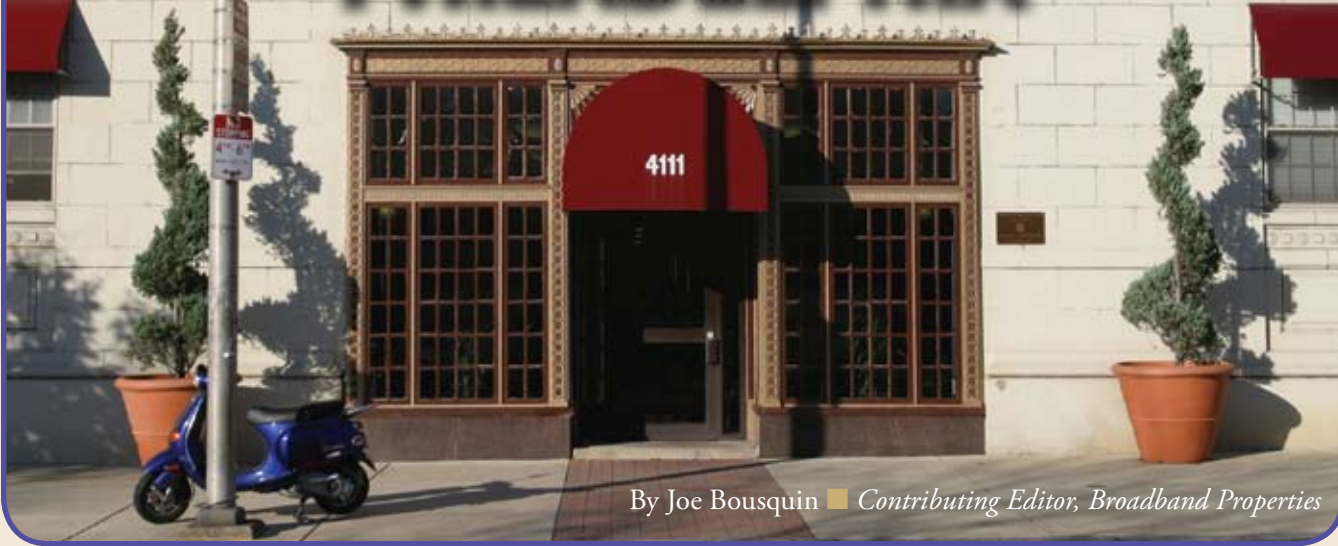


WALNUT HILL APARTMENTS, PHILADELPHIA



By Joe Bousquin ■ *Contributing Editor, Broadband Properties*

Philadelphia-based Campus Apartments gives the students living at Walnut Hill Apartments everything they've ever wanted – 100 Mbps Internet access with no restrictions and no hassle, at a reasonable cost. Students can watch movies, play games, listen to music, and maybe even do their schoolwork, all at the same time. Now Campus Apartments is getting ready to roll out the same service across its portfolio. Our thanks to Andrew Marshall, Campus Apartments' chief information officer, for his assistance in preparing this article.

GROWING UP FAST

Andy Marshall has seen the apartment residents of the future. Usually, they're carrying Xboxes.

As CIO of Campus Apartments, a leading national owner and manager of student housing, Marshall oversees the technology needs of more than 26,000 students in 23 states. His typical resident is in the millennial generation, between the ages of 18 and 25, and arrives at college with an average of three Internet-connected devices – not just a laptop and an Xbox but also gadgets such as Internet-connected media players for streaming music and movies.

Over the years, Marshall has learned a couple of things about these technological overachievers: First, they're quickly coming to expect unlimited bandwidth when they buy Internet access; just as their parents never thought about having enough water coming out of the tap,

they expect their Internet pipes never to slow to a trickle. In addition, when they turn that tap on, they want all their Internet-fed apparatus – their Wi-Fi

routers, laptops, media players, TVs and game stations – to work, all the time.

“When you say, ‘always on,’ you’ve got to mean ‘always on,’” Marshall says.





"If someone goes and buys a Roku media player, they want to plug it in and have it work. You can't make them call your customer service guys and say, 'Here's the MAC address, register it for me and turn it on.' That just doesn't fly."

For that reason, Campus took an unusual step at Walnut Hill Apartments, an 82-unit community it owns and manages in Philadelphia. Walnut Hill now boasts speeds of 100 Mbps to each bed and provides true plug-and-play functionality, with all barriers to network access and authentication removed. Campus says Walnut Hill is the first unrestricted, 100 Mbps-to-the-bed student housing implementation in the country; it plans to roll out the same service to an additional 10 to 20 properties this summer. Residents get 100 Mbps service for \$59.99 a month, with no limits, MAC registrations or bandwidth throttling to dampen their usage. (They can also opt for 10 Mbps service for \$39.99 per month.)

The service is provided through Campus Apartments' private cable operator (PCO) subsidiary, Campus Technologies, which is branded as PhillyNet in Philadelphia. Campus Technologies provides technology services to both Campus Apartments and third parties.

