

Cogent Communications

Symbol: CCOI

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Massive overbuilding of Internet capacity in the 1990s coupled with the demise of many Internet ventures allowed Cogent to accumulate excess carrier capacity for pennies on the dollar and to offer it for one-fifth of competitors' rate. As the lowest cost service on the Internet, it has captured greater market share and now carries 15% of all domestic Internet traffic. With the promise of high definition TV over IP and new predictions of capacity constraints as early as this year, Cogent seems to be well placed to fill its broadband pipes as traffic rapidly expands. But as in the late 1990s, the underlying supply and demand paints a different picture. Internet traffic still uses only a fraction of capacity and new technologies are exponentially increasing the throughput of current fiber. Internet access prices have fallen by 60% in the last five years, and indications of stabilizing prices may be premature. The growth rate of demand has fallen dramatically, and bandwidth capacity has grown faster than both peak and average traffic in 2007. In spite of buying assets on the cheap, Cogent still loses money and will continue to do so in 2008 based on company guidance, yet its stock still trades at 7x sales. Given that Cogent's traffic increased only 2% sequentially in the latest quarter and its competitors showed flat revenue growth, there are strong incentives for providers to lower prices to absorb excess capacity since it costs virtually nothing to send a marginal packet of data. Private equity holders sold out last year at sharply lower prices, and insiders are heavy sellers.

1. The Internet still suffers from excess capacity. TeleGeography estimates that under 5% of Internet capacity is being used. On most routes total Internet traffic in the U.S. could be squeezed down from hundreds to one or at most two fiber strands.
2. Big advances in optical technology have created bandwidth faster than demand can absorb it. The capacity of optical fiber is doubling every nine months. Wavelength-division multiplexing has increased the capacity of each fiber strand by a factor of 100.
3. Internet utilization declined in 2007: bandwidth grew by 68% but net traffic grew by only 57%.
4. Minnesota Internet Traffic Studies, the most comprehensive source of data for net traffic, shows demand grew by only 50%, half the rate of several years ago.
5. Internet streaming video, the next hot application, now accounts for 2% of Internet traffic and is expected to grow only 15% per year through 2011, significantly less than bulls anticipate.
6. Internet prices declined at a slower rate in 2007, but slowing demand will likely reignite price competition.
7. Cogent's average revenue per unit (ARPU) continues to decline at 12% annually, and its traffic grew only 2% sequentially.
8. Even with a 730% increase in traffic across the Internet during the last four years and Cogent's higher market share, it still loses money and will continue to do so in 2008. Its stock has tripled in the last month to trade at 6.8x sales, triple that of its peers.
9. Last year private equity holders sold their entire position in the company for \$12.35 per share, less than half the current prices. Insiders have further sold 6.9 million shares for \$159.0 million in 2007.

Summary Company Data					
Stock price (11/14/07)	\$24.82	Price/Earnings, tl 12 mos	NA	x	
Common shares out	48.2 m	Price/Earnings, Core eps	NA	x	
Market capitalization	\$1,195.8 m	Price/Earnings, Current est	NA	x	
Shares closely held	3 %	Price/Sales, tl 12 mos	6.8	x	
Potential dilution	2 %	Price/Book Value	8.1	x	
Average daily volume	740.4 k	Book Value (tangible)	\$146.8	m	
Estimated daily dollar vol	\$17.4 m	Short interest, September 14	12.9	%	
Debt/Capital (tangible)	66 %	Short interest, September 28	12.9	%	
Auditor:	Ernst & Young	Short interest, October 15	13.5	%	
Fiscal Year End:	December	Short interest, October 31	14.2	%	



Company Description (from Hoover's)

Cogent Communications Group offers a forceful sales pitch: broadband data at the speed of light. The company operates a fiber-optic IP network that spans the Atlantic -- from Canada and the US to Western Europe. It offers dedicated Internet access to businesses through Ethernet

connections linking 1,189 office buildings to its network. Its more than 12,300 customers include financial services companies, universities, and law firms. Cogent Communications also sells access to its network and provides colocation and modem management services to Internet service providers (ISPs), hosting companies, and other big bandwidth users.

