directly correlated with the obliteration of the market capitalization of the CLECs.

We constructed a broad CLEC index, which reached a peak market cap of $242 billion in March 2000. By last month, the market cap had dropped to $38 billion—an 85% decline. Of course, the stock market as a whole, and high-tech stocks in particular, also fell over that period, but the tech-heavy Nasdaq (with the CLECs in our index removed) declined 45%. The drop in the CLEC index was greater by three-quarters than the Nasdaq loss.

In what economists call an "event study," Mr. Lehr and I looked closely at eight specific days when favorable news was reported on the progress of Tauzin-Dingell. During those days alone, the market cap of the CLEC index fell by $87 billion. In other words, 42% of the total decline in the CLEC's value occurred on positive Tauzin-Dingell days. A rich academic literature shows that capital investment for companies and sectors is tied to the direction and extent of market capitalization. We can expect, then, a sharp decline, probably between 40% and 50%, in capital investment by the CLECs in the near future—that is, if any CLECs survive.

People of goodwill can differ on how to solve the broadband crisis, but the choice comes down to this: trust the monopolists or trust competition. The Tauzin-Dingell bill may squash the CLECs, goes the reasoning of its more candid advocates, but it will lead to more deployment of broadband—and it gets the government out of the business of overseeing the interconnection process, so it's deregulation.

I disagree. Once the CLECs are wiped out, the Bells will extend their local monopoly into long distance and broadband, and Congress—whether we like it or not—will not stand by and allow them to set prices, quality and extent of service. What will the politicians do? Reregulate, of course. We'll be back in the pre-1984 era before we even know it. Instead, the way to spread broadband is to enforce the Telecom Act of 1996 and unleash competition—the messier and more chaotic, the better.

Mr. Glassman is a resident fellow at the American Enterprise Institute and host of TechCentralStation.com, a Web site that receives advertising revenue from, among others, AT&T.
**Busy Signals**

Modern Warfare Strains Capacity To Communicate

Shortage of Satellites Vexes U.S. Military Amid Surge In Data From Battlefields

Capt. Beddow and a Predator

By GREG JAFFE

WASHINGTON—Even before the Taliban crumbled, U.S. Defense Secretary Donald Rumsfeld boasted that unmanned spy planes, which beamed live pictures of fleeing Taliban and al Qaeda fighters to U.S. pilots and commanders, were one of the stars of the Afghanistan war. The Pentagon has budgeted over $1 billion to buy 37 more of the high-tech aircraft next year.

But the military probably won’t be able to fly them all. With the collapse of the commercial-satellite industry, the Pentagon faces a bandwidth crunch: a shortage of the communications hardware that links people on the ground and planes in the air.

Bandwidth is a measurement of how much data can flow through a network of transmitters, receivers and satellites. More satellites make for a more robust network that can handle more data and more unmanned planes flown by people on the ground.

**Remote Control**

In late December, Air Force Capt. Elissa Beddow was told to use the Predator unmanned surveillance plane that she operates to hunt for some al Qaeda fighters trying to flee Afghanistan. Sitting in a ground station hundreds of miles away in Pakistan, Capt. Beddow directed the spy plane with a control stick, a computer keyboard and several television monitors that provided live video feeds. She flew the 27-foot-long aircraft up and down the road where the men had last been seen. Thirty minutes into the search, she spotted them.

Over the same satellite link that let her fly the Predator and watch the video, she summoned a Navy fighter jet and led it to the mud hut where the men had parked their sport-utility vehicles. On the video feed, Capt. Beddow saw the al Qaeda fighters milling around their SUVs:

"You almost wanted to scream, ‘Run! Get out of the way! You’re going to be killed!’" she says. A few minutes later, the fighters were all dead.

In the 1990s, the U.S. military bet that by 2005 almost 1,000 new satellites would be available for weapons such as the Predator that rely on space-based communications. But the commercial-satellite industry, which the Pentagon was counting on to launch those satellites, fell on hard times. Of the 675 launches expected between 1998 and 2002, only 275 satellites reached space, according to Futron Corp., a Bethesda, Md., firm that tracks the industry.

**A Major Barrier**

Now, the scarcity of satellite links stands as a major barrier to President Bush’s vision of transforming the military into a light, lethal force capable of striking anywhere in a matter of days. "The challenge of the future isn’t building a great infantry carrier or artillery piece," says Lt. Gen. John Riggs, who is leading the Army’s modernization effort. "The challenge is building a system that ensures we get the right information to the right place at the right time on the battlefield."

Even in Afghanistan, a smaller operation than Kosovo or the Persian Gulf War, the military has felt the satellite squeeze. The Pentagon assigned six Predators and two larger Global Hawk unmanned planes to Afghanistan, but it has been able to keep only two Predators and one Global Hawk in the air simultaneously. To conserve satellite capacity, Global Hawk pilots have been forced to turn off some of the aircraft’s sensors and transmit fuzzier, lower-quality video, officials say.

The problem will probably hamper the military at least through the next

Please Turn to Page A6, Column 1
**Hanging by a Thread**

**In U.S., Cotton Farmers Thrive; In Africa, They Fight to Survive**

America’s Subsidies Depress World Prices, Undermining Its Foreign-Policy Goals

Sowing Seeds of Frustration

**By ROGER THIBOW**
**And SCOTT KILMAN**

KOROKORO, Mali—After the first good rains of the season visited this West African village earlier this month, Mody Sangare hitched his one-blade plow to two lanky oxen and began turning over the dirt of his fields. Walking barefoot behind the plow, the 22-year-old farmer would spend the next 14 days tilling and planting 15 acres of cotton.

And for what? wonders? The price being offered to Mali’s cotton farmers this year is 10% lower than last year’s—a pitiful sum itself, given that world cotton prices had fallen to the most unprofitable level in three decades. After the last harvest, once the farming costs were paid, the Sangare family was left with less than $2,000 for the year to support two dozen family members and relatives. Mr. Sangare worries that this year’s lower prices, along with higher fertilizer and pesticide costs, probably mean that the family will be unable to replenish their cattle stock. They may also have to stop supporting their youngest brother’s high-school education, which is a luxury here.

“We'll have to reduce what we can buy,” says Mr. Sangare, wearing a sweat-soaked brown shirt and tattered green pants. “These prices are really going to ruin us.”

