

New Options for Big Broadband

Property owners looking to supply residential and commercial tenants with high-speed Internet access now have more choices than ever before.

By Masha Zager ■ *Broadband Properties*

Scaling broadband services is a challenge for owners of multifamily and multitenant buildings. Demand for bandwidth and reliability continues to increase, and high-bandwidth services command premium rentals in many areas. But building owners are reluctant to invest in expensive infrastructure ahead of demand – especially if that demand takes time to materialize, as in today’s slow real estate market.

Building owners need the flexibility to add or subtract bandwidth quickly in order to meet fluctuating demand – and to pay only for the bandwidth that is actually used. Several new offerings attempt to meet that need with a variety of technologies. Two vendors we’ve spoken with recently are Mushroom Networks, which creates scalable bandwidth by bonding together multiple small broadband connections, and Rainbow Broadband, which takes the opposite approach, dividing fiber’s enormous bandwidth.

MEETING THE MUSHROOMING DEMAND

Earlier this year, Mushroom Networks (www.mushroomnetworks.com), a startup company spun off from the University of California at San Diego, released its Truffle broadband bonding network appliance, a device that aggregates Internet connectivity. The Truffle lets building owners combine multiple DSL, cable modem, cellular broadband or T1 services to provide higher-speed and more reliable Internet access for tenants. For around \$3,000, a building owner can aggregate as many as six Internet sources with a combined through-

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put of up to 65 Mbps. Truffles are stackable, so owners can add more boxes to meet higher demand. Mushroom is also willing to custom-build appliances for higher throughput.

On the back of the Truffle, a four-port LAN switch provides aggregated throughput that can be distributed within the building via Ethernet, WiFi, Cat 5 cable, coax, or any other medium. The device can be installed in a few minutes and is managed via a simple Web interface. Building owners can either bundle the service into the rent, or bill tenants directly.

Cahit Akin, Mushroom’s CEO, says the device offers several benefits to building owners. First and foremost, it enables them to scale bandwidth to the building as it is needed. “You don’t have to pay for the big pipe before you have subscribers,” Akin says. “You can grow gracefully.” Second, they can add value to their buildings by providing faster Internet service than is available elsewhere in the neighborhood. Each tenant can have access to the full bandwidth if there is no contention for it. (However, quality-of-service features are built into the

Truffle, so that VoIP, for example, takes priority over file downloads. Building owners can even restrict certain types of traffic to specific ports and lines, so that power users’ P2P traffic doesn’t slow down traffic for other users.)

Another important advantage of bonding multiple access lines is that it increases the reliability of the connection. “It’s better than having a single line, because if that fails you’re in panic mode,” Akin says. “You’re still able to connect to the Internet [if one line goes down] because the box can use the up-and-running lines.”

NEW SERVICES VIA MUSHROOM

Mushroom also markets the Truffle to service providers, who can use it not only to provide high-speed services without putting additional hardware into the core network, but also to develop new service offerings such as “boosted T1” – a T1 line bonded to a DSL line. Combining the reliability and upload speed of a T1 with the cost-effective download speed of DSL could create a package that is attractive to small businesses.

Another new offering for service providers might be aggregated T1 lines.



Akin explains, “Some companies want a secondary T1 as a backup; with this type of device, you get to use your backup line and you still have failover, because if one line goes down, the device schedules all traffic to the up-and-running line.”

RAINBOW OVER MANHATTAN

In New York and some other cities, multitenant commercial buildings suffer from a bandwidth imbalance. Class-A buildings, which are generally fiber-connected, have plenty of bandwidth while smaller, less prestigious buildings have trouble obtaining adequate connectivity. In the traditional New York City economy, financial institutions and corporate headquarters occupied the Class-A buildings while small manufacturers occupied the loft buildings. But today, the small businesses seeking loft space are likely to be high-tech media and design firms, which are more dependent on connectivity than manufacturers ever were.

Russ Hamm, a former music producer who had been involved in bringing fiber-based broadband to New York’s largest media companies, saw several years ago that smaller and midsized media companies were having difficulty surviving in the city. They couldn’t afford the rents in Class-A buildings – and didn’t need most of the amenities these buildings offered – but they did need the bandwidth. Even small media companies had to transfer very large files, and their broadband choices usually consisted of T1 and

DSL. “They would start the file at night and come back in the morning, and it still wasn’t finished,” says Robbie Schiff, Rainbow Broadband’s CEO. Hamm went on to found Rainbow Broadband in 2004, with the aim of transmitting bandwidth wirelessly from fibered buildings to the unfibered ones.

Today Rainbow Broadband leases fiber to eight networked hub buildings in Manhattan (four or five more hubs will be added soon) and uses fixed WiMAX to beam bandwidth from the roofs of these tall buildings to other buildings in their line of sight, covering most of Manhattan and nearby parts of Brooklyn, Queens and New Jersey. Receivers can be placed outside or even inside windows as well as on rooftops – an advantage in smaller buildings with landmark status where visible receivers may not be permitted.

Rainbow sells the bandwidth either directly to commercial tenants or to building owners, who then resell it to their tenants. In addition to pure connectivity, it also sells VoIP service and offsite file storage.

Rainbow subscribers can access the Internet at speeds up to 100 Mbps symmetrical, but the typical connection is about 10 Mbps, with a few customers at about 30 Mbps. “We fit in nicely,” Schiff says. “What’s offered [by competitors] is T1 and DSL, and then DS3 at 40 Mbps – and we’re in between.” The result is that small and midsized enterprises can

now run their businesses as if they were in Class-A buildings.

Another advantage for tenants is speed of provision. Temporary bandwidth increases can be put in place within 24 hours, and permanent ones take only a little longer. Schiff says, “If you need 10 Mbps in Manhattan, you’re lucky if you can get your needs met in four to six months. But our turnaround time is 48 hours for a lit building, or seven to 10 days if it’s not lit. This is a big value proposition for businesses that are moving. They need something no one else can provide within that time.”

Yet another need that Rainbow meets is for redundancy – which is now required for Sarbanes-Oxley compliance, as well as being an industry best practice. “A hedge fund can lose \$500,000 a day if it can’t get on the Internet,” Schiff points out. Reliability is an issue even in fiber-fed buildings, and it can’t be addressed by buying bandwidth from competing providers, which generally carry service over the same fiber. Rainbow’s WiMAX service is about as reliable as T1, and the redundant ring connecting the hubs guarantees that if one hub has a problem getting back to the primary point of presence, there’s always another pathway. A year ago, when a steam-pipe explosion in midtown Manhattan closed most nearby businesses, Rainbow’s clients continued to operate.

Today, close to a third of Rainbow subscribers are primarily interested in redundancy, says Schiff. But many of them eventually switch to Rainbow as their primary connection because of its cost, quality of service and reliability.

While Rainbow has been operating only in the New York area to date, Schiff says the company will soon begin looking at other East Coast cities where it might offer similar services. “This model will work in a lot of older cities,” he says, “because so many of them are built on copper wires.” **BBP**

Quality-of-service features are built into the Truffle, so that VoIP, for example, takes priority over file downloads when tenants share bandwidth.

About the Author

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