The Bull Story

The Internet has nowhere to go but up. Due to the surging popularity of downloading video and music files, average Internet traffic grew by 74% in 2006. According to a February 2007 report by Deloitte Touche Tohmatsu, this new demand will soak up excess Internet capacity and reverse the long downtrend in access fees. It predicted that demand could even exceed capacity this year.

Cogent is in a great position to capitalize on a growing Internet. It provides Internet service to business customers and Internet sites through 225 local rings in 100 cities connected through its Internet backbone and 260 peering relationships. A major portion of its revenues comes from sales to businesses in the 1,200 buildings that it wired, but most of its volume comes from discounted sales to Internet sites.

Cogent is able to charge the lowest price for Internet access because it bought its assets for pennies on the dollar after the Internet bust in 2000. It still only uses 22% of its capacity, so a beefed up sales force has plenty of room to attract new customers without a major capital investment. In the latest conference call, management said that October traffic increased by 5% over September.

Existing Oversupply of Internet Capacity Will Continue to Force Access Prices Lower

Although there is comprehensive report of underground Internet capacity, it appears that current Internet traffic, especially in the U.S., still uses perhaps less than 5% of the fiber laid in the 1990s. Internet carriers spent a huge amount of money in the 1990s laying fiber based on overly optimistic estimates of future demand, with predictions that Internet traffic would double every 100 days, carriers laid so much fiber that the net ran at less than 3% capacity.

After the first Internet bust, the hype died down, but with a jump in volume in 2006 and stabilizing access prices, the prior optimism returned and spurred greater capacity expansion again. Not only is there still an enormous amount of fiber in service, but much more in the ground sits dark, and new switching and signal technologies are expanding the capacity of each strand exponentially.

In a speech in June at the NEXtcomm telecommunications trade show, Cisco's John Chambers predicted that Internet traffic would grow by 300% to 500% each year for the next several years because of corporate use of high-end teleconferencing and other videos products. And as another example of unsubstantiated traffic estimates, a feature article in *Converge! Network Digest* in September cited current Internet traffic of about three terabits per second, about 1,000 times the actual volume (Minnesota Internet Traffic Studies.)

Part of the recent investor optimism comes from a 2007 report by Deloitte Touche Tohmatsu that said the demand for video and more broadband connections "may overwhelm

some of the Internet's backbones" this year as ISPs "struggle to keep pace with demand." It mentioned that the Amsterdam exchange will reach one exabyte this year, "equivalent to 500 times the data stored in all U.S. research libraries." And, Mark Stevens, producer of the PBS series "Triumph of the Nerds," said that 2007 will be remembered as the year "the net crashed (in the U.S.A.)" (*CIO Insight*, April 4, 2007.)

But, these predictions that the Internet was close to capacity constraints appear to be wildly overblown. While opining on "reaching the limits of cyberspace", Deloitte TMT refused to later provide data to support its claims. *Broadband Reports* followed up by interviewing the managers of the systems that Deloitte had predicted would run into problems. They denied the substance of the report about capacity issues.

Current in-ground fiber can handle demand growth for years, but capacity is expanding further. When building the Internet, carriers installed significantly more optical fiber than needed for future demand as well as redundancy.

The economics of installing fiber encouraged excess. More than 60% of the expense to build Internet infrastructure is for the civil engineering cost to physically plan and build cable channels. Since the cost of fiber is a relatively small portion of the installation expense, carriers added enough extra fiber per channel to capture most if not all the market – including anticipated exponential demand. Most of the fiber in the ground is still dark, or unused, although no real count exists as carriers keep that information private.

Rapid Advances in Technology Create Exponential New Capacity on Existing Fiber

Technology is also rapidly expanding the capacity of existing fibers. Big advances in optical technology have created bandwidth faster than demand can absorb it. Capacities of 160 wavelengths per fiber were unthinkable in 2000. Wavelength-division multiplexing, for example, has increased the capacity of each fiber strand by a factor of 100.

