

Telecom Knockout

Scott Woolley 10.13.08, 12:00 AM ET



Dave Schaeffer is one of the most hated men in telecom. His Cogent Communications rose up from the telecom wreckage to carry as many bits as the giants, and he undercuts their price by 90%. But he could save us all \$300 billion a year.

David Schaeffer gets into a lot of fights. The chief executive of Cogent Communications can tick off five showdowns that his company has had with other telecommunications firms, including a particularly ugly brawl that crippled the Internet in northern Europe for two weeks this past spring. Of the exact number of smaller skirmishes, Schaeffer has lost count. "There's a pretty visceral dislike of Cogent out there," he says with a shrug.

The antipathy stems from Schaeffer's embrace of a simple, and wildly heretical, idea. He believes that the world's telecom networks should stop billing their customers for communicating in discrete ways: making phone calls, watching TV, accessing the Internet. Instead they should sell customers a single, cheap, all-purpose digital connection. How cheap? Schaeffer knocks anywhere from 50% to 98% off of the price of data-transport services offered by the likes of AT&T, Verizon and Deutsche Telecom. Schaeffer says the trend he is leading will shrink annual telecom costs worldwide by at least \$300 billion five years from now. That's a bracing jolt of productivity for a tottering global economy.

To giants such as AT&T, Verizon and Comcast, that is apostasy of the most dangerous kind. Global telecommunications is still a \$1.8 trillion industry, and almost all of it comes from discerning how people communicate and charging them appropriately. Schaeffer, 52, sees that as both obsolete and silly, like an electric company trying to bill its customers more for kilowatts

used gets broken down into ones and zeros, all networks serve only one purpose: moving those bits from one place to another.

"The Internet is going to cannibalize all other forms of networks," Schaeffer says. "Unlike our competitors, we are willing and anxious to use pricing to accelerate the cannibalization."

When Cogent got into the business in 2001, the going rate for high-capacity data transport was \$300 per megabit per second. Cogent started charging \$10. (Cogent sells to businesses only, not to consumers.) Prices have since fallen to an average of \$20 per megabit. Cogent keeps on cutting, now advertising itself as the "home of the \$4 megabit."

Cogent now carries 17% of all Internet traffic, putting it in league with AT&T, Verizon and Level 3 Communications. Its 41,000-mile fiber-optic network carries 12 billion megabytes per day among 110 cities in Europe and North America. NBC, YouTube and scores of Internet service providers now use Cogent's pipes. If you account for distance, as Schaeffer likes to, Cogent is more dominant. In bit-miles, which are calculated the way Burlington Northern would calculate ton-miles, Cogent is moving information at the rate of 71 sextillion bit-miles a year. That's more than its better-known peers.

Yet--and this is what makes Cogent so horrifying to its competitors--the company has racked up that market share while remaining a financial pipsqueak. The company warned this summer that it might not hit Wall Street's earnings targets. Its stock is off 62% this year to \$9, giving it a market capitalization of just \$400 million. Cogent expects to lose \$25 million this year while revenue rises 19% to \$220 million. AT&T and Verizon churn out that much revenue every day. Cogent's free cash flow (cash flow from operations, less capital expenditures) will hit about \$36 million, also up slightly.

To Schaeffer, those numbers are simply evidence that we're entering an era of dirt-cheap communications, in which jaw-droppingly huge amounts of digital traffic get carried around the globe for small amounts of money and without discrimination based on price or quality of service. Debate over whether to enshrine in law this state of "network neutrality" has policy wonks in Washington and Silicon Valley atwitter ([see Lee Gomes' column](#)).

All the attention so far has been on the battle over control at the edge of the Net, the last mile that separates homes from the phone company's switches. In August the FCC made front-page news when it ordered Comcast to stop choking off the Internet traffic created by users of BitTorrent, a software program popular with those eager to share, or steal, full-length movies and songs. The feds took BitTorrent's side in a decree that said singling out a specific type of traffic for special treatment "unduly squelches the dynamic benefits of an open and accessible Internet." Comcast agreed to comply with the order but is suing mostly on principle to void the ruling, claiming it should be free to manage the traffic on the network it built and owns.