"It really works much like an office LAN," Marshall says about Walnut Hill's setup. "We've just said, 'You're adults now, you're living away from home, we trust you. Here's the Inter-

net, use it how you want.'" Walnut Hill residents can also dial up unlimited telephony for \$29.99 a month, as well as order Dish Network television programming at various rates.

Campus implemented the service using a Metro Ethernet, fiber-to-the-building deployment with a 300 Mbps pipe feeding an internal Cat 5e copper network. Removing the authentication barrier, which can stymie network performance, helps boost performance. Because not all users need 100 Mbps at all times, bandwidth can be considerably oversubscribed. There have been virtually no help desk calls from residents.

"From the demarcation point to the unit, it's all copper," Marshall says. "We've found that – particularly in a

mid-rise building – you can easily exceed 100 Mbps over copper, which is much cheaper to deploy."

The secret behind that cheap speed is the WAN Acceleration Appliance, a rack-mounted box developed by Campus Technologies. The appliance is fed by a Cisco Catalyst 5509 access layer switch and a Catalyst 4507 distribution layer switch; it has 2 TB of on-the-fly, edge-of-network caching capacity and can be managed remotely. The result is a very stable and efficient system.

"Let's say someone in Room 4 downloads a video from YouTube, and then instant messages someone in Room 6 with the link to watch it," Marshall explains. "Not only will the WAN Acceleration Appliance assign the appropriate priority to the IM application – which doesn't actually need to be instant, because there's usually a user delay between sending and receiving – it will also pull that video out of cache when the guy in Room 6 pulls it up. So far, we haven't even used 70 percent of the capacity we've got there."

Residents' reactions to the network have been typical of the millennial generation. "Honestly, we've done surveys that have come back where they hadn't even noticed the upgrade, which I guess means it just works," Marshall quips. "Others, of course, say it's the best thing they've ever had."

Of course. And they'll expect to get everything they want, as fast as they can get it, for the rest of their lives. Welcome to the future.

PROPERTY OF THE MONTH HIGHLIGHTS: WALNUT HILL APARTMENTS

- *Student housing community in Philadelphia offers 100 Mbps Internet access per resident.*
- *Easy plug-and-play setup eliminates help desk calls.*
- *Network accommodates the student lifestyle (including unlimited gaming, online video, online music) with no bandwidth restrictions or throttling, at reasonable cost.*
- *Deployment is based on Metro Ethernet fiber-to-the-building with Cat 5e cable from the point of entry.*
- *Campus Technologies' WAN appliance simplifies network management.*



The main feed from bandwidth provider Cogent

VITAL STATS

Property Description: Walnut Hill Apartments at 4111 Walnut Street in University City, Philadelphia, offers efficiencies and one-bedroom apartments with high ceilings, great windows and wonderful original woodwork detail. The apartments are located a short walk from campus, shopping and public transportation.

Greenfield or retrofit? Neither. Walnut Hill last underwent a complete rehab in 1999, when the Cat 5e network was installed.

Number of units: 82

High-rise/mid-rise/garden style? Mid-rise

Time to deploy? Less than an hour was needed to install the WAN Acceleration

Appliance, which enabled the 100 Mbps- to-the-bed deployment.

Date services started being delivered: The 100 Mbps service went live March 1, 2010.

TECHNOLOGY

How does fiber get to the property? Bandwidth provider Cogent runs an aerial, 16-count, single-mode fiber feed to the property.

How are signals distributed inside the property? Fiber terminates at a Cisco Catalyst chassis (Series 5509 at the access layer and 4507 at the distribution layer) that feeds the internal Cat 5e network.

On the video side, because this is a scattered-site community, and there are local franchise restrictions on video signal crossing the public rights of way, we use a set of dishes to serve several buildings. The signal is delivered via quad-shield coax and uses DP-44 multiswitches and amps to deliver subscriber signals. Subscribers have set-top boxes at their units – either standard-definition, high-definition or DVR.

This is quite different from the systems in most of our closed, garden-style communities. In those instances, we have a single, central headend and distribute the signal to individual buildings via fiber, with coax drops inside the buildings (no receivers needed). At 4111 Walnut, we do not deliver video on our IP backbone. We've looked at this extensively, and our view is that [traditional video service] is becoming less and less important to student residents; [video is] being consumed more and more via services such as Vuze, iTunes or Roku. Like it or not, those services de-emphasize the im-



PhillyNet's triple wall plate.

portance of video in the triple play, just in the way phone has been decreasing for a while due to cellular usage. We concentrate on delivering the best Internet service possible, at least in part for this reason.

Student housing isn't your typical multifamily play, and video needs are different.

What is the fiber technology? This is a Metro Ethernet deployment. Receiving a direct Ethernet feed from the bandwidth provider, Cogent, eliminates the need for the more expensive optical switches used in an active Ethernet FTTH deployment.