More advances are on the way. IBM has developed a new optical transceiver that can move data eight times faster than current technology. In a more recent development, David Bishop at Lucent Technologies' Bell Labs has built a petabit (1,000,000 gigabit) switch device that can move ten times the traffic of today's Internet in one second, the equivalent of every human on the planet on a simultaneous phone call (*EE Times*, September 26, 2000.)

Furthermore, Foundry Networks also has equipment that it has shipped which will soon go live and double the capacity of current equipment. And, increases in distributed content delivery networks – setting up local data storage nodes across the Net – by companies such as Akamai and Level 3 also speed delivery and thereby free more capacity.

New technologies have been so successful, they have given rise to Butter's Law of Photonics, which says that the capacity of optical fiber is doubling every nine months, so the cost to transmit a bit of data is cut in half in that same period.

As a result, the country appears to be using only 5% of total Internet capacity. TeleGeography estimates that the Internet utilization of lit fiber ran at only 34% in mid-2006. However, carriers have warehoused an enormous amount of unused or dark fiber. Including dark

fiber and the ability of ISPs to upgrade older fiber by updating equipment at the edges, TeleGeography estimates that under 5% of Internet capacity is being used (*CIO Insight*, April 4, 2007.)

According to Andrew Odlyzko, director of the Digital Technology Center at the University of Minnesota and one of the few sites to measure worldwide Internet traffic, “If you look at the total Internet traffic in the U.S., it could be squeezed down one or at most two fiber strands. And on most routes you have hundreds of strands.” (*Network World*, February 15, 2007.) Eric Schoonover, a senior analyst at TeleGeography – another independent research firm, says “There’s plenty of fiber in the ground for years to come.”

New demand for video and music may not be filling the Internet pipes as fast as people believe. In the race to grab market share, ISPs are still building out capacity rapidly. U.S. carriers are expected to spend \$70 billion this year to upgrade their networks (*InformationWeek*, August 6, 2007.) While most of its expansion involves installing fiber in the last mile to homes, Verizon is spending \$18 billion to upgrade its fiber-optic channel, as has Qwest spent most of its capital on high-speed Internet capacity. By contrast, Cogent only spends about \$30 million per year on capital expenditures. And Level 3 has tripled its capacity through an acquisition binge, including its \$1.4 billion acquisition of Broadwing to become a Tier 1 carrier. According to *Telephony*, “Level 3 has consolidated WilTel and now Broadwing – it has sucked a lot of the wholesale and nationwide fiber network into itself.” (*Telephony*, October 23, 2006.)

Such intense industry competition created capacity in 2007 that outstripped the growth in traffic. According to TeleGeography Research, international Internet bandwidth grew by 68% in 2007 as backbone operators upgraded networks, but the increase in net traffic grew less, by only 57%. As a result, utilization actually declined in 2007.

Growth in Demand for Internet Access Continues to Fall

Historically few of the wildly optimistic claims about the Internet have come to pass. Despite the increase in high-speed DSL and cable broadband connections, the shift from copper to fiber, the movement of enterprise applications to the Web and the increase in international traffic – despite all these boosts to demand – the growth of Internet volume continues to decline. Part of the reason is the growth rate of broadband installations has slowed. Broadband, the main facilitator of video and VOIP, is already available to over 85% of American households and 94% of workplaces, and its growth has slowed markedly this year (*The Bandwidth Report*, October 2007.)

According to TeleGeography, Internet traffic grew at 57% in 2007, down from 75% the year before. The University of Minnesota has created the Minnesota Internet Traffic Studies, which collects the most comprehensive data for net traffic and now tracks at least 10% of net volume. It estimates an even slower growth rate of 50%, which is half the rate of several years ago.

Part of the optimism for future Internet demand also depends on projections for using new video technologies, which have questionable demand from corporate customers, a prime Cogent profit center. *Business Communications Review* is skeptical:

“The assumption that business customers will eagerly gobble up increasingly more WAN bandwidth is not the real world. Unlike the LAN environment, where 10/100-Mbps is “free,” WAN bandwidth is a monthly recurring expense, and the higher the access speed, the higher the cost. As a result, enterprises ratchet down their bandwidth requirements due to cost constraints. Efforts to push Ethernet to higher speeds fulfill requirements for carrier backbones and the wholesale market, but there’s no unfulfilled market need from enterprise customers. The reality is that T1 is the top speed for 99% of all frame relay customer ports and more than 90% of private lines.” (*Business Communications Review*, October 1, 2006.)