On the same June day that the rain came to Korokoro, cotton seedlings had a world away in the U.S., pushed up through the thick black soil of Pergocha Farms, a 10,000-acre cotton plantation in the Mississippi Delta. Kenneth B. Hood, the eldest of four brothers who run the farm, climbed into the air-conditioned cab of a $125,000 Case tractor and prepared to give the seedlings a dosing of fertilizer.

The enormous tractor, one of 12 on the farm, is equipped with digital displays, four-wheel drive and an air-conditioned seat. The 61-year-old Mr. Hood, wearing a button-down Oxford shirt, fiddled with a global positioning satellite system that indicates how much fertilizer to squirt onto the plants.

There’s no obvious sign here in Gunnison, Miss., that world cotton prices are up. Mr. Hood and his family are continuing to buy parcels of land. The next day, in New Orleans, he went to the Ritz-Carlton hotel, meeting with other directors of the National Cotton Council. “There are lots of reasons to be optimistic,” says Mr. Hood, who this year is chairman of the powerful industry trade group.

The biggest reason for Mr. Hood’s upbeat outlook is also the biggest reason for Mr. Sangare’s despair: subsidies. American farmers get them in abundance. Malian tillers don’t.

In a past years, farm subsidies have been criticized for widening the gap he

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**WorldCom Admits $3.8 Billion Error In Its Accounting**

Firm Ousts Financial Chief And Struggles for Survival; SEC Probe Likely to Widen

**By JARED SANDBERG**
**REBECCA BLUMENSTEIN**
**AND SHAWN YOUNG**

NEW YORK—WorldCom Inc.’s audit committee uncovered what could be one of the largest accounting frauds in history, with the discovery of $3.8 billion in expenses improperly booked as capital expenditures, a gimmick that boosted cash flow and profit over the past five quarters.

Without the transfers, WorldCom, one of the biggest stock market stars of the past decade, said it would have reported a net loss for 2001, as well as the first quarter of 2002. WorldCom reported a profit of $1.4 billion for 2001 and $120 million for the first quarter of 2002.

In turn, WorldCom yesterday fired its longtime chief financial officer, Scott Sullivan, and accepted the resignation of

**Taking a Hard Line**

Federal regulators are looking hard at how Qwest Communications accounted for up to $1.4 billion in sales of fiber-optic capacity.

David Myers, its senior vice president and controller. Neither Mr. Sullivan nor Mr. Myers could be reached to comment.

Clearly, WorldCom’s survival is in question. WorldCom said it intends to restate its financial statements for the five quarters in what could be among largest restatements in corporate history. The telecommunications firm already has been hobbled by an industrywide meltdown, a Securities and Exchange Commission probe and $30 billion in debt.

WorldCom is one of the world’s largest telecom companies, with 20 million consumer customers, thousands of corporate clients and 80,000 employees.

The company said an irregularity was initially picked up during a routine internal audit conducted soon after the ouster of WorldCom’s chief executive, Bernard J. Ebbers, in April. WorldCom officials said they then turned the matter over to the company’s audit committee and its

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**In Strictest Security, Scientists Are Giving Smallpox to Monkeys**

**Fear of Bioterror Spurs Tests With Eradicated Disease; Opponents: Pandora’s Box**

**By MARILYN CHASE**

ATLANTA—In an experiment unfolding under tight security, six rust and silver monkeys this past week grew listless, refused to eat, and broke out in blisters.

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Colorado’s techs, telecoms still reeling

Values down $307 billion, or 87.5 percent, since 2000

By Aldo Svaldi
Denver Post Business Writer

The stock markets continue to show down Colorado’s shrinking herd of New Economy companies.

The state’s largest technology and telecom stocks have shed nearly $307 billion of the $350 billion in market value they once boasted during the market peak, according to a Denver Post survey.

In percentage terms, Colorado’s techs and telecoms are down 87.5 percent from the peak values reached during the market bubble in 2000.

Through July, the technology-heavy Nasdaq composite index as a whole had fallen 73.7 percent from its peak on March 10, 2000.

To put the decline in perspective, the Dow Jones industrial average shed 89 percent of its value in the bear market of 1929 to 1932 that preceded the Great Depression.

The Denver Post examined Colorado-based technology and telecom stocks worth $150 million or more in market capitalization in 2000 and tracked their performance from their peak values through last month. Companies acquired during that period were valued at their buyout price.

Economists considered technology companies to be a major engine in Colorado’s boom during the late 1990s.

But the state’s unemployment rate shot up from 2.7 percent in 2000 to above 5 percent this year, in part because of heavy layoffs in the tech sector.

And even last year, the state continued to rank No. 1 in per-capita employment of advanced-technology workers, according to the American Electronics Association.

The tech meltdown, which initially consumed small dot-coms and other speculative start-ups in 2000, has moved up the food chain to decimate big telecommunications players and media giants.

A third of the total loss for Colorado techs is concentrated in Qwest Communications International, which has moved from the state’s largest company to fifth largest. Liberty Media and Level 3...
From bubble to pudding

The meltdowns in market values of Colorado's tech and telecom companies are approaching 90 percent. Colorado's leading-edge companies have shed $300 billion in value in the past two years.

<table>
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<tr>
<th>Company</th>
<th>Market cap at peak (in billions)</th>
<th>Market cap 7/31/02 (in billions)</th>
<th>Lost value (in billions)</th>
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*Company acquired, Buy-out price included

Source: Bloomberg LLP, Yahoo Finance

Techs, telecoms took a nosedive

VALUES from Page 1C

Communications contributed another third of the total loss.
What $300 billion in losses would buy:
- Enough grain and rice to feed the entire world for a year, according to Green Party estimates.
- All the costs for nearly four Persian Gulf War-size conflicts in inflation-adjusted dollars.
- The face value of every coupon issued in the U.S. last year.

Bruce Allen, an adviser with Cascade Investment Group in Denver, said Colorado's downtrodden tech sector received a boost when billionaire value investor Warren Buffett invested in Level 3. He is also reportedly buying Quest bonds.

That means Buffett likely expects the two companies to survive, but bondholders, not stock investors, will reap the greatest reward.

"That is not a ringing endorsement on whether the stocks are going to survive," Allen said.
And the worst is not necessarily over for the tech sector.

Paul Dickey, a financial consultant with A.G. Edwards in Denver, said technology companies are at risk from a push on Wall Street to expense stock options.

