

LAND OF OPPORTUNITY

For providers of real time commodity information, capacity trading is the new frontier. *Telecoms Capacity* looks at the development of the market

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Image: Photodisc

The emerging market for bandwidth is expected to reach \$400 billion by 2005, as the internet and telecommunications evolve and global networking escalates. In the US, heavyweights in the energy sector have begun to stake their claim in this arena. Their goal is to create a market for broadband services that will trade liquidity just like their conventional commodities: natural gas, electricity and petroleum products. They see great potential in bandwidth dealing and are making substantial investments to capture opportunities.

The standouts to date are Enron, Williams Communications and Dynegy, who have thrived in the huge new gas and power trading markets fuelled by industry deregulation. Each has created telecom subsidiaries in the past 18 months that join the ranks of wholesale bandwidth suppliers like AT&T, Sprint and WorldCom. These participants anticipate acceleration in the already rapid price declines for broadband and believe that electronic exchanges will underpin this evolving marketplace.

To date, though, the high-bandwidth internet has been somewhat slow to come to fruition. As technologies develop, bringing ever-increasing business and consumer services, the current infrastructure is being pushed to its limits. This is partially due to the segmentation of the internet, similar in many ways to the electricity grid. As the broadband con-

sumer connections increase in size and distribution, the infrastructure demands will expand significantly.

In fact, the internet is composed of a series of separate fibre optic networks that are inter-connected at a handful of points in the US and around the world. The major (or so-called "Tier 1") backbone providers are generally considered to include UUNet, Sprint, AT&T, Genuity, Cable & Wireless

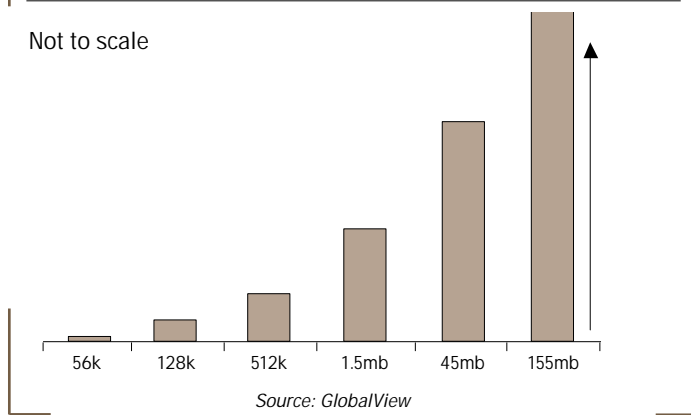
"As technologies develop, bringing ever-increasing business and consumer services, the current infrastructure is being pushed to its limits"

(which bought MCI's internet backbone in 1998) and several others, including Qwest Communications, Global Crossing, Level3 Communications, Williams Communications and Enron Broadband Services.

Core internet traffic is generally exchanged at the dozen or so worldwide network access points (NAPs). Internet service providers (ISPs) connect directly to backbone networks, or to larger ISPs with direct connections. Many providers are moving away from these known congestion points to private peering in multiple locations.

Internet connection bandwidth: future growth

Not to scale



The quickly evolving dotcom industry envisions high value applications that require large amounts of dedicated bandwidth. With the current landscape, reserving the necessary bandwidth means establishing long-term relationships with vendors that negotiate price locks that can last years. That makes it very difficult for the broadband consumers, typically the small and medium telephone and ISP companies, to buy just the right amount of bandwidth needed for average use while allowing for the occasional spikes that do occur. To accommodate the maximum use needs, overbuying is required, leaving expensive capacity largely unused.

This is where the new exchange opportunities lie. With the establishment of standardised and tradeable contracts, the consumers will be able to buy and sell almost instantly in a liquid marketplace. To date, these markets are barely more than a vision, but leaders in trading markets with

the actual delivery of the contract. This involves complex technology acting as the access mechanism that can provision who is connected to the fibre backbone, at what time, and how much traffic is actually passed through.

Third, the marketplace must develop through the entrance by a majority of the parties that can provide bandwidth. The sellers must offer both short-term and long-term contracts that are priced based on supply and demand, not just costs plus margin. In order for sellers to seek an open market, it must be to their advantage to place transactions in that market rather than by conventional means. At this time, bandwidth providers are seeking long-term commitments as prices continue to fall. The prices are based more on competitive forces, rather than immediate demand. However, unless the unused bandwidth is offered for short-term use at reduced rates, the providers are leaving money on the table.

The establishment of the marketplace will most likely take shape around the most sought after routes, those that cross the oceans and continents. Those areas are where there is high demand with peak and off-peak loads, somewhat similar to the electricity power grids. The routes are crowded with traffic and companies that are adding bandwidth know that demand will be ever-growing.