But bigger and more vicious battles are taking place out of the public eye in the unregulated global Internet. Unsurprisingly, the biggest fights have all involved Cogent.

Early this year Schaeffer decided to challenge Scandinavia's largest telecom company, TeliaSonera, on its home turf. Schaeffer ordered his salespeople to fan out across Stockholm and find companies that generate large amounts of Internet traffic. Then he delivered his opening haymaker: Cogent would be happy to haul that traffic out of Stockholm and deliver it anywhere on the globe for about 70% less than TeliaSonera charged to do the same job.

The fight turned ugly. Cogent says that its customers in Sweden saw their Internet connections start acting oddly. TeliaSonera, according to Schaeffer, was forcing much of its rival's Internet traffic on a pointless detour across the Atlantic Ocean ([see story](#)). Any problems Telia's former customers might be experiencing from this circuitous routing--slow-loading Web pages, annoying hiccups in their Internet phone calls--were Cogent's problem.

"They were trying to screw us," Schaeffer says. Telia calls Schaeffer's account "self-serving and inaccurate" but declined to provide its own version of what happened.

Unlike the Comcast-BitTorrent fight, Schaeffer knew that no court or regulatory body was going to adjudicate his dispute with Telia, let alone force the Swedes to play nice. The global Internet is a wild, unregulated mesh of thousands of autonomously run networks, including Cogent's and Telia's. Each is supposed to follow a code of honor to connect with the others openly and fairly through so-called peering arrangements. Or not.

Schaeffer hit on a way to strike back at Telia. Just as Telia was free to identify and slow down any Cogent-bound traffic that needed to cross its network, so too could Schaeffer pick out Telia-bound traffic on Cogent's network. He ordered that traffic blocked. So a Telia customer in Malmö trying to download a photograph stored on a San Francisco server would be thwarted because the server was linked to the wider Internet via fiber owned by Cogent.

Late in the evening of Mar. 13 Swedish teenagers watching YouTube saw their videos freeze. The next morning millions of Telia subscribers across northern Europe awoke to find they had lost access to swaths of the Internet. Telia retaliated in kind, and Cogent found itself locked in an all-out war with a company that sported a market value 60 times greater than its own.

As the standoff dragged into its second week, the Swedes slowly realized they had picked on the wrong company. Telia's customers began flooding it with angry calls. Stockholm's biggest newspaper treated the fight as big news. Meanwhile, Cogent's mostly U.S. customer base lost access to the smaller collection of (mostly Swedish) Web sites that Telia controlled. Few noticed. In the U.S. not a single paper mentioned the fight. After 15 days TeliaSonera agreed to reconnect on terms Schaeffer found acceptable.

"The Internet is fairly fragile [but] there is kind of a mutually assured destruction that I think maintains an equity of traffic exchange," says Schaeffer.

His rivals take a different view of his behavior. To them Schaeffer is a loose cannon. When two companies need to send and receive roughly equal amounts of traffic, they typically agree to make the swap at no charge. If traffic is flowing mainly in one direction, the network doing the bulk of the transport negotiates a cash price to account for the imbalance. Rivals say Cogent's

willingness to sever connections and temporarily balkanize the Internet are efforts to bargain down this going rate for transport. When France Telecom and Level 3 temporarily cut off Cogent three years ago they cited an unreasonable balance in traffic flows.

Schaeffer dismisses that argument as convenient cover for rivals who really object to his pricing. Regardless of whether Schaeffer is motivated by principle or profit, the result is the same, as France Telecom and Telia have learned: Cogent is very willing to fight and very unwilling to lose.

Dave Schaeffer grew up in suburban Maryland, the youngest son of a Washington, D.C. cabdriver. At 14 he began taking the bus to college, earning an economics degree in 1975 at the age of 19 from the University of Maryland. He started work on a Ph.D. but left school to help with the family business after it ran into financial trouble.

By that time the elder Schaeffer was running a company with 50 cabs. Dave helped run the business with his brothers, but also branched off into a series of entrepreneurial ventures. He sold insurance and leased cars to other cabdrivers, ran an auto body shop and converted old taxi depots into office buildings. Eventually he noticed another hidden asset that cab companies possessed: licenses to radio spectrum that could be sold to cellular carriers like Nextel.

