THESE ARE TRANSFORMATIONAL times for higher education. Dramatic leaps in technology are enabling institutions to offer learning in ways never before possible, from students who bring their own devices—usually several per student—to campus and expect to connect to classmates on the fly, to faculty who are flipping the classroom and recording lectures to be viewed outside class, with more discussion within the classroom. In all cases, more and more content is being delivered via a wide variety of mobile devices.

At the same time, cost constraints and shrinking IT staffs make it tough for IT departments to rise to the challenges. Managing a myriad of BYOD student devices on combined wireless and wired networks is a must across today’s campus, but can also keep IT managers working late and tossing and turning at night.

The proven technology of virtualization can help. In particular, virtual desktop infrastructure, or VDI, builds on the accepted concept of server virtualization, long popular in higher education because it maximizes resources and minimizes cost. In the same way, virtual desktop infrastructure means that students work from thin clients or in web sessions opened on mobile computing devices, including their own iPads, tablets, notebooks or smartphones. VDI eliminates traditional PC desktops, moving them out of the classroom, lab, or library and onto virtual desktops on backend servers in a data center. It's an option that is far less expensive and easier to maintain than old-style endless desktop personal computers, and an excellent fit for higher education.

Taking that concept a step further, the technology known as desktop as a service, or DaaS, shifts management of virtual desktop infrastructure from on-
premises data centers to the cloud, where management is handled by a third party. In a nutshell, DaaS means that students who bring their own devices to campus—an iPad or other tablet device, for example, a smartphone, or one of the increasingly popular tablets that run Google’s Chrome operating system, known as Chromebooks—can access their desktops in the cloud. With off-premise cloud management provided by an experienced vendor, delivering virtual desktops loses its complexity, up-front expense, and management challenges.

The benefits of combining virtual desktop infrastructure with cloud computing include:

Computing anytime, anywhere. Today’s students have grown up with near-constant access to mobile devices and wireless networks. Their computing expectations of their college or university are high — to connect with networks anywhere across multiple campuses at any time, to collaborate with classmates across devices and applications, and to access computing resources around the clock. DaaS delivers that computing experience, allowing students to log in to the cloud and access their desktops anytime, anywhere.

Reduction in IT forces. Moving the management of hundreds or even thousands of desktops to the cloud can mean a dramatic reduction in IT services needed. Suddenly, campus IT staff can focus on more important issues than keeping a vast range of student devices up and running, and constantly installing and updating new software. Onboarding of new students each semester or school year is easy, as is scaling computing power up or down as needed. Business continuity is enhanced because DaaS eliminates the single point of failure that characterized physical desktops.

Moving computing costs into the operating expense column. DaaS also shifts budgeting costs in a way that can make technology more affordable, because it moves technology dollars from capital expenses to operating expenses. Because cloud-based DaaS works like a utility, with institutions paying a contracted monthly amount for service, it makes expenses predictable and reliable, without sudden spikes or unplanned cost jumps for new equipment.

Introducing flexibility in computing power. In addition to the accounting plus of moving computing expenses from the CAPEX to the OPEX column, DaaS provides a benefit that is particularly useful in

Chromebooks and Windows
The popularity of Google Chromebooks has soared in the past several years, as low prices and ease of manageability have drawn the attention of both schools and students. But Chromebooks bring an attendant issue: users cannot access Windows applications, data and desktops.

With virtual desktop technology, however, wide arrays of devices are generally supported. That means that no matter what device a student brings to class, with the right VDI vendor, that device will be supported—including Apple iOS devices, Android devices, and Chromebooks. Windows desktop sessions on a Chromebook are run as a web session, so access is transparent. To the user, any computing session is the same as any other.

Imagine a student who suddenly needs access to a high-end engineering design application to complete an assignment at the last minute. Instead of rushing to a lab on campus to run the application, if the student’s institution has the right virtual desktop technology in place, he or she can log into an inexpensive Chromebook from his or her dorm room, remotely launch the application with all of its computer power, and complete the assignment. Students can also collaborate with classrooms via their Chromebook—regardless of where they are or what device they are using. Using their own virtual desktops, students and professors can share large files with others without actually downloading them.
higher education: the ability to ramp services up or down as computing needs rise and fall. For example, an institution can plan to contract for additional computing power during the first weeks of class, or during finals periods, when computing needs generally spike. In contrast, during the summer, when fewer students need access, colleges often choose to ramp down, reducing operating costs significantly.

