

Setting Expectations For Network Performance

Is the customer always right? One industry veteran argues that the Internet service business is not – and cannot be – customer-centric. Both building owners and ISPs benefit from a realistic understanding of the technical and business constraints they face.

By Sebastian Pereira / *Broadband Enterprise*

Delivering Internet access in a multifamily building is not easy, but for an Internet service provider (ISP) that educates, trains, informs and advises its customers and installs the right equipment, the process isn't as hard as it seems. Yes, the information highway is fraught with accidents and mishaps – but still, people don't call cities every time a road is blocked or an accident delay occurs.

Setting expectations is key, and a close working relationship between a buyer and a supplier is more beneficial than a yelling contest.

BUILDING OWNER AND ISP

In the last year, cloud computing crossed the chasm to the mass market, and ferocious bandwidth upgrades were needed as a result. Suddenly, building owners' expectations increased. How should an ISP respond to those expectations?

For users that access the Internet about 10 hours a day, the cloud has changed everything. Students, remote businesses and small businesses that operate from home are the heaviest consumers of bandwidth. Students have, on average, six devices in their dorm rooms constantly connected, and then they invite friends to play multiplayer games during peak hour. Businesses soak up upstream capacity with Web and remote servers sending

emails and presentations, conducting voice and video webcasts and participating in instant chat sessions – sometimes, all through a wireless network.

Netflix HD alone takes about 2 to 4 Mbps per stream. Now imagine one student viewing two movies, one on a desktop and the other on an iPhone, or a family with different Netflix viewing habits. There are more than 150 online movie sites like Netflix. At this same peak hour, students are trying to submit papers to meet deadlines and residential business users are trying to access servers late at night.

Coupled with all this traffic are thousands of protocols being used to spoof networks, track users, create peer-to-peer agents, hijack browsers, reroute traffic and mask as HTTP to sneak into networks – and that doesn't even count the virus and spam traffic that typically soaks up anywhere from 20 percent to 30 percent of network capacity.

The Internet is not a policeable state, and no ISP can be blamed for all breakdowns. A simple building with 100 users has, on average, more than 200 moving parts – processors, software, powering, ether (air space for Wi-Fi), handshakes, authentication and hardware. A building owner that enters into a relationship with an ISP should expect a network to break down occasionally.

An ISP needs to train its customers about the components used to build a network in the same way a contractor explains building construction detail. During that stage, owners need to ask hard questions about products' tolerance to failure and power glitches, about remote monitoring, mean time to repair, capacity management, escalation procedures and so forth. Once customers understand these issues, the ISP has completed its basic training in Internet understanding.

FORT KNOX WITHOUT THE COST

For student housing, the best building networks are wireline – either VDSL, cable or Ethernet. VDSL is the most reliable. Ethernet, an older technology, carries more packet overhead than VDSL or cable and hence needs more backbone bandwidth and cost. Ethernet and Wi-Fi can be easily compromised compared with cable or DSL. A student can plug into a switch port and glean all network information – it's that simple.

Cable modems are a good alternative because they can now support 300 Mbps with no distance limitations. Costs have dropped significantly, and the next standard is 1 Gbps.

Given that Google, Apple, Microsoft, Amazon and Intel all have IPTV plans, planning for a network that can eventually support Gigabit Ethernet is a good idea.

Any network pushing more than 100 Mbps suddenly invites abuse. Defending against abuse, which keeps availability high and costs low, is a challenge that ISPs can meet today.

Broadband Enterprise strongly recommends virus protection as well as bandwidth shaping to run a best-in-class network. If both these elements are in place, then with remote network monitoring, a GigE router, CMTS 160 Mbps or VDSL 100 Mbps and used Ethernet GigE switching, network costs should not exceed \$3 to \$4 per subscriber per month for a 200-subscriber complex. For a 500-subscriber complex, costs can be held to between \$1 and \$2 per subscriber.

Though ISPs complain about bandwidth costs, a well-designed network with a great bandwidth supplier relationship can go a long way toward lowering overall costs.

Most building ISPs skip virus protection and bandwidth shaping altogether to conserve cost, but by doing so, they compromise their abilities to identify abusers by IP address, shut down sneak protocols that hog bandwidth, create bandwidth availability during periods of congestion, and prevent packet loss. They also lose the ability to present charts to management on network availability by the hour. In fact, ISPs should give building owners complete access to network viewing and charts on daily individual and total consumption level – information that can reduce building owner complaints.

Using the devices mentioned helps reduce bandwidth consumption by 20 percent to 40 percent, thereby saving on bandwidth costs. Broadband Enterprise highly recommends spending on network defense hardware up front versus throwing bandwidth (a recurring cost) at congestion issues. Most ISPs complain about bandwidth costs as an impediment to success, but a well-designed network with a great bandwidth supplier relationship can go a long way toward lowering overall costs.

ISP AND SUPPLIER

Most people can remember their best deals. Here's the secret to success: a good relationship with the seller.

In network equipment and bandwidth, the same philosophy applies. Many buyers wrangle with their suppliers about deliveries, troubleshooting, installations, contracts, early termination and so forth. Suppliers are often unwilling to work with customers who lack a basic understanding of business. At the same time, suppliers often have the flexibility

to extend special pricing and other favorable terms to customers they want to work with.

For example, we have sent engineers to install cable modem termination systems at no cost to special customers, ensuring early adoption. We have seen bandwidth suppliers help their best customers reduce costs by pooling bandwidth or getting exception approvals from large carriers. In one case, we were up against two large carriers on a 44-location install in Florida. Carrier A was charging us \$92,700 to build to locations – but Carrier B, with whom we had a good relationship, absorbed all that cost and met total deal pricing at 30 percent less. In another case, a carrier was willing to spend \$220,000 in build cost to 15 sites to offer 500 Mbps bandwidth at some sites for as low as \$2,750 – about 30 percent to 40 percent lower than the going rate. It's all in the relationship!

Building ISPs face competition from their suppliers, which can easily integrate forward. Thus, a good supplier relationship is a good defense against extinction.

In conclusion, managing expectations is feasible with the right ISP relationship, the right equipment and a good supplier relationship. Collectively, these make an otherwise unmanageable Internet business manageable. ❖

Sebastian Pereira, president and CEO of Broadband Enterprise, was a key founder of Motorola's cable modem business in 1993. Broadband Enterprise today is one of the largest suppliers of CMTS and bandwidth to MDUs and PCOs. Contact Sebastian at sebastian@broadbandent.com or 781-929-2112.