New, large volume applications for consumers, such as IP HDTV, are at best years down the road, assuming that consumers eventually want those services anyway. Increased traffic in the last several years has come from video downloads, and to a lesser extent music sharing. In 2006, video accounted for 37% of Internet traffic and music 21%, according to IGI Group. Streaming video is the biggest bandwidth hog, and analysts predict a rapid ramp. But, demand projections assume that large numbers of viewers will want to watch TV on their PCs in real time, a debatable assumption. Eighty-eight percent of South Korean users have high-speed broadband with connections speeds on average 20 times faster than in the U.S., and there does not seem to be any overwhelming demand for streaming video for PCs. Music downloads and online gaming are still the most popular services.

Even if consumers want to watch TV on their PC, it takes much less bandwidth to download a program and play it back later than it does to watch live programming. Even with rapid consumer acceptance, however, Internet streaming video, which is expected to grow only 15% per year through 2011 (*Network World*, February 15, 2007) now accounts for only 2% or so of Internet traffic.

Optimistic demand estimates also embrace HDTV over the Internet, which analysts predict will dwarf current video demand. However, IP HDTV requires a complete fiber-to-fiber connection, and it will take time for AT&T and Verizon to build fiber the last mile into homes. At the end of 2006, Verizon had only connected 207,000 homes and AT&T was projected to have 93,000 connected by the end of 2007.

Even analysts with optimistic forecasts of video demand only expect carrier revenues to grow at only 3% at most for the next few years.

Competitors are Closing In on Cogent’s Price Advantage

Excess capacity from massive overbuilding in the 1990s has caused Internet access prices to fall by almost 60% over the last seven years. Prices flattened out this year, encouraging analysts to forecast an end to the price decline but that may be optimistic. Cogent’s average revenue per unit (ARPU) continues to decline at 12% annually even during this halcyon pricing period. However, Internet carriers are plagued by an economic structure of high fixed costs and virtually zero marginal costs to send the next file through the net giving them a huge incentive to cut prices towards marginal costs. In addition, Cogent’s peers showed little revenue growth this quarter. With industry-wide excess capacity and lower utilization, carriers will be further motivated to again lower prices to grow earnings.

In the past several years, Cogent's competitors have cut prices, reducing its price advantage. Cogent's strategy had been to buy capacity on the cheap and radically underprice the competition. The strategy produced sizable volume growth, although no profits. Now competitors are moving closer. As *Investors Business Daily* (3/26/07) said, "Over the years, Cogent has spent millions building its broadband service. Now it's just a face in the crowd. AT&T and Verizon offer the same service." Cogent has been the lowest priced service at approximately \$10 per Mb compared to \$20 per Mb for larger competitors.

Cogent has also guaranteed that it will charge no more than 50% of any competitor's invoice, so any price cutting will automatically impact Cogent. Even now prices are close enough that quality of service and reliability would be more important factors than prices.

While Cogent says that it holds its rates steady at \$10 per Mps (or \$8 per Mps for a two-year contract), its average revenue per unit continues to fall. Cogent's quarterly revenues per connection have fallen 31% in the last two years, and its declines in each of the last three quarters have averaged 12% year-over-year. The company has a variety of explanations for the decline besides lower prices – management says that customers are choosing longer contracts and its newer salespeople are initially warming up with smaller customers to practice. On the other hand, the company expects ARPUs to continue to decline.

Cogent's largest volume growth comes from Internet sites, which pay dramatically lower access fees per volume of traffic. Cogent has seen traffic increase primarily because of relationships with YouTube, Photobucket and other photo sites. However, vendors bid aggressively for these accounts and some believe that carriers make less from these contracts in order to sign a deal. Internet sites account for 58% of Cogent's revenues but produce a whopping 96% of the company's traffic. Cogent can ill afford more competitive pricing – video and music traffic has already gone through a boomlet on the net, and the company is still not profitable.