Enhanced security in the cloud. Moving desktops to the cloud also improves security, because desktops, applications and files are not stored on end-user devices. If a student misplaces a tablet computer or smartphone and is concerned about a potential security issue, the use of virtual desktops means that any sensitive information is safely stored off site. Since it’s accessible only with the correct password credentials, security is assured despite the loss.

Superior user experience. DaaS is a great way to give all users, regardless of the cost or sophistication of their end-user device, a top-notch computing experience. Students sporting an array of computing devices, from desktops to notebooks to tablets to smartphones, simply log into the cloud to access their virtual desktop. Wherever they are, they experience a high-end computing experience—DaaS maintains or even improves on the quality of the device’s output. And with cloud computing, desktop sessions rapidly resume, enabling users to quickly pick up—even on another device—where they left off in their last computing session.

Customizable design. Just because desktops are managed remotely on the cloud doesn’t mean a loss of control. Just the opposite. Colleges and universities can customize user desktops to reflect the logos, colors and personalities of the institution. In the same manner, users can alter their desktops to reflect personal tastes and preferences, just as they are used to doing on their own devices. Desktops aren’t forced to conform to a desktop operating system appearance.
HOW DaaS REVOLUTIONIZES THE CLASSROOM

COMBINE THE CONCEPT of virtual desktops—desktops delivered by a backend server rather than on student devices—with the power of the cloud, and the combination is the revolution in desktop computing known as DaaS (desktops as a service).

The concept of desktops as a service isn’t new to most higher education institutions. In fact, “we’re seeing some big trends in the higher education space regarding DaaS,” according to Josue Fontanez, the senior product line marketing manager for desktop-as-a-service at VMware, a leader in virtual computing. “Many institutions have already dipped their toes in the water with on-premises virtual desktops.” VMware offers a range of DaaS solutions for higher education under its Horizon Air brand.

With many campuses already familiar with on-premises virtual desktops through production deployments, Fontanez said, moving to DaaS is an obvious next step. Doing so simply transfers management of the virtual desktop infrastructure for the campus IT department, to a vendor such as VMware. The fact that VMware has seen a number of institutions who have rolled out virtual desktops for a specific class or department highlights one of the benefits of DaaS: the ability to make a gradual move to it. It’s common—and easy through VMware’s programs for higher education—for institutions to experiment with smaller cloud deployments, then expand the deployment further as the benefits become obvious.

That ties into another of the big benefits of DaaS for higher education: its flexibility. “We see lots of expanded uses in temporary environments,” Fontanez said. “Universities bring in DaaS to support a particular class or environment. When the class is over, they can scale back down.”
With a cloud service, institutions pay for the computing services they need, when they need them. When finals week is over, or when a specific class ends, contracted computing use can ramp back down.

For the students who are a college or university’s end users, virtual desktops create a transparent way to use any device they bring to campus, helping institutions deal with the familiar phenomenon known as BYOD. “The ability to access a workspace on any device is huge, especially for students,” Fontanez pointed out. It’s also a big benefit for the institution, of course. “So many students come to campus with everything from Chromebooks to Macs to tablets that it’s hard for universities to keep pace with all these devices.”

From iPads to PCs to Chromebooks to Macs to tablets in general, the wide range of student devices now used on campus has universities scrambling to keep track of them, and to offer wired and wireless access as well as connectivity in classrooms and among student populations. With virtual desktops, universities can give every student a standard workspace without having to worry about end-user devices. That makes management far easier, and also ensures that every student, regardless of device or background, is ensured the same computing experience.

Supporting Google Chromebooks, which are soaring in popularity in education, is another benefit of VMware’s solution. Chromebooks don’t run Windows applications natively, creating problems for schools that need to do just that. “You can’t install a Windows app on a Chromebook,” Fontanez pointed out, but “with VMware, that issue is solved. Essentially, you don’t have to worry about it. No matter what device a student brings to campus, we can support it.”