Tech companies, which have relied heavily on stock options to reward their employees, face the choice of expensing them and hurting profits or resisting the trend and being further discredited in the eyes of investors.

Broadband leads beyond surfing

Report: High-speed users create content

By Mike Snyder
USA Today

Internet surfers with high-speed "broadband" connections do more than just point, click and consume Information.

Fast times on the Web

About 24 million homes connect to the Internet via high-speed broadband (cable modem, digital subscriber lines and satellite).

What broadband users do on an average day:

- E-mail 67%
- Surf the Web 34%
- News 33%
- Surf the Web 25%
- Surf the Web 23%
- News 19%
- Other 17%

Number of Americans with broadband at home (in millions)

- 18
- 24

Source: The Denver Post
Tech Sector Is Growing
At a Much Slower Pace,
And That's Good News

A TERRIBLE PARADOX is finally catching up with Silicon Valley. It's the reason for all the anemic stock prices, the dire-like quarterly conference calls and the general funk that has descended on what used to be the great star of the U.S. economy.

People far away tend to associate Silicon Valley's current troubles with the dot-com crash of 2000. But the real reason for the malaise, the thing that has high-tech executives boiling awake in the middle of the night, is that big companies just aren't buying technology like they used to. (And big companies have always accounted for 90% of Silicon Valley's sales.)

During the 1990s, selling used to be so easy. A soaring stock price was the best brochure a company could have. It projected acceptance, inevitability.

Imagine working in sales at GizmoTech Inc., and walking in on a prospect the day your Nasdaq-listed stock had just split for the fourth time in three years. What purchasing manager could resist the collected wisdom of the stock market of the next generation?

And those Silicon Valley executives: They were rich, so they must be smart, too. Andy Grove and Jeff Bezos were men of the year. John Chambers was quoted as a deep thinker on globalization. The Lear jets did shuttle service between Sun Jose and Davos. Synonyms for "technology" included progress, productivity, the future.

THEN CAME THE Nasdaq crash. And now, without those stock prices blinding everyone, you can see more clearly the products themselves. The not-so-well-kept dirty little secret of Silicon Valley has always been that a lot of its wares don't work—at least not to the extent the GizmoTech sales guy said they did.

And so a lot of customers have woken up to realize that they have spent millions, billions, on stuff that never seemed to do what it was supposed to... but that is nonetheless in perpetual need of upgrading, refining, consulting.

The new synonyms for technology: boondoggle, rat hole, con. No wonder companies aren't writing so many purchase orders.

But even if none of that had happened, Silicon Valley was still due for a slowdown, just on account of the law of large numbers. You can't keep growing forever at 40% a year, as much of the tech world did in the late 1990s. You run out of places to sell.

So now, a lot of companies are growing 5% and 10% a year. In most places, that's life for a mature industry. But while Silicon Valley always talked like a grown up, it never really wanted to become one. Most of the pillars of Silicon Valley life—VC firms, mutual funds, M.B.A. programs, business plans, stock options—are predicated on some form of hypergrowth. No one gets rich quick at 5% per annum.

But that is the growth rate that much of Silicon Valley is in for, even after the much-delayed "tech recovery" begins. Go from 40% to 5%, and Silicon Valley suddenly becomes a lot less like the Silicon Valley of the past 10 years, and a lot more like the stodgy industries tech people used to be grateful they weren't part of. Banks. Car companies. Utilities.

BY ANY MEASURE, this should be Silicon Valley's proudest moment. It is a permanent, respected part of the economy. But that means it has to live by the rules of other permanent, respected parts of the economy.

What a terrible paradox.

Of course, things could change at any minute. And Silicon Valley has been here before. A decade ago, the landscape was so bright that the biggest startup around was something called Joint Venture: Silicon Valley. It's goal was to get things moving again—largely, it seemed, through the power of positive thinking.

Then came the Internet. With technology, something big may be lurking just around the corner.

Or maybe not.

Now that Silicon Valley—indeed, the whole technology world—is in its post-boom phase, is it less interesting than it was before, or more? Who makes for a better drama: the reigning champ or the Comeback Kid? A beauty queen or Blanche Dubois?

Don't worry, there are still plenty of tales to tell. Technology remains the biggest part of the economy—big enough to attract plenty of dreamers and schemers, prophets and poseurs, geniuses and con men, and lots of normal people just trying to get by.

The problem is telling them apart, which is what this column will attempt to do.

Boon Town moves permanently to this

May 20, 2002
Wall Street Journal
Qwest CEO Gets $1.5 Million Bonus

Compensation for Nacchio Draws Scrutiny as Company Faces Probe, Slashes Jobs

By Deborah Solomon

NEW YORK—Qwest Communications International Inc.’s Chief Executive Joseph P. Nacchio, whose company is the subject of a formal Securities and Exchange Commission probe, got a $1.5 million bonus last year and a $24 million cash payout, according to filings made Tuesday.

Mr. Nacchio also received $1.2 million in salary in 2001 and 7.25 million stock options, which could be worth $194.2 million if Qwest’s stock price increases 10% during the next 10 years.

The compensation comes at a time when the company is struggling to pay down debt, cutting jobs and slashing costs in a bid to save money. Qwest, the Denver-based long distance and Internet company that offers local phone service in 14 Western states, has seen its stock fall more than 77% during the past year.

The SEC is investigating whether the company inflated revenues for 2000 and 2001 through capacity swaps and equipment sales.

According to yesterday’s filing with the SEC, Qwest’s board increased Mr. Nacchio’s salary to $1.5 million for 2002 and raised his target bonus for the year to $3.75 million from $2.4 million.

Mr. Nacchio also cashed out $74 million by exercising stock options in 2001, bringing the total proceeds he has received from stock sales to more than $300 million since taking the helm of Qwest in 1997. Mr. Nacchio’s compensation also included $156,745 “attributable to his personal use of corporate aircraft.”

Mr. Nacchio’s compensation package drew scrutiny from analysts and corporate-governance experts, who said rewarding Mr. Nacchio for a tough year sends the wrong message to investors and employees.

“The whole theory about stock options and incentive compensation is that when the company is doing well, thanks to you, you’re supposed to get the upside,” said Henry Hu, a law professor and corporate governance expert at the University of Texas. “But as CEO, you’re supposed to share in the downside. If you don’t, then all this stuff about performance-based compensation and giving large stock options is just an excuse.”

