7 BIG CHALLENGES
THE NETWORK ARCHITECT FACES IN HIGHER ED TODAY

WHILE THE CONFIDENCE LEVEL IN IT CAPABILITIES IS AT A NEW HIGH ON CAMPUS, THE JOB ISN'T GETTING ANY EASIER.

REMOTE WORK CONTINUES APACE IN HIGHER EDUCATION. More than half of staff and two-thirds of faculty are continuing to work and teach from locations other than campus. That pivot has put extra torque on the network and more pressure on the people who design and run it. At the same time, the shift has also generated a new level of trust in the capabilities of the IT organization and a new appreciation for how well IT professionals are keeping up.

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A fall 2020 Campus Technology survey among readers exposed a common list of IT challenges as well as clues lighting the way forward. (One hint: The answer doesn't have to rely on more staffing.)

7 COLLEGE CONCERNS

Bolstered by high levels of approval for a job well done this spring and into the fall, IT leaders are well positioned to tackle myriad projects, all targeted at addressing institutional priorities. In ranked order, these were the issues that garnered attention:

1. **Student retention and academic success**

2. **Keeping the campus community healthy and safe**

3. **Pivoting from in-person to remote learning**

4. **Maintaining equity of access**

5. **Protecting student and staff data privacy**

6. **Getting faculty/instructors trained for some form of online learning**

7. **Cutting costs to address potential revenue shortfall**

Across the board, no matter what role, student retention and success ranked as the #1 area of institutional worry. In second place was keeping people healthy and safe — also the consistent choice across roles.

Following on those two issues, priorities shifted between activities related to *pivoting* versus *protecting*. While IT roles emphasized challenges related to the move from in-person to remote learning, leadership roles targeted the protection of student and staff data privacy. Interestingly, cost concerns came in dead last for both groups. It appears that in survival mode, money matters less than other aspects of the job.

7 IT CHALLENGES

Then the survey drilled into IT-related concerns specifically. There, the challenges followed two broad tracks, those connected to *keeping up*…

1. **Staying in tune with quickly shifting priorities**

2. **Mastering speed to solution**

3. **Simplifying network operations, whether wired, wireless or WAN**

…and those related to *maintaining essential operations*:

4. **Securing networks, devices and data**

5. **Troubleshooting IT infrastructure problems**

6. **Managing business continuity and disaster recovery**

7. **Monitoring and managing devices on and off campus**

The top spot overall was claimed by security. The issue of securing IT — networks, devices and data — was the biggest priority for respondents, whether they held leadership roles, IT roles or non-IT roles. That was followed by the challenge of agility — staying on top of changing needs.

The good news here is that what the IT organization itself considers its most pressing concerns reflects precisely what the overall campus IT priorities are. And all of those elements dovetail with broader campus concerns. Without a robust network infrastructure in place, schools face serious issues:

- **Technical problems in delivering online programs, endangering student retention and academic success**
- **Limited reach for remote services, jeopardizing equity of access and the continued growth of online learning**
- **Inadequate substitutes for the in-class experience, compromising campus health by compelling people to want to return to campus before it's safe to do so**
- **Expanded security risks, threatening data privacy**

INTERNAL AND EXTERNAL OBSTACLES

Not to say that the job of IT has become a slam-dunk. Respondents shared a litany of challenges — both internal and external — that are holding them back from accomplishing the work they're meant to do.

Among the internal challenges related to choosing technology solutions, lack of budget reigned supreme. In spite of the fact that institutional leaders have placed money worries at the bottom of the stack of their concerns and have expressed ever-greater confidence in the IT organization, IT doesn't necessarily get the resources it needs to keep up.

A similar issue cropped up at the top of the list for external challenges too. Colleges said they were most worried about the cost of equipment acquisition. This was true among the overall sample as well as those who hold leadership or non-IT roles. Among respondents with jobs in IT, however, cost was secondary. Their biggest concern was being able to cut through the "noise" to find the right solution. Why wasn't money in first place for them too? Possibly because they're in a better position to understand how the right kinds of technology acquisitions pay off in other aspects of operations, whether by virtue of delivering a better user experience, tightening security in new ways or simplifying the work to be more efficient and effective (more on this topic shortly).

7 INTERNAL CHALLENGES IT FACES

1. **Lack of budget – 67%**

2. **Entrenched processes few want to change – 40%**

3. **Navigating processes/policies – 39%**

4. **Compliance concerns – 29%**

5. **Making the business case – 25%**

6. **Lack of staff expertise – 25%**

7. **Lack of vision – 11%**

Q: What are the IT organization's biggest internal challenges in choosing a technology solution (choose up to three responses) (n=112)

7 EXTERNAL CHALLENGES IT FACES

1. **Cost of equipment acquisition – 54%**

2. **Cutting through noise to find the right solution – 41%**

3. **Inflexible licensing/pricing– 39%**

4. **Restrictive contracts – 26%**

5. **Vendors don't understand education segment – 22%**

6. **Cybersecurity risks – 21%**

7. **Lack of technology in preferred form (cloud/on-premise/managed) – 16%**

Q: What are the IT organization's biggest external challenges in choosing a technology solution (choose up to three responses) (n=112)

IN THE BEST OF ALL POSSIBLE WORLDS

If money were no object and schools could choose one component to help their IT organizations address current needs at their colleges and universities, nearly half (49 percent) would invest in hiring more IT staff. That was true for people in IT roles (57 percent), leadership roles (43 percent) and non-IT roles (42 percent). Nothing else came close.