Who is the electronics vendor? Cisco

How did you deal with wiring and plug access within the units? Cat 5e cables were wired at rehab in 1999. In 2005, we terminated the home-run cable to the demarc, which had been served by DSL. At each bed, there is a dedicated PhillyNet multiport wallplate consisting of an RJ-11 phone jack, an RJ-45 data jack, and an F (coaxial) connector for television programming.

Have you provided wireless signals within units? No. Most of our residents already have their own wireless routers or Airport-type devices that we allow them to connect directly to the network.

Because students mostly use Internet-based services to watch video, Campus Apartments emphasizes its Internet offering rather than its video offering in the triple play.

How much square footage did you have to dedicate to the network inside the building? There are shared communications closets in the hallways, and the demarc is shared with other Campus Technologies equipment in the basement. An area smaller than 30 square feet is dedicated to the demarc at this building.

SERVICES

Does the building have triple-play services?

Yes. Residents can subscribe to Internet service, telephone and Dish Network video through PhillyNet.

Are there amenities beyond triple play or IP systems for managing the property?

There is IP-enabled CCTV for entrance monitoring and security.

Do residents have a choice of service providers?

Yes, though any additional providers would have to install their own infrastructure at the property.

Who provides support? If residents have an

Data reaches the building via fiber and then travels over Cat 5e cable; video is carried from the satellite dish over coaxial cable.

issue or a technical challenge, whom do they call? Campus Technologies' Help Desk provides 24/7 support.

BUSINESS

Who owns the network? Campus Apartments, the property's owner, owns all the wiring. The PCO subsidiary, Campus Technologies, owns the electronics.

What was the initial take rate? The initial take rate was 80 percent and is now close to 100 percent.

Who handles billing and collection? Residents are billed monthly by Campus Technologies/PhillyNet.

How are the services marketed, and by

whom? All Internet, telephony and Dish Network entertainment programming packages are marketed directly by Campus Technologies/PhillyNet.

What has the return been on this implementation, in dollars or otherwise? Being able to highlight the 100 Mbps-to-the-bed capability has given Campus Apartments a marketing and amenity advantage.

ONSITE EXPERIENCE/LESSONS LEARNED

What was the biggest challenge? Turning Internet access into an open utility instead of a hoarded resource. Really, the biggest challenge was men-

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tal. We had to get past the thinking that we couldn't just open the taps and say to ourselves that we're charging a fair price for a completely unrestricted, unlimited service. We had to look at our own student resident population and say, "You are grown-ups, you're living away from home, we're not going to tell you you can't do peer-to-peer stuff – that's entirely up to you."

It's the best service and deal you can get in the country at a student housing property, and that was a huge mental leap to go from the traditional service provider mentality that says we're going to restrict you to 3 Mbps, we're going to monitor what you're doing on it and we're going to stop you from doing things that violate certain protocols.

The typical student housing service provider model says you're going to have to sign in once a day and you're going to have to register a MAC address for every Xbox you buy. Breaking that mental barrier required having the confidence that if we do it right, reliably and at a fair price, it's going to be a huge success in the long run.

What was the biggest success? Zero help desk calls. Nobody has authentication issues anymore. It just works. Somebody goes and buys a PS3 or an Xbox, or whatever browserless device they want, and they plug it in and it works.

That's the goal. We don't just want to be solving problems; we want to prevent them from happening in the first place.

We had to get past the thinking that we couldn't just open the taps and say to ourselves that we're charging a fair price for a completely unrestricted, unlimited service. That was a huge mental leap to go from the traditional service provider mentality.

What would you say to owners who want to deploy a similar network? What issues should they consider before they get started? You need to ensure that you have service provider transparency so you know how much bandwidth is actually delivered to the building and the user.

In general, the way this business works means most owners don't really know how much bandwidth they're getting. If you took 100 random student housing properties and asked the owners or managers what speed their residents get, I guarantee that 99 of them wouldn't know the answer. The culprit is the old business model, in which actual bandwidth is kept secret. The provider charges a fixed price per bed to provide Internet, and you have no idea what level of service is really being provided.

With Campus Technologies, our business model is radically different. We don't do that. In fact, at the properties we serve, you pay the invoice for the bandwidth directly, and you can see the exact bandwidth you're getting on that invoice. Any time you want to push that bandwidth up, you can choose to do that. We'll manage that process and payment for you, but it's completely transparent what bandwidth you're getting and what you're paying for it. We'll facilitate it, but you get to control it.

That's important because when you ask for 100 Mbps service, there are a lot of different ways to interpret that. I would say you've got to go with a provider that's done it before and that is transparent so you see the bandwidth that's in your name.

How did the vendor interact with residents during installation? Were there any guidelines or requests from the owner over limiting residents' pain points during installation? Everything happened in the demarc room, and it literally took less than an hour to install the WAN Acceleration Appliance. As I said, many of the residents weren't even aware we'd done anything.

What is the property manager's perspective on this installation? Has it been a success? What has been the response from residents? From a property management perspective, the success of the 100 Mbps service will not truly become apparent until the September 2010 student housing lease-up season. We anticipate a lot of interest from potential residents for the next school year. **BBP**

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