Qwest’s board of directors said in the filing that it awarded Mr. Nacchio additional stock options after considering what was “necessary to align Mr. Nacchio’s economic interests with the interests of our shareholders” and provide him with “appropriate long-term incentive to maximize shareholder value.”

Company officials have maintained they have confidence in Mr. Nacchio’s leadership. In October, Mr. Nacchio’s employment contract was extended through 2005.

Tyler Gronbach, a Qwest spokesman, said while there was “turnover” in 2001, “there was still a lot of value being created at the end of last year.” Mr. Nacchio’s compensation reflects the fact that Qwest outperformed all the major regional Bell companies last year, he said.

While Qwest executives were eligible for salary and target-bonus increases at the beginning of this year, the filing said Mr. Nacchio and others voluntarily delayed the effective date of the increases until April 1, 2002.

Still, analysts said Mr. Nacchio shouldn’t have gotten any increase in compensation at all.

“Qwest faces some serious issues in terms of the SEC investigation,” said Drake Johnstone, an analyst with Davenport & Co., a securities firm in Richmond, Va. “The fact that the board is basically rewarding Joe” isn’t in the best interest of investors, he said.

The board also granted Ashin Mohhebi, Qwest’s president and chief operating officer, a $4 million loan, a portion of which Mr. Mohhebi has agreed to use to pay the premium on a life insurance policy. Qwest also forgave $216,667 of a $600,000 loan previously made to Mr. Mohhebi.

The loan agreement provides that the principal amount will be forgiven in

"CSC is pleased to deliver some of the world's largest implementations of PeopleSoft 8 CRM."

Rich Wunder
President, Consulting Group
Computer Sciences Corporation

PeopleSoft

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"CSC is pleased to deliver some of the world’s largest implementations of PeopleSoft 8 CRM."
BUSTED BY BROADBAND

By JOHN GREENWALD

TUCKED INTO A CORNER OF Lucent Technologies' Bell Labs in Murray Hill, N.J., stands a small box that houses what could be the future of the telecommunications industry. Called a LambdaRouter, the device contains 512 microscopic mirrors, each of which can switch light waves packed with more than 10 billion bits of information—roughly the contents of 10,000 novels—from one hair-thin strand of optical fiber to another.

You could conceivably jam thousands of these micromirrors into a soccer ball and have enough capacity to connect everyone on the planet simultaneously to everyone else without the time and expense of converting the light to electronic impulses and back again—as today's networks require. Kick that around. Declares Bell Labs scientist David Bishop, who led the development team: "You will either have a technology that does this, or you will have a going-out-of-business sale."

Nobody knows the vicissitudes of technology better than Lucent, which had to negotiate a $6.5 billion loan package last month to avoid a cash crunch. Lucent was first a beneficiary and then a victim of the race to wire the U.S. with the speed-of-light data pipes known as broadband. And now it has company in its misery, as broadband carnage has spread from phone companies like AT&T and WorldCom to fiber makers like Corning to optical-systems builders like Nortel Networks to components makers like JDS Uniphase and networking companies like Cisco Systems.

Broadband growth figured to be limitless. Given that every business and every household is moving online, data transmission has been expanding at phenomenal rates. But as phone companies and Internet service providers sprang up everywhere, capacity raced light-years ahead of demand. So the price for using the pipes tumbled, hobbling the telcos' ability to expand and to buy more gear. "Never in the history of industry has the sheer number of competitors been so underestimated and misunderstood," says former AT&T Broadband president Leo Hindery. "And never have the implications of technology advancement been so misunderstood as well."

The results have been plunging profits, mass layoffs and implooding stock values for companies that had been NASDAQ super-

FIBER FRAMEWORK

Technicians monitor AT&T's global-communications network; 98% of U.S. domestic traffic uses fiber cable
novas and among the chief reasons for the stock market's rise. At BlueStone Capital Securities, an index of 13 fiber-optic heavyweights that includes Lucent, Cisco, Nortel and JDS Uniphase has fallen 78% since last July, a plunge that has cost investors more than $1.1 trillion in market value. The percentage decline exceeds the drop for NASDAQ as a whole, which fell 51% over the same stretch.

Investors who see those falling stock prices and think "bargain" should think again. Few industry leaders expect business conditions to improve much this year. Phone companies "are really conserving their capital because of the severe downturn in the economy," says Clarence Chandran, Nortel's chief operating officer. Nortel is a one-company bear market. The world's No. 1 producer of fiber-optic systems, Nortel accelerated the industry's slide and NASDAQ's sell-off last month by abruptly slashing its 2001 forecasts and declaring that it would idle 10,000 employees, or nearly 10% of its work force.

You would think we had all stopped calling home or logging on. Not at all. Internet traffic continues to grow at the astonishing rate of 200% annually. Every 45 minutes, AT&T transmits a quantity of data—meaning everything from e-mail to streaming video—equal to 34 times the contents of the Library of Congress. But the broadband buildout has been so furious that it could take three years for the traffic to catch up.

Behind this overbuilding is the telecommunications deregulation act of 1996, which brought a flood of new local and long-distance broadband carriers—including satellite and wireless systems operators—into the telecom market. Their very presence forced incumbents like AT&T to upgrade their systems to keep up. And since deregulation coincided with the Internet bubble, Wall Street was happy to...
throw money at the telecom upstarts, many of which now resemble dotcoms.

The broadband revolution promised to bring every household fast Internet access along with video-on-demand, interactive TV and the ability to flash Libraries of Congress around the world at whim. Amazingly, the sellers of this dream overlooked the fact that many homes and offices connect to the 21st century fiber network with twisted-pair copper wires—late 19th century tech. These could hardly keep up with the bandwidth demands of the Napster age.

So, for example, a dial-up modem that connects to the Net over copper has a typical download speed of 56 kilobits—or 56,000 bits—per second, at which rate it would take nearly 10 minutes to download a three-minute song. By contrast, a modem connected to a TV cable that feeds into a fiber-optic loop could claim that tune in under a minute. Yet even today only about 6% of U.S. households have cable modems or digital subscriber lines, which carry compressed data over copper wires at broadband speed. But that hasn’t stopped carriers from blanketing the country with high-bandwidth networks.