Enron has proposed standard terms and conditions for trading bandwidth. It has also suggested a pooling point operations model – a switching and interconnection facility that can act as the gateway for control and monitoring of bandwidth routing between parties. An independent third party would operate the pooling points and be responsible for scheduling bandwidth connections and physically securing the integrity of the transactions.

EnronOnline is certainly a contender in the electronic markets. Since its start, it has attracted over \$250 billion in trades. If it is as successful in broadband as it has been with gas and electricity, it could trade that

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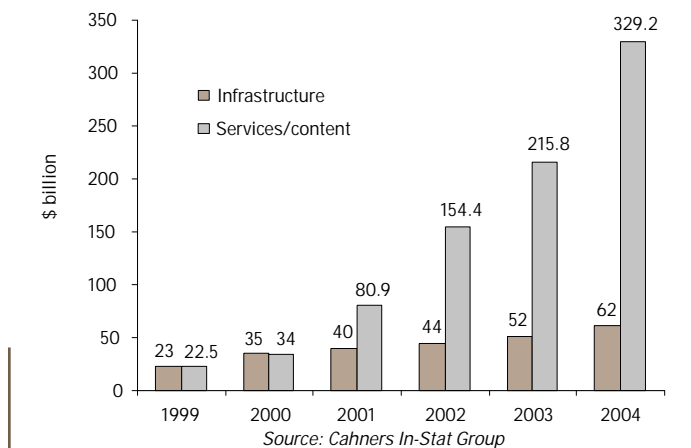
proven track records, like Dynegy and Enron, have already created the infrastructure and started to offer trading via electronic exchange.

Traditionally, contracting for bandwidth entails multiple-year contracts and waits of several months for actual connectivity; transactions can take weeks or months to negotiate. By contrast, an electronic system that automates key parts of the process can enable the trading of an individual bandwidth contract in as little as 15 minutes. Many analysts see a great future for these developments.

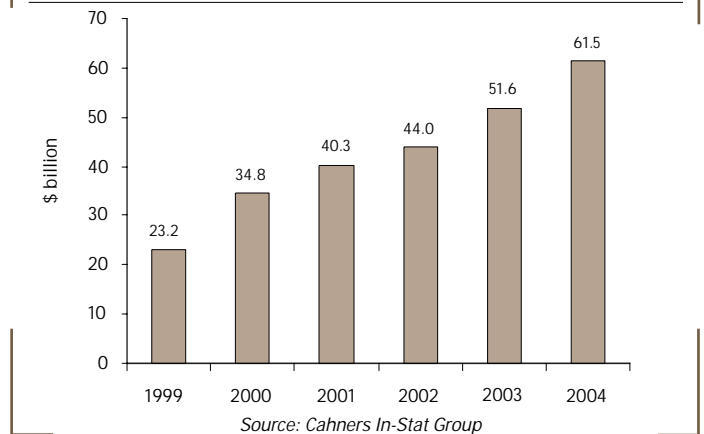
For the marketplace to gain traction, a number of things will need to happen. First, some level of standardisation of the commodity will need to be developed. Contracts will need to specify the locations of the bandwidth connection’s entry and exit points. Time intervals and the amount of bandwidth will then determine the full specifications of the contract.

Second, there must be some way of regulating, controlling and measuring

Worldwide broadband forecast revenues, 1999-2004



Internet service provider revenue forecast, 1999-2004



amount by 2005. Based on a spread of 3% between bid and ask prices, that could represent \$7.5 billion in trading profits. The financial markets have validated Enron’s vision by tying a \$10 billion market cap increase directly to Enron’s bandwidth trading initiative.

In 2000, Band-X launched the world’s first trading floor for internet transit capacity, revolutionising the way that internet connectivity is bought and sold. Today, Band-X has 11,000 members, and estimates it carries out over 80% of all trades that are executed within the telecom B2B exchange industry. Over \$40 million worth of bandwidth has changed hands via the reverse auction process. In April 2000, Band-X received a \$40 million joint investment from Goldman Sachs, Morgan Stanley Dean Witter Private Equity and Madison Dearborn Partners.

Energy companies have placed substantial investment in the broadband arena. Dynegy purchased Extant, a Colorado telecom company, for \$188 million. With that purchase came over 80,000 miles of fibre optic network and presence in over 40 US cities. Williams has laid over 33,000 miles of fibre to date, more than double that of Enron. These networks can be compared to those of telecom-specialised companies such as Global Crossing (with plans to build over 100,000 network miles) and Level3 (with over 25,000 miles).

Trading operations will continue to grow stronger as more network miles come online and prices continue to diminish. Excess capacity will drive this new marketplace, as better efficiency is sought. While there is still ground to be covered, the development speed of the bandwidth field has been unparalleled. This is one emerging market worth watching closely.