

Colleges struggle with students' data demand

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University of Missouri-Columbia students arrived on campus this fall with a slew of new electronic toys and immediately wrought havoc with the school's wireless network.

Early on, too many gadgets were vying for attention, leaving some students unable to connect. There was, of course, a lot of virtual hand-wringing and outrage from students furious and frustrated over the slow or severed connections.

Still, it was far from a total crash.

"It was only in certain places, large lecture halls and crowded areas," said Elise Moser, a laptop-armed freshman from Maryland Heights, Mo. "I'd get it in one class but then spend all the next class trying to get on the Internet."

The problems were traced to a [software glitch](#) and quickly fixed. But the incident is a reminder of the challenges faced by campuses nationwide striving to keep up with the needs of increasingly mobile students and faculty.

Like other schools, the University of Missouri-Columbia is in a state of perpetual upgrade, adding more Internet capacity and [mobile access](#) points all the time. But this new school year already is proving to be notable in one regard, said Terry Robb, director of information technology.

Last year, the largest number of wireless devices connected to the system at any one time was 900. Already this year, the campus hit the 8,000 mark. Why such a massive increase?

"Well, the [iPad](#) came out. That's part of it right there," Robb said, referring to the popular tablet device and its competitors.

Of course, it's not just the tablets putting a strain on wireless and Internet systems. Many popular smartphones also are built to take advantage of Wi-Fi networks. So are laptops, e-readers like the [Amazon Kindle](#), and many other devices, including printers and video game systems.

But the growing array of toys students bring to campus isn't the real issue, experts say.

"It's not so much the number of devices; it's the video-based content they are going after," said Joseph Harrington, president of the Association for Information Communications Technology Professionals in Higher Education.

Harrington is also director of network service at Boston College, where 70 percent of Internet bandwidth is consumed by video streaming and downloading. The vast majority of that is purely entertainment.

It's tempting to question why universities don't do more to stop students from using school networks for social networking and entertainment. The reality, experts say, is that students expect to find certain things on campus. A stronger Internet connection, preferably with a wireless option, is one of those things.

It's one of the reasons Washington University of St. Louis - like many schools - doubled its bandwidth this summer, just a year after increasing it by half. Andrew Ortstadt, associate vice chancellor for information

services and technology, thinks they have all they need today. But, tellingly, he's not sure he'll be able to say the same thing by year's end.

The school isn't sure what percentage of its bandwidth is gobbled up by movies and video games. In some ways, it really doesn't matter.

"At the end of the day, we want them to have good capacity for recreation," Ortstadt said. "They live here, too. We want to make sure they are doing what they want to do."

So it is that most schools are hesitant to place individual caps on student usage. Instead, they focus on controlling traffic during peak hours, while making sure that academic needs are still met. St. Louis University, for example, breaks its Internet space into three distinct pipelines, making sure students, researchers and clinicians do not interfere with one another.

Schools also use network management tools that prevent heavy users from dominating a network. At peak traffic times, for example, a larger movie download might be slowed to save space for students doing less-intensive research.

"All we try to do is make things fair. We try hard not to limit people," said Daniel Chace, director of network and systems infrastructure at Southern Illinois University-Edwardsville.

At the same time schools are managing traffic, they also have to take precautions when integrating all these new devices onto their networks. They can't just open things up and let everyone in.

Systems have security devices and software designed to give every new device a once-over, looking for viruses and other security threats, said Greg Jackson, vice president for policy and analysis at Educause, a

nonprofit that promotes the use of technology in higher education.

Security-related hang-ups can be frustrating to students used to walking into a Starbucks coffee shop and getting immediate access to the Internet. They want to know why it's so much harder to get a campus connection.

"The answer is that Starbucks isn't giving you access to its servers," Jackson said.

Student expectations also shape the way schools think when refurbishing or building new classrooms and residence halls.

St. Louis University is in the midst of a multiyear plan to upgrade all of its classrooms by summer of 2013. Each room will be guaranteed to have enough wireless access points to let every student access the Internet. Also included: enough electrical outlets to keep all those devices charged up. In some ways, that's the more difficult challenge, said Tim Brooks, the school's chief information officer.

"It's not access to wireless," Brooks said. "It's access to power."

That's something UM-Columbia also has been dealing with in recent years as it builds and renovates the residence halls where nearly 6,000 students live. Most of the older halls were built at a time when students came to campus with a desk lamp, radio and hair dryer. It's not uncommon for students to show up today with 20 or more devices, said Frankie Minor, director of residential life.

Rooms with a half-dozen plug-ins have been replaced by rooms with up to 20 plug-ins. And they have cable lines, ethernet lines and land lines for phones, even though the vast majority of students have no use for them. (The logic is that it's much cheaper to add the lines during

renovation or construction - just in case they might be needed again someday.)

What UM-Columbia hasn't yet addressed - and it's a significant issue in the eyes of students who want the comforts of home - is a way to get wireless Internet into rooms. It's available only in common areas such as lounges and laundry rooms.

The school last tried a wireless pilot program in 2002. It worked great with an empty building but rapidly degenerated once it was full of students and their gear.

Nearly a decade later, they are ready to try again. Sometime in the next couple of months, they'll shut off the wired connections in one of the halls and see whether a new wireless network can handle the load.

Success could put an end to all the questions about the absence of wireless coverage in rooms. And it's about seven to eight times cheaper than a wired network, Minor said.

"Everyone wants wireless. But we know if it's not reliable, they won't be happy," Minor said.

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