But whereas IT training was the second-place contender for investment among leaders and non-IT roles, IT people said their second choice would be better device monitoring and maintenance. It may be that the IT organization recognizes it already has the skills needed. What's missing is the toolset to make better use of the staff in place.

Since security was designated as the biggest challenge for IT, people were asked their preferences for remote access security. The choices that garnered at least a quarter of all votes were these:

- **Two-factor authentication, chosen by nearly half of all respondents (46 percent)**
- **Virtual desktop infrastructure (37 percent)**
- **Virtual private network (34 percent)**
- **Single sign-on (26 percent)**

HOW NETWORK TOOL CHOICE PLAYS INTO SUCCESS

The fact that nearly half of all survey respondents would choose adding more people to the IT staff in their institutions over any other kind of IT wish list item is a signal that campuses recognize the under-sourcing IT faces. Since it's not clear when the turnaround for higher ed employment and hiring will begin again, IT can choose to respond by applying technology to make their job easier.

For example, many universities are shifting to cloud-based network management. This follows the migration of so many other campus applications — Microsoft, Google, Adobe, Canvas, MOOCs, Qualtrics, AWS, Dropbox, Box and the like — that have already gone that route. Moving network management to the cloud is a natural next step.

Similarly, network-as-a-service is coming to the forefront as an antidote to budget worries, allowing IT to deploy the network services needed while improving IT staff efficiencies and total cost of ownership.

Within the work of network management itself, a slew of network automation technologies has come to the forefront to help staff reach their intended goals even in the face of less IT headcount, including artificial intelligence for IT operations (AIOps), machine learning and unified infrastructure.

Better protecting the network now requires a "Zero Trust Security" approach that will: 1) deliver role- and device-based secure network access control covering not just students, faculty and staff but also the Internet of Things, parents, contractors or guests, no more when or where they're all connecting from; and 2) work across a multi-vendor wired, wireless and VPN infrastructure, with a centralized point of management.

NETWORK CHANGES THAT MAKE A DIFFERENCE

If 2020 has a silver lining for higher education, it's that so much was done that has been long hovering in the wings — and in a remarkably compressed time. In an open-ended question, a third of respondents reported that the most notable network change to arrive on recent waves was access to remote learning and services. Large numbers of people also pointed to other changes that struck them as just as

important: more and broader virtual private network usage; more bandwidth, wireless access and access points; and more infrastructure upgrades and security. Among their responses, they cited a switch to "maximum remote learning," "expansion of home network capacity," tightened "security for work from home," "faster and easier" VPNs, greater availability of "off-campus computer labs," "upgrade of fiber optics," "more training" for faculty, "more devices" and "more services available online."

A GROWING FANBASE

Now that most people have personally experienced how well the network holds up under the stress of ever-growing remote operations for teaching, learning and university services, the campus community is showing greater confidence in IT and its readiness for whatever comes next. Whereas a year ago, a slight majority of respondents (57 percent) said they were either confident or highly confident in the IT infrastructure, now, the fan base has grown to three-quarters (73 percent). Among people with leadership roles and non-IT roles, the level of confidence has grown even higher (from 63 and 65 percent a year ago, respectively, to 80 and 82 percent today).

CONFIDENCE IN THE IT INFRASTRUCTURE

A YEAR AGO
Highly confident 22%
Confident 35%
57%

TODAY
Highly confident 35%
Confident 38%
73%
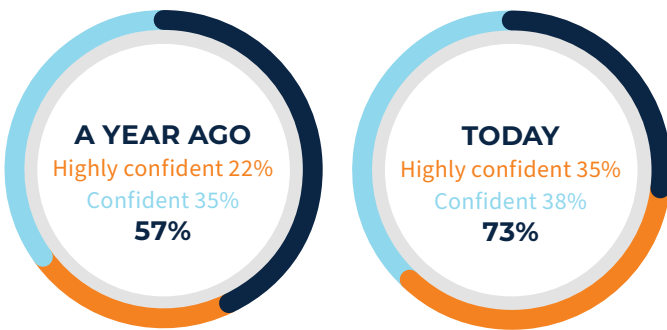
Q: How confident are you that your institution's IT infrastructure is ready for remote operations, including teaching and learning? (n=112)

While there's plenty to be proud of in that list, IT pros know the beat goes on and there's more work that needs to be done.

The front-end technology for remote instruction — the learning management system, the web and video conferencing, etc. — has been around forever. The difference now is that so much in play hangs on a back end — the network infrastructure — that's designed and managed for sustaining a massive influx of users both on and off campus, responsively and securely.

But even as the expectations placed on IT have grown, staffing hasn't. Job loss is high for both HIGHER ED and the IT ROLE. At the intersection of those two segments stands the university IT organization — underfunded, scouting ahead, getting prepared for whatever happens next. IT has helped prove how important technology is for education. Now it's time to give IT the chance to explore new opportunities inherent in current challenges. How they do that will require a combination of expertise, technology and campus support.

Notes: Findings are based on a Campus Technology online survey open for invitation-only response in fall 2020. After filtering for appropriateness of affiliation and completeness of answers, survey results represent 112 respondents. Roles included: IT leadership and staff (46%); faculty, instructional and research (38%); and non-IT leadership and staff (17%). Affiliations included: four-year public institutions (38%), private nonprofits (27%), two-year community colleges (19%), private for-profits (7%), graduate schools (6%) and postsecondary vocational schools (3%). Responses may not total 100% due to rounding.