As prices stabilized in the last year, carriers also differentiated themselves on quality of service and bundled features. Because of peering fights and outages, Cogent does not have the best reputation for quality of service, which would affect its ability to capture new business providing mission critical services to business and Internet sites.

Because the Internet is a connection of hundreds of networks, no one carrier reaches all users, so large operators hand off traffic to each other, often at no cost in peering relationships. But, many carriers suspect that Cogent, with its low prices and huge traffic, dumps traffic onto their network. As a result, Cogent has generated an unusual number of peering fights – with Level 3, France Telecom, and AOL Transit Data Network. A few years ago, all of these providers at one point blocked Cogent's access to their networks, and as a result left Cogent customers in the dark for a day, giving Cogent a black eye for reliability.

Cogent also had service issues this year. Renesys, which tracks internet traffic, reports that Cogent has a fairly serious problem in Europe with its peers, who resent it for buying capacity and cutting prices by 50% to 80%. Renesys says, "Most of the European PTTs refuse to peer with Cogent anywhere on the European continent. Recently, some large US carriers, among them Level 3, seem to have adopted a similar approach." (Renesys, April 26, 2007) This certainly slows Cogent's performance in Europe, which accounts for 22% of its total traffic, and

perhaps the U.S. as well. At around the same time, Cogent suffered a blackout in Boston for about three hours on April 25th.

In addition to questions about service, Cogent doesn't provide VOIP or other enhanced services. This is certainly a barrier to attracting clients that prefer a bundled service. Converged voice and data has been one of the main enterprise trends.

With softer industry dynamics, Cogent's sequential revenue growth rate has declined substantially below its targets in the last two quarters. While the company has repeatedly told analysts that it will grow 9% to 10% sequentially for years, its growth fell to 6.5% and 6.7% in the June and September quarters respectively. More importantly, as the growth of broadband connections slow in the U.S., demand could be slowing. Cogent's sequential traffic grew by only 2% in the quarter ending in September.

Cogent Sees Years of Losses

In contrast to sizeable industry uncertainties, Cogent's stock is priced for perfection. Despite the boost in Internet demand coming from music downloads, video sharing through sites such as YouTube, and web photo shops, and the fact that it bought its assets for pennies on the dollar, Cogent produces significant losses and projects further losses through 2008.

Cogent's stock price does not seem to accurately reflect its prospects or its brutally competitive situation. Its stock price is so high that analysts have to use 2009 estimates of EBITDA to justify owning the stock for even a single-digit return. The company trades at 6.8x sales compared to 1.1x for Level 3 Communications and 2.8x for market leader Time Warner Telecom. And, while Cogent was created by acquiring companies at a discount, it's a roll-up that has a market cap of \$1.2 billion for companies which it acquired for \$60 million. In May, Cogent cut its outlook and projected a larger loss for 2Q07. Since then, its stock has risen slightly.

Management

A year ago, rumors that the company was an acquisition target lifted its stock. Eventually, however, its private equity shareholders sold their shares on the open market. They sold 50% of the company in two offerings in November and April: 5,000,000 shares (10% of the company) in June 2006 at \$9 and 7,000,000 shares (14% of the company) in November 2006 at \$14.75 per share. In 2007, management and other insiders have been heavy and persistent sellers as well, selling 6.9 million shares for \$159.0 million. Management is also not shy about self dealing. The company rents its headquarters from its CEO.

Cogent has consistently diluted shareholders with options issuance and conversion of preferred stock. When the company sold 10 million shares of stock in February 2006, it did so at \$6 per share, which was 75% below the prevailing market price.

Catalysts

- Continued declines in revenue growth. Wall Street analysts have repeatedly questioned management about sub-par revenue growth for on-net services. Sequential on-net growth below 7% in the next several quarters would call Cogent's growth story into question.
- Accelerating price declines for Internet service. If Cogent or any of its competitors renew price cuts, the growth multiple for the company would evaporate.
- A slowing economy could produce slower Internet traffic growth. Any slackening in demand would also pop the bubble on Web 2.0.