The advent of the Internet also transformed how phone companies move messages in a way that made Cisco the networking king. Traditional voice phone systems are circuit switched, meaning that a call opens a dedicated line between the parties that outsiders can’t share. But data traffic is packet switched: messages are broken into discrete units, or packets, that share their lines with the packets of other users, greatly increasing the speed and volume of the data sent. It’s mass transit for data. Moreover, packets can take different paths to their destinations, which is where Cisco’s routers come in. They read the address on each packet and speed it along the most efficient route.

As the buildout accelerated, phone companies were creating a painful paradox in which their new technology generated a lower return on investment. The payoff for Internet traffic was particularly dismal, since data can travel across the street or around the world for the same basic charge. And this forced equipment suppliers to slash their prices, putting a further squeeze on their profits. “For the first time in history,” says Tracey Vanik, a technical director of the RHK consulting firm, “there’s no penalty for distance”—compliments of the Internet.

These same suppliers are now racing to deliver the Next Big Thing when the market turns up. You don’t want to be late in an industry where missing a beat can put a big hole in your order book for years. That fate befell Lucent in the late 1990s when archival NorTel rolled out the first 10-gigabit laser system, which flashes the 0s and 1s of computer binary code at the rate of 10 billion times a second through fiber.

Lucent’s share of the market for optical transport gear dropped from 28% at the start of 1999 to 14% at the end of 2000, according to the Dell’Oro Group consulting firm. Meanwhile, NorTel’s share of the $22 billion market rose from 28% to 43%.

Today both companies are preparing to launch 40-gb/s systems. And by using lasers of different colors, engineers can pack 160 gb/s into a single strand of fiber—enough to transmit the text of 4,800 encyclopaedia volumes.

At NorTel’s optoelectric labs in suburban Ottawa, Canada, researchers in baby blue antistatic “bunny suits” work around the clock to put as many as 160 wavelengths on a fiber. “It’s speed and the number of channels that make the difference,” says Carla Miner, a senior lab manager. As recently as 1996, she says, “What we’re doing now we thought was impossible.”

In Silicon Valley, Cisco—which two weeks ago announced layoffs of up to 5,000 full-time employees, or 11% of its work force—is aiming at the largely untapped big-city market. Even though crews are digging up streets everywhere, only 7% of U.S. office buildings have fiber-optic lines running into their basements. “It’s as if you’re building a big interstate highway system without any feeder roads,” says Carl Russo, Cisco’s vice president for optical networking, “and you’re wondering where all the traffic is.” NorTel’s Chandran has noticed that too. He vows to battle from “city to city and building to building” to unplug the metro.

In fact, the fiber giants have little choice but to focus on the long-neglected “last mile,” since that’s where the people are. There are signs that broadband could soon reach far more consumers than the relative handful who get it now. According to the Gartner consulting firm, nearly 30% of U.S. households will have high-speed access to the Internet in 2004.

By then, the overbuilt long-haul networks could also be filling up. “They will stimulate commerce that otherwise would not happen,” says Susan Kalla, an Internet and telecommunications analyst for BlueStone Capital. And by then the endlessly hyped convergence of computers, phones and televisions may start to take shape, bringing interactive high-definition TV and Internet phone calling—remember, there’s no long-distance charge—within affordable reach. “The ultimate endgame is fiber everywhere,” says John Coons, who tracks e-business for Gartner. “Everything will be digitized and sent over one infrastructure.” But the beleaguered companies that have developed some of the most dazzling products on the planet will have to get there first. —With reporting by Steven Frank/Ottawa and Chris Taylor/San Francisco
TELECOMMUNICATIONS

LUCENT: ONE STEP FORWARD, TWO STEPS BACK

As sales slip, the prospect of profitability recedes further. And more investors are bailing out

The year began on a strong note for Lucent Technologies Inc. On Jan. 22, the telecom-equipment maker reported $3.5 billion in revenue for its first fiscal quarter, ended in December. It exceeded Wall Street estimates for the first time in two years, after missing analysts' estimates at least three times during that period. Chief Financial Officer Frank A. D'Amelio predicted revenue for the second fiscal quarter would rise as much as 15%, to about $4 billion, over the previous quarter. The forecast was narrowed by Chief Executive Patricia F. Russo on Feb. 20, and by Chairman Henry B. Schacht on Feb. 26.

Then the Lucent cycle of disappointment began anew. On Mar. 12, Lucent said phone companies had suddenly cut back on orders earlier in the month. It warned that revenues for the second fiscal quarter, ending in March, would rise only 5% to 10%. D'Amelio said the company's return to profitability, which was supposed to take place in fiscal 2002, would "slip" into fiscal 2003. Its shares slid 8%, to an all-time low of $4.30 by Mar. 19, compared with a high of $70 in December, 1999.

Lucent insists it will deliver on its latest promise. Russo vows the company will report a profit in at least one quarter during the company's fiscal 2003, which ends on Sept. 30 of next year. Analyst Paul Sagawa of Sanford C. Bernstein & Co. says Lucent "absolutely" will meet its goal. But others on Wall Street are worried Lucent will come up short again—a development that could hurt its credit rating, raise borrowing costs, and leave the once-proud company vulnerable to a takeover. "We do not believe that gross margins or operating expense cuts will be nearly sufficient to drive this company to profitability in 2002 or 2003," says analyst Ken Leon of ABN Amro Inc.

Despite Lucent's considerable progress in the past 15 months, there's reason to be concerned about its ability to reach profitability in fiscal 2003. Lucent's major customers—the giant phone companies—have cut way back on purchases because they're laden with debt and excess network capacity. Merrill Lynch & Co. expects capital spending on telecom equipment will fall 11% in calendar 2002 and 3% in calendar 2003. That's expected to push down Lucent's revenues some 30% this fiscal year, to $14.8 billion. At the same time, prices on telecom gear have fallen 30% a year in recent times. That's weighing heavily on Lucent's gross margins, which are about 21%—better than the nadir of 11.5% reached in the fourth quarter of last year, but far below the 30% level necessary to put the company into the black.

Not becoming profitable on its 2003 timetable could have serious implications for Lucent. For starters, a poor second quarter means Lucent won't be allowed to spin off its remaining 53% stake in Agere Systems Inc., which makes computer chips and other parts for optical communications systems. Bank covenants require Lucent to post an operating profit before it can distribute stock in Agere to its shareholders. Although that doesn't affect Lucent's cash position, since it doesn't stand to reap anything from the distribution, it would arouse the ire of long-suffering shareholders.

