KEEPING UP: EVOLVING NETWORK NEEDS IN HIGHER EDUCATION
Students today expect an always-on, wireless world. As competition among higher education institutions increases, colleges and universities must not only respond to these demands, but also implement emerging technologies and adopt new teaching models that help prepare them for the 21st-century digital workforce.

To understand the changing ways colleges and universities are using technology and the networks that power this shift, in October and November 2017 the Center for Digital Education surveyed 226 higher education IT employees and conducted 12 interviews with college and university network professionals.

Respondent Demographics
Nearly half (49 percent) of respondents work in IT. Forty-eight percent represent four-year public institutions, followed by four-year private institutions (26 percent) and two-year public institutions (19 percent). Nearly two-thirds of respondents (62 percent) work in institutions that are part of a larger state or regional system.
Meeting the Expectations of Digital Natives

Today's college students can't remember a time when technology use wasn't pervasive and centered around wireless mobile devices. At the same time, the growth of hybrid and fully online classes across higher education has placed even greater demands on institutions' networks.

Colleges and universities face key challenges:
- Students commonly have multiple wireless devices (laptop, phone, tablet). What's more, they expect seamless online access from anywhere on campus, according to interviewees.
- Online and blended learning models put additional strain on networks. Digital content, videoconferencing and streaming lectures all require additional bandwidth.
- Students' use of HD video is exploding. More than half of institutions (52 percent) report extensive use of HD video on their networks. And it's not just for entertainment — a majority of respondents report that HD video is primarily used in instructional spaces.

WHERE IS HD VIDEO USED?

Classrooms: 62%
Libraries: 39%
Common areas, such as waiting rooms: 34%
Student spaces, such as dorms or lounges: 32%
Signage: 31%
Administrative spaces: 30%
Do not know: 13%

HOW EXTENSIVE IS THE USE OF HD VIDEO AT YOUR INSTITUTION?

- Very extensive: 23%
- Somewhat extensive: 29%
- Neither extensive nor limited: 20%
- Somewhat limited: 11%
- Very limited: 6%
- Do not know: 11%
Keeping Pace with Network Demands — For Now

Given these trends, it’s not surprising that student use and data security are the two largest drivers for network improvement at colleges and universities, with nearly half of respondents listing both as top priorities. Interviewees noted that demands for service upgrades rarely come from faculty and administration.

Efforts to provide wireless access throughout campuses appear to be largely complete, with limited Wi-Fi coverage only cited by 14 percent of respondents. More than half of institutions (51 percent) also have managed Wi-Fi services.

As a result, most colleges and universities say they are keeping up with the demands of the new generation of students and the instructional models used to support their learning. Three-quarters of respondents say their digital infrastructure meets the needs of new approaches to teaching and learning. Nearly as many (71 percent) report their campuses meet students’ expectations. However, interviewees stressed these demands will continue to grow and become more difficult to meet in the future.

WHAT IS DRIVING NETWORK IMPROVEMENT?

Data security concerns: 50%

Student use: 46%

Outdated infrastructure: 40%

Administrative processes: 27%

Provision of online student services: 23%

The need to support new research tools: 17%

The race for grant money: 17%

Limited Wi-Fi coverage: 14%

Do not know: 5%

HOW WELL HAS YOUR UNIVERSITY MET THE DEMANDS OF NEW INSTRUCTIONAL MODELS?

- Very well: 24%
- Somewhat well: 51%
- Neither well nor poorly: 13%
- Somewhat poorly: 4%
- Very poorly: 2%
- Do not know: 6%
What’s Next?

A key driver of smart campus initiatives, the emerging Internet of Things (IoT) represents the largest planned procurement among survey respondents. More than eight in 10 institutions either are currently using or plan to use IoT technology. In fact, only 13 percent of respondents said their institutions have no IoT strategy. However, only 17 percent of institutions plan to implement IoT enterprise wide at this time.

USE OF TECHNOLOGIES

Gray Bar = Planning to Procure

Internet of Things — 42% in use, 38% planning to procure

Adaptive/responsive curriculum — 43% in use, 28% planning to procure

Data analytics — 53% in use, 27% planning to procure

Keeping large systems in the cloud — 43% in use, 25% planning to procure

Smart transit — 21% in use, 24% planning to procure

Dark fiber — 26% in use, 23% planning to procure

Smart classroom — 61% in use, 22% planning to procure

Cloud storage — 62% in use, 21% planning to procure

Online/remote learning options — 68% in use, 18% planning to procure

Other — 8% in use, 9% planning to procure
Along with improving energy efficiency and reducing administrative costs, IoT can also help equip students with the skills they need in the digital workforce. Growing numbers of institutions also see IoT as an opportunity to deepen connections within their communities: Nearly four in 10 plan on interconnecting their IoT initiatives with other community organizations.

**HOW WILL THE INSTITUTION’S IoT STRATEGY BE IMPLEMENTED?**

- We plan to implement IoT enterprise wide: 17%
- We plan to implement it through several initiatives/programs throughout the institution: 18%
- We plan to implement it through a single initiative/program: 12%
- We are developing an IoT strategy and have not decided how to implement it: 10%
- We plan to allow it to grow organically without strategic direction: 6%
- We do not have an IoT strategy: 13%
- Other: 1%
- Do not know: 23%

WHERE DO YOU THINK IoT WILL HAVE THE BIGGEST IMPACT ON YOUR CAMPUS?

Preparing students for the digital workforce: 35%

Improving learning outcomes for students: 34%

Improving teaching: 32%

Simplifying administration: 22%

Using more cloud technologies: 21%

Providing researchers with state-of-the-art facilities: 19%

Attracting research dollars: 18%

Attracting top students: 17%

Becoming part of a larger research and teacher network: 15%

Connecting and sharing data with local institutions: 12%

Do not know: 9%

Other: 1%
While institution leaders say their networks are holding steady for now, this may soon change as the IoT continues to take hold, students and faculty shift to video and other digital content, and everyone relies on more mobile devices to do their work. Additionally, the increase in cybersecurity threats will require higher education institutions to implement sophisticated technologies and sound policies to stay ahead of cybercriminals and protect student and staff information. It’s important that leaders begin to lay out a strategy for modernization to make sure they have a smart network infrastructure that provides a foundation for the future.
Ensure your network is equipped to handle these growing digital campus demands. Learn more at enterprise.spectrum.com/education

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