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The cloud:

a smart move for higher education





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Just five years ago, people in higher education discussed “the cloud” using the future tense. They argued over its definition, considered its possibilities, mused about the speed of its adoption. They framed their conversations using words like “imagine” and “explore.” Visible though it was, the cloud was still on the horizon.

Today, the quotation marks have been removed. The cloud is no longer a trend to analyze, but a reality to embrace. This paper discusses its definition and scope, as well as its benefits for higher education.

What exactly is the cloud?

Put simply, cloud computing means moving data and programs from local servers to the internet, providing users with the ability to access and share information at any time, from multiple devices. It also means procuring technology services, like infrastructure, applications, and platforms, via the internet—making IT more nimble and cost-effective, and less of a barrier to progress and innovation.

Cloud computing is transforming the way institutions do business and serve constituents. And for higher education, it offers the ability to serve not just educators and administrators, but students, who bring their own technology devices, needs, and expectations to the equation.

Cloud’s growing importance to an institution’s strategy

Cloud computing strategies are still largely determined by technology professionals—CIOs, CTOs, and IT directors. But increasingly, C-level executives from outside the IT realm are playing

a decision-making role in this arena, including those responsible for high-value departments like recruiting, admissions, and fundraising. Chief business officers in particular see the cloud as an

effective tool to manage costs and limit capital outlays across the institution.

But the cloud is more than a low-cost solution for scaling IT capacity. Savvy business leaders are using it