Worse, it could prompt credit-rating agencies to downgrade Lucent. Already, the company's credit rating is in the middle of the junk tier—BB- at Fitch Inc., for example. Delaying the Agere spin-off past June, coupled with the ongoing losses, would push the company's credit rating to the low end of the junk tier. "If Lucent's operating targets are not achieved in the near term, further negative rating actions are likely," Fitch said in a report on Mar. 12. Although the company's liquidity is not a concern, since it doesn't have to repay any substantial long-term debt until 2006, a credit-rating downgrade would raise Lucent's borrowing costs yet again.

That sort of downward spiral could turn Lucent into a takeover bait. Last year, the company held merger talks with France's Alcatel, before the deal collapsed at the last moment. Now Lucent's market cap is $15 billion, less than what it was throughout 2001.

Russo is pushing hard to get Lucent back on track. The 49-year-old Trenton (N.J.) native has deep roots at the company, having spent 19 years at AT&T and then Lucent when it became an independent company in 1996. She returned as CEO in November after an eight-month stint as chief operating officer at Eastman Kodak Co. And she has turnaround experience: Before taking her current post, Russo was best known at Lucent for improving the fortunes at the unit that sold communications gear to corporations, now an independent company known as Avaya Inc. "As someone who was with the company and left and came back, I can tell you this is a very different place. Terrific progress has been made," she says.

STATIC FOR LUCENT

The telecomp-gear maker has lost $3.5 billion since the start of fiscal 2001. It insists it will return to profitability by 2003, but analysts see losses of $2 billion in 2002 and $750 million in 2003. Here's why:

CAPITAL SPENDING DECLINES

The telephone companies that purchase Lucent gear have too much debt and too much network capacity, so they are slashing costs. Industry spending on equipment, which is key to profitability, is expected to drop 11% in 2002, and 3% in 2003.

PRICES ARE FALLING

The price of telecom equipment is dropping by 30% a year. That's one major reason why Lucent's revenue is expected to plummet 30% in 2002, to $14.8 billion. And gross margins, which peaked at 40% in 2000, fell to 13% last year.
There's no debate there. Staff cuts under former CEO Henry Schacht have eliminated $2 billion in operating expenses. Capital expenses have been slashed from $1.9 billion in fiscal 2000 to $1.4 billion in 2001, and are expected to hit a maximum of $750 million in 2002.

COST-CUTTING EASES OFF
Lucent has slashed its workforce to 62,000 employees, down from a previous 106,000. Furthermore, it cut capital outlays from $1.4 billion in 2001 to $750 million in 2002. Additional cost cuts will be tough without losing key talent.

Continuing even if the markets for telecom equipment don’t rebound much. “There's a lot more we can do that will have huge leverage on the bottom line,” she says. Russo, D’Amelio, and Robert C. Holder, executive vice-president for product organizations, are meeting with Lucent's other managers to size up prospects for the business through 2003. Based on that review, scheduled to conclude within weeks, they are expected to cut up to 5,000 more jobs, lower capital spending and operating expenses, and possibly sell more assets. They believe those steps will boost margins to about 35%. Execs decline to specify exactly how they will reach that target.

Can they find enough cost cuts to restore the company's profitability during a market downturn? It's doubtful. Leon of ABN Amro thinks Lucent can raise margins to 24% by year-end, based on current market conditions. But to get margins back to the 30s, which is necessary for it to be profitable, Lucent needs an influx of orders from its customers. And a market rebound is nowhere in sight.

Lucent is making progress with some of its new products. The company boosted its share of the optical-equipment market to 18% last year, from 14% in 2000. But the overall optical market shrank 32% last year, to $15.6 billion, and is expected to drop an additional 20%, according to market researcher Del' Oro Group. In optical switching, one of the only growth segments of that market, Lucent's share is a mere 3%.

Even Lucent's wireless business, the strongest part of the company in recent quarters, is showing signs of weakness. The company is the leading supplier of wireless network gear in North America. But it is No. 4 globally because it lags in Global System for Mobile Communications (GSM) technology, which is the standard in Europe and accounts for 60% of the world's wireless networks, according to Deutsche Bank. More worrisome, U.S. giants AT&T Wireless and Cingular Wireless are switching to GSM gear because it's cheaper. “We are enjoying all the cost savings of having moved into the technological mainstream,” says AT&T Wireless CEO John Zeglis.

Lucent's recovery is still some time away. “Right now, this industry is like an endurance race. We are in this for the long run,” Russo says. Still, Lucent's inability to return to profitability this year is a serious setback. And if the company can't reach its profit target in 2003, Lucent faces an even more difficult road ahead.

By Steve Rosenbush in New York, with Roger O. Crockett in Chicago
The ever-raging debate over whether technology actually increases productivity seemed to have finally been settled during the height of the New Economy, when the U.S. Department of Labor reported that productivity had reached an all-time high.

Then the market crashed, productivity hit the brakes, and the Labor Department admitted in July that due to a computer glitch, it had overreported productivity statistics for the years 1997 to 2000 by 23%.

Whoops.

It's a vicious cycle. Lower productivity translates into lower profits, which means IT budgets and head counts could be on the chopping block. Those productivity, profit and budget figures are used by the Federal Reserve Board and its chairman, Alan Greenspan, to help formulate economic policy, which in turn affects companies' revenue plans and productivity levels.

That leaves corporate managers with two burning questions: What can they do to regain their lost productivity, and how can IT help?

Productivity measurements are based on the amount of output a worker produces in an hour. As such, "only if output is greater than input can you have creation of wealth and economic..."
growth," says Paul A. Strassmann, president of the Information Economics Press in New Canaan, Conn., and a Computerworld columnist. Productivity produces stronger profits, which enables higher wages without inflation, he explains. That leads to an increase in the standard of living.

But it's a balancing act, Strassmann warns. If productivity falls, companies could raise the price of goods to maintain revenues, triggering inflation and eating up any wage gains.

The Tech Debate

Lately, many economists, including Greenspan, have been lauding capital investments in IT for helping to drive the productivity gains achieved during the past few years. In his July 18 report to Congress, Greenspan said that "the outlook for productivity growth over the longer run remains favorable" and that capital IT investments would continue, thanks to new, efficiency-enhancing technology innovations.

