

Bandwidth Demands Rise in Student Housing (Part 1)

A jump in bandwidth demand poses a challenge for student housing. The solution: well-designed and well-managed broadband networks.

By Henry Pye ■ *RealPage*

Last fall, as students moved back to their off-campus apartments, providers and owners throughout the country saw a dramatic shift in online habits, causing an unprecedented strain on the bandwidth supporting bulk high-speed Internet access (HSIA).

Put simply (too simply to satisfy a network engineer), there are two principal demands on the bandwidth provided to a community. First, average user speed has increased. Obviously, it requires more bandwidth to provide an average 4 Mbps x 4 Mbps service than a 2 Mbps x 2 Mbps service.

Second, today's applications and online behavior demand more bandwidth for the same user speed than those in the past. Because most Internet data traffic typically occurred in short bursts, networks are designed to be oversubscribed. Just like mechanical, electrical and plumbing systems, bulk HSIA is not designed for everyone to demand service simultaneously.

But what happens if the residents do demand bandwidth simultaneously?

Beginning in fall 2008, residents increasingly used streaming applications that demand constant bandwidth, overwhelming community networks. Most of the demand came from downloading video programming from sites such as Hulu to computers or video game consoles such as PlayStation 3.

Mark Scifres, CEO of private cable operator Pavlov Media, reports on the trend: "Last year we saw a substantial increase in legitimate Internet use for online video content. Student properties are early adopters of new Internet media – and streaming video from You-

Tube and other Flash-based video sites is now a constant 18 percent of usage and climbing. Much of this content is viewed during peak usage hours, unlike peer-to-peer, which can be time shifted."

From 2000 to 2008, average bandwidth for the typical off-campus student housing community increased by roughly 20 percent per year. Growth in bandwidth demand followed a fairly predictable pattern, allowing owners and providers to plan ahead for bandwidth needs. Traffic evolved and became more concurrent, while average user speeds increased from 256 Kbps in 2000 to nearly 3 Mbps in 2008.

However, last fall this trend abruptly changed. Between July and September 2008 when students returned to school, bandwidth demand increased 20 percent beyond the typical 20 percent yearly increase to reach an extraordinary 35 percent to 40 percent increase in bandwidth demand for the lease year.

In the best case, the immediate effects were perceived by most residents as a slowing of bulk services. These were communities served by the better Tier 1 service providers with significant experience in student housing.

In the worst case, for communities with second-tier providers and jerry-rigged systems, service slowed to a crawl and many applications collapsed.

IT'S DÉJÀ VU ALL OVER AGAIN

While challenges to bulk HSIA in student housing have occurred in the past, they were mainly network management challenges with less long-term pressure on bandwidth. "About five years ago student housing sites experienced a sharp

rise in bandwidth due to the proliferation of peer-to-peer applications," says Scott Creque, chief technology officer of private cable operator Airwave Networks. "In the last year, we experienced another significant increase in demand due to streaming video programming. It is a constant challenge to provide a high-quality resident experience and still keep the owner's cost affordable."

Since last fall's spike, the increase in bandwidth demand has returned to the previous 20 percent trend line. Whether this is a trend or coincidence is not yet clear. How long before the trend is disrupted by the next behavioral shift?

Estimating bandwidth requirements more than a few years out is becoming difficult. Owners would be wise to maintain a healthy bandwidth cushion and must be willing and able to add bandwidth as circumstances change.

We may be looking at the end of jerry-rigged systems, WiFi backhaul from building to building and second-tier providers. Systems that have struggled in the past may simply collapse. Owners need to ensure that the bandwidth, systems, and providers at their communities can meet these challenges.

*Next month, Henry will explore the consequences of increased bandwidth demand for student housing owners and managers. **BBP***

About the Author

Owners Corner is written by Henry Pye together with industry peers. Henry is vice president of Resident Technology Solutions for RealPage (www.realpage.com). You can reach him at Henry.Pye@RealPage.com.