That got Schaeffer into telecom. Intrigued by advances in fiber-optic networks and casting about for a new business idea in 1998, Schaeffer found inspiration from an unlikely source: C. Michael Armstrong, the chief executive of AT&T. Armstrong was telling investors that AT&T would come to dominate the Internet even though it owned the world's oldest network. All that really mattered was AT&T's traffic volume. Whichever company loaded the most traffic onto its network would have the lowest average costs and ultimately could take over the market.

That logic appealed to the ex-economics student: "I thought, 'He is exactly right,'" says Schaeffer. Then a second light went off in his head. He knew from a previous attempt to build a telecom company that the networks carrying Internet traffic had all been designed for phone calls. They were full of expensive gear that wasn't relevant to transmitting photos and Web pages.

Schaeffer sat down on a Saturday afternoon and wrote Cogent's business plan: build a global network that worked exactly like a cheap office network, built around nothing more than Cisco's biggest routers and a few strands of fiber. The network, he estimated, would cost only \$2 billion to construct.

At the time, the belief that telecom would morph into a low-cost utility was still a fringe idea. An AT&T researcher named David Isenberg had caused a stir with a 1997 paper, "The Rise of the Stupid Network," which argued that telephone companies were wedded to "expensive, scarce infrastructure." What customers really needed, by contrast, was a network "with nothing but dumb transport in the middle [and] whose design is guided by plenty, not scarcity." The idea did not make Isenberg popular and he left AT&T Labs a few months later. AT&T asked him to take his paper off the Internet. It was too late; the idea had begun to spread.

Schaeffer set out to create his predatory network in the thick of the telecom boom of the late 1990s. He believed, as did many at the time, that the market for shipping data around the world was \$200 billion and growing rapidly. "That's one of the things we got very wrong," he says.

In 1999 he raised \$26 million from a half-dozen venture capital firms. After that every large equipment manufacturer, including Lucent, Siemens, Nortel and Cisco, all pleaded with him to take their money in the form of generous vendor financing deals. He ended up taking Cisco's offer: For each \$1 of Cisco gear Cogent bought, Cisco would lend it \$1.40. The Cisco credit line gave him \$409 million in spendable cash.

In early 2001 the industry began to implode. Networks declared bankruptcy by the dozens: XO Communications, Excel, Global Crossing, MacLeod USA. Schaeffer presented two viable options to his board. They could fold the company and give investors the unspent 90% of their money back, or use their Cisco credit line to go on a shopping spree of busted companies. The board chose to go shopping.

Schaeffer took Cogent public through a complicated reverse merger with Allied Riser, a company that had raised \$575 million to wire big office buildings with fiber. While its business had proved wildly unprofitable, Allied Riser still had \$140 million in cash.

After the merger was announced, Allied Riser's bonds plunged in value, since they were now junior to Cogent's \$400 million in vendor financing debt. The creditors sued Cogent twice but lost, agreeing to let Cogent buy back its own debt, which had a face value of \$140 million, for \$9 million plus a slug of preferred stock.

When the dust settled, Schaeffer had traded 13% of Cogent for \$132 million in net cash and all of Allied Riser's fiber network. As a kicker, the pugnacious Schaeffer sued Allied Riser's board for having agreed to merge with Cogent. The suit cited the duty of loyalty owed to the bondholders. Allied Riser's insurers settled, paying Cogent \$5 million from its directors' and officers' insurance policy.

BACKBONE BIGGIES

You can assess the importance of the Internet's various networks in several ways. By any measure Cogent is a leader. Here's how it ranks in the number of networks to which it connects.

RANK	ISP NAME	NUMBER OF INTER-CONNECTIONS
1	Level 3	2,443
2	Cogent	1,850
3	Verizon (UUNet)	1,763
4	AT&T WorldNet	1,546
5	Sprint	1,502
6	Global Crossing	1,446
7	Qwest	1,065
8	TeliaNet Global Network	1,019
9	NTT America	857
10	Time Warner Telecom	797

Time period: Aug 11. to Sept. 10. Source: Cooperative Association for Internet Data Analysis.