A forthcoming report from The Brookings Institution, a Washington-based think tank, offers specifics. It forecasts that within the next five years, the Internet will further improve U.S. productivity by $200 billion annually by making supply chains more efficient and improving customer/supplier communication.

But the Labor Department's recent revision of productivity statistics casts a pall on such optimistic predictions. Northwestern University economist and New Economy skeptic Robert Gordon has written that while the economy and IT investments have driven up productivity and improved living conditions in the U.S. since 1995, 88% of the economy outside of durable goods manufacturing has been on a steady decline. Meanwhile, increased investment in technology hasn't produced commensurate revenue returns for companies, Gordon contends.

That's why Strassmann and other experts suggest that companies should focus on improving existing business processes rather than hope for a silver-bullet, next-generation technologies to turbocharge worker output.

In the short term, companies can cut costs by getting customers to do more of the work, in part through the use of automated self-service systems.

"The next big productivity improver? Customers self-managing their privacy rights and permissions," says Thornton May, corporate futurist and chief awareness officer at Guardent Inc. in Waltham, Mass. "It is going to be huge and will make [enterprise resource planning] look tiny in comparison. Very high payback, too."

Companies need to pay a lot less attention to U.S. productivity statistics and a lot more attention to their individual productivity rates, says May, who is a Computerworld columnist.

"Aggregate data doesn't matter anymore, because in aggregate data, we're all above average -- that's Garrison Keillor," he says.

Instead, says May, companies should measure their own productivity — input vs. output — in terms that make sense for their business, on a microproductivity level. For instance, companies should measure their productivity in terms of how much it costs them to get accurate customer records.

Where to Start

Getting accurate workflow statistics is the first step toward improving productivity, says Chris Evans, a consultant and the former managing director of Abbey Life, an insurance firm based in Bournemouth, England.

After experiencing 18 months of declining productivity in the early 1990s, Abbey Life got back on track by creating better businesses processes. "We paid greater attention to process design and less to systems," says Evans. "Our goal was to make a 3% savings on unit cost per annum."

Abbey Life tracked the productivity of both individuals and teams. When there was a productivity problem, "we used to use a very crude device," says Evans. "If we felt a team wasn't working as hard as it could, we'd simply not recruit someone new to the team when someone left," he says.

That helped drive up transaction volumes by 40% through the 1990s while the company reduced its staff by 15%, he says. Overall, "we probably achieved a 35% productivity improvement," says Evans.

Strassmann offers a more radical approach to boosting productivity: cutting workers.

"The U.S. has, over the last 10 years, accumulated an enormous overhead," he argues. "In other words, our ratio of administrative cost to cost of goods has increased."

Meanwhile, the cost of making goods has been declining as raw material costs have plummeted — resources such as steel and copper are cheaper than ever, Strassmann points out. The cost of labor for many companies, especially manufacturers, is also down, since much of the work is being outsourced overseas to places where wages are lower, he says.

Companies should start by cutting at the top, says Strassmann. Despite decreases in the cost of doing business, in general, "we have increased our headquarters staff, so now we have more and more headquarters people supervising less, and we cannot sustain that," says Strassmann. "There has to be slimming down."

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Productivity in Europe and America

Statistical illusions

Europe's productivity growth has been almost as rapid as America's.

IMMEDIATELY after September 11th the dollar weakened against the euro, and economists predicted that this would mark the end of investors' love affair with the greenback. Yet, despite a small drop this week after the Federal Reserve cut interest rates by half a point on November 6th (a move followed by the ECB's own half-point cut on November 8th), the dollar has returned close to its level before the attacks—so the euro is still 25% below its value at birth in January 1999. Why is the dollar so strong against the euro, despite the evidence that America is in recession?

A popular argument is that productivity growth is faster in America than in the euro area. America's productivity growth has dipped in the downturn, but it is argued that it will bounce back and even outpace growth in Europe for years to come. Figures this week showed that America's productivity growth has held up surprisingly well, rising by 1.6% in the year to the third quarter. America, so it is said, will remain the best place in which to invest—so the dollar will stay strong.

Yet in recent years productivity growth in America, if measured correctly, has not been much faster than in Europe. International comparisons are tricky because there are so many ways to measure productivity (see chart). The simplest is GDP per worker. In the five years to 2000, this rose by an annual average of 2.5% in America, and just 1.2% in the euro area. But this is misleading, because a big increase in part-time working in Europe has depressed productivity growth. Better is GDP per hour worked: over the past five years this rose by 2.1% in America and by 1.6% in the euro area—a narrower gap.

To confuse matters more, the most popular productivity measure in America is output per hour in the non-farm business sector, which grew by an annual average of 2.5% over the past five years. Lazy economists compare this number with the 1.6% growth in total GDP per man-hour in Europe, exaggerating the productivity gap.

Another problem is that American statisticians count firms' spending on software as investment; in Europe it is treated as intermediate consumption. The surge in spending on software in recent years inflates American growth, but not Europe's.

One solution that partially gets around this problem is to use net domestic product (NDP) rather than the more common gross domestic product (GDP). NDP subtracts capital depreciation, and is considered a superior measure of economic progress.

Normally, the two measures grow at the same pace, but in recent years a gap has opened up. That is because the average rate of depreciation of the capital stock has risen as investment has shifted from traditional machinery to shorter-lived assets such as computers and software.

Julian Callow, at GSF, has calculated NDP per hour worked in America and the euro area. He finds that, over the past five years, America's productivity growth has only slightly outpaced that in the euro zone, at 1.8% and 1.5% respectively. However, over any period longer than five years of America's boom, the euro area's productivity growth pulls well ahead. In the seven years to 2000, NDP per hour rose by an average of 1.8% in the euro area, but by only 1.4% in America.

These calculations also ignore the fact that American number-crunchers have done more than their European counterparts to take into account improvements in the quality of goods and services. Europe's productivity growth is therefore probably understated relative to America's.

None of this is to deny that America's productivity growth has accelerated from its dismal rate in the two decades before 1995. But compared with Europe's productivity growth, it no longer looks so miraculous. Once investors wake up to this, their fondness for the dollar and disdain for the euro could quickly change.
**The Long Road Back**

Despite the popularity of radio, RCA languished for 10 years after the market bottomed in 1932. Even in the mid-1950s, the fallen leader still hadn’t reclaimed its peak price from the 1929 bubble.

