At many colleges and universities, the technology infrastructure was designed for learning and working styles that are rapidly becoming obsolete. “Just a few years ago, computer use for learning was restricted to the four walls of the classroom, with little if any video,” says John Tuohy, education solutions manager at Cisco. “The campus communications system and research applications were located in individual departments, and guest lecturers had to travel to campus.”

Rapid advances have upended those assumptions (Table 1). New trends changing the demands on campus infrastructure include:

- A bring-your-own-device (BYOD) culture, fueling students’ expectations to access content and collaborate anywhere on campus, using personal smartphones and tablets.
- Increasing use of video to bring remote experts into the classroom, combine two classrooms, enable leadership to meet with an in-person experience, and more.
- The growing popularity of cloud-computing services to save money on servers and storage. Popular cloud services in higher education include infrastructure as a service (IaaS) for research; virtual desktops that students and faculty access from anywhere, on any device; Cisco® WebEx® for voice, video, and web sharing; and voice and voicemail services shared by multiple campuses.

Table 1  New Approaches to Learning and Campus Administration Demand a Different Infrastructure.

<table>
<thead>
<tr>
<th>School Function</th>
<th>Before</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning</strong></td>
<td>Go to a lecture hall</td>
<td>Learn from anywhere, including outdoor areas, home, or a neighborhood Wi-Fi hotspot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Include distance-learning students with Cisco TelePresence, Cisco WebEx, or Cisco Show and Share</td>
</tr>
<tr>
<td><strong>Faculty and Staff Training</strong></td>
<td>Take time out to drive to the training site at a particular time</td>
<td>Participate in the live training from anywhere, with real-time video, or view the video on demand later</td>
</tr>
<tr>
<td><strong>Physical Safety</strong></td>
<td>Monitor low-quality camera feeds from an operations center</td>
<td>View real-time or archived high-definition video from any camera in the school or district on any device, including smartphone or tablet</td>
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<tr>
<td></td>
<td>Manually lock and unlock doors</td>
<td>Control doors throughout the campus with network-based physical access control system</td>
</tr>
<tr>
<td><strong>Facilities</strong></td>
<td>Manually control heating, air conditioning, and other building systems</td>
<td>Centrally control building systems over the network, even from home when weather conditions close schools</td>
</tr>
</tbody>
</table>
Think in Terms of Superstructure, Not Just Infrastructure

Campus infrastructure is evolving to support innovative approaches to learning and operations. To be strategic, first think about the services your campus is likely to offer in the next three to five years. “Popular plans include cloud services; lecture capture; high-density Wi-Fi networks that can support video and voice-over-wireless; and telepresence,” Tuohy says.

Then lay the technology foundation. The Converge special report from the Center for Digital Education identifies the following actions for colleges and universities as they navigate into the future:

- Refresh the network: The wired and wireless networks need the intelligence to provide a good experience with video and cloud services.
- Consider cloud services: Some colleges and universities are building private clouds for unified communications services, administrative applications, and research, and using public clouds for other services. “Converting upfront capital outlay for servers and storage to a predictable monthly operational cost is easier on budgets,” says Tuohy.
- Put in place a storage strategy: Growing use of video for learning, training, and physical security requires cost-effective storage and a plan for archiving.
- Implement security controls: New IP-based video surveillance and physical access controls help protect student safety and property. Cybersecurity tools, in turn, help protect sensitive information and keep campus services even if the network is attacked.
- Take a fresh look at new business and collaboration applications for higher education: For example, student teams can share ideas in online communities using Cisco Quad™. And Cisco Show and Share® makes it easy to share video for learning, training, or district communications for viewing on any device.
- Consolidate and virtualize district data centers: Minimizing the number of physical servers needed for learning and administration reduces data center space, power, cooling, and management costs.
- Re-think the role of IT in an era of cloud computing: Student helpdesk support has become more important, and IT teams can also spearhead innovations such as video in the classroom, for example.
- Be sure your human resources are prepared: Train faculty to take full advantage of two-way video and video-on-demand for learning.

To read the report from the Center for Digital Education, “Campus Infrastructure: Nine Key Areas to Lead Schools into the Future,” click here.

To read about Cisco solutions for education, visit: http://www.cisco.com/go/education