Schaeffer next turned his sights on bigger prey: PSINet, the world's second-biggest Internet service provider, when it filed for bankruptcy in May 2001. PSINet had \$4.3 billion in debt and \$300 million in cash. The secured creditors, mostly telecom equipment vendors, were owed \$600 million and wanted to get all the cash quickly before it burned off. The unsecured creditors, who held the other \$3.7 billion of the debt, were holding up the bankruptcy in hopes of cutting a better deal.

Schaeffer played the two groups against each other expertly. He persuaded both sides to let him buy PSINet for \$10 million and shut down the business. That halted the cash burn, pleasing the secured creditors. His next move did not.

He began picking apart most of PSINet's network, moving scores of routers and switches to four warehouses. He called the secured creditors but they had no interest in taking the collateral back. Schaeffer then had the court issue an abandonment order, which voided the equipment from the bankruptcy and put the secured and unsecured creditors on equal footing. After that the court parceled out the \$300 million pro rata to the creditors. The unsecured creditors had agreed to pay Cogent \$40 million to get the deal done, which exactly covered the \$10 million Schaeffer paid for the company and the \$30 million he paid out in severance. (Cogent extended job offers to 53 of PSINet's 9,000 employees.) He ended up with the assets of PSINet at no cost. "You can't beat free," says Schaeffer.

By the end of 2004 Cogent had vetted 121 distressed companies, made bids for 19 and bought 13. Collectively those companies had deployed \$4 billion of plant and equipment. By the time he was done, he had spent \$500 million, a quarter of his budgeted amount, and ended up with a slightly larger network than he had planned on. He also had, via PSINet and other firms, highly

prized "peering" arrangements that allow Cogent's backbone network to connect at no charge to Verizon, AT&T and France Telecom.

Andrew Odlyzko, an expert on the growth of the Internet, says it remains to be seen whether Cogent will drive prices down so fast that the telecom industry's revenues will collapse. Communications have been getting cheaper ever since Samuel Morse strung his first telegraph line. But volume has more than made up the difference. Odlyzko has to go back a century and a half to find a time when a price cut caused overall spending on communications to plunge: 1840, when the British cut the price of stamps to a penny.

By turning the use of networks over to the consumers, Schaeffer is helping usher in a new age of communications. "Dave has exactly the right insight," says Odlyzko. "The natural thing to do is become a dumb pipe provider."

Sidebars:

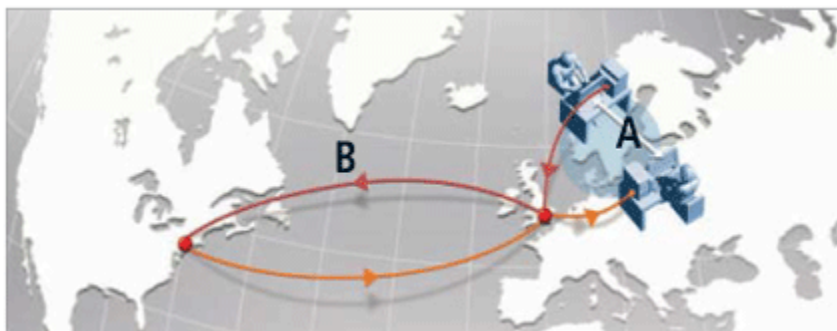
[Peer Pressure](#)

Peer Pressure

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One of the ugliest fights in the history of the Internet flared up in Stockholm this past spring. Cogent entered the Swedish market with prices way below those of TeliaSonera, the biggest Scandinavian Internet provider. Cogent asked Telia to set up a shared connection in northern Europe so that Sven, a Cogent customer, could e-mail, swap files or call Gunnar, a Telia customer, over a short, direct route (A).

Telia agreed to trade traffic with Cogent, but only in the U.S., says Cogent. This forced Cogent's traffic on an expensive trans-Atlantic detour (B). Cogent took that as an affront, a violation of the spirit of the open Internet. The Americans fought back by severing all connectivity with Telia. For 15 days Swedes could not access much of the North American Internet. Eventually Telia agreed to a direct connection in Europe and the Web was once again made whole.



Blown to Bits

Blown to Bits

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In a digital world all communications can be converted into generic bits and shipped over the internet for less. Here are the juiciest profit pools to drain (U.S. figures only).