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**Wait Can Be Decades**

**By Ken Hoover**

INVESTORS’ BUSINESS DAILY

You hear the question wherever people gather to talk about stocks: Is this the time to buy Cisco? Or Sun Microsystems? Or Oracle? Or Microsoft?

Many investors still fixate on the tech names that drove the market in the late 1990s. But if history is a guide, most of them will never come close to their old highs. For the few that do, the long crawl back might take decades.

Take the late 1920s and the bear market that followed. It was the century’s worst. The Dow industrials ran up 220% from 1925 to the peak in September 1929. They then dived 89% over the next 34 months, the 30 stocks decimated by the Great Depression.

Compare that with our own 28-month bear. The Nasdaq of the 1990s surged 580% from 1995 to its March 2000 peak. It falls short on the downside, off just 75%.

The Nasdaq today is like the Dow then. The Dow contained the new economy stocks of that era. They made autos or products needed to make autos, like steel and rubber. They made planes, movies and radios, or generated electricity.

The Dow companies of the 1920s permanently remade America. The companies stayed important for decades. But not their stocks. Many languished for years. Investors who bought during the 1920s rush would have had to wait decades to break even if they held on.

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**Radio, Radio**

Radio Corp. of America was the Internet stock of its day, with cutting-edge technology. The company had a monopoly on radio patents. By 1926, its NBC radio network was bringing in ad revenue. The first home entertainment centers — with radios and phonographs — sold well, says Alex Magoun, who runs the David Sarnoff Museum in Princeton, N.J.

The stock ran up more than tenfold from 1927 to its 1929 peak. It split 5-for-1 on March 1, 1929. Then, just as now, stocks tend to top on extreme splits.

RCA was also the NYSE’s most actively traded stock. Earnings rose from $2.9 million in 1925 to $19.8 million in 1929. Despite that, RCA didn’t pay a dividend in an age when dividends were more important than they are today.

The NYSE specialist in the stock, Mike Meehan, organized pools of investors to drive the stock up. That would be illegal today.

"Financial moderation was not a strong trait," wrote Barrie Wigmore in his 1985 book "The Crash and its Aftermath, a History of the Securities Markets in the United States, 1929-1933." RCA also was highly leveraged and grew rapidly through acquisitions. And it was highly self-promotional.

Sound familiar? A month after the October 1929 crash, RCA had lost two-thirds of its value. But the worst wasn’t over. Magoun says RCA overpaid for filmmaker Pathé, resulting in years of financial grief. Sarnoff was forced to lay off workers.

In 1930, the company was hit with a government antitrust suit. The stock hit a low of 3.625 on Feb. 8, 1932. On May 26, it was removed from the Dow. It was still trading below 10 in 1940.

The stock made another run as color TV caught on, Magoun said. Investors who bought in the 1920s rush would have broken even in 1963. Then the stock made another big advance, more than dou-

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Go to next page
Depression Era's Stars Took Decades To Recover

BEARING ITS 1929 HIGH.

Another high-flying Dow stock was movie maker Paramount Publix. Its stock rose above 140 in the 1920s, falling to 50 after the crash.

"Somehow a myth has developed that Depression crowds anxious for escape sustained the movie business," wrote Wigmore.

Movie companies were, in fact, hit hard. Paramount sank to nearly nothing when it filed for bankruptcy in 1932. It emerged three years later as Paramount Pictures.

It made good movies for decades. But that didn't help shareholders, who bought in the 1920s or those who thought they were getting a bargain in the years that followed.

Some stocks did recover with the economy in the mid-1930s. Auto stocks were hammered in the crash. When the economy began to recover in 1933, so did the car companies. Chrysler's 1933 sales were the same as 1929's. Chrysler was an exception. It came all the way back. That wasn't much reward for investors who bought close to the top, then held for a decade.

Ten of the Dow's 30 stocks in 1929 were removed in 1930, although two of those removed, Nash Motors and American Tobacco, were reinstated in 1932.

From its 1932 low, the Dow started a new bull market, rising to 195.58 on March 9, 1937. That's a 392% increase in less than five years and a return of nearly 39% during that time. Not a bad bull market.

But a new group of stocks led the way.

A New Sun To Rise

Stimulus: Today's front-page story on how some of the greatest stocks took years to come back once they topped has lessons for policy-makers and investors.

Investors still holding, or waiting to get back into, the Ciscos, Suns and other 1990s leaders should take note of the RCA's, Paramounts and other highflying equivalents of the 1920s.

Those roaring '20s stocks went up even more than the big winners of the last decade and came down just as fast. But the point is: Once they came down, they stayed down — in some cases, for decades.

The point for policy-makers? It may be a while before Cisco, Sun and other entrepreneurial engines that powered the economy over the last 15 years are running on all cylinders again.

For the time being, they're focused on how to slim down, not how to beef up. As a result, job growth, as seen in the latest Labor Department data, is puny. It won't take many more reports like that for the term "jobless recovery" to regain currency.

A jobless recovery is what the first President Bush was saddled with, and it proved to be his undoing. In hindsight, the economy in 1992 was coming back fast by the time George H.W. Bush stood for re-election in November.

But Democratic spinmeisters, aided by like-minded media, made sure the public wasn't able to see the "robin on the lawn" that Bush's advisers saw, and which were made there.

Democrats seem to be up to their old tricks now. Strategist Robert Shrum asserted Sunday on NBC's "Meet the Press" that "not one new net job has been created in the private sector" under the two Bush administrations. "Meet the Press" host Tim Russert let that "extraordinary fact" — as Shrum called it — go right by.

But for the record, the economy added 1.15 million private-sector jobs under Bush 1 — underwhelming, to be sure, but on top of 18 million total created under President Reagan. It is true that since Bush II took office, the economy has lost 2.15 million jobs. Nearly 2 million, however, were lost last year, when the economy that Bush inherited from Bill Clinton was already in a full-blown recession.

But you can see how the game is played. And Bush's team would be well-advised to get some points on the board before too long.

Which brings us back to our first point. Instead of waiting for yesterday's leaders to start adding jobs again, the administration should be doing all it can to nurture leaders of the future.

To us, this means pursuing the same fiscal policies — such as cuts in the capital gains tax — that have jump-started job growth before. That's how we got the Ciscos of the past, and it's how we'll get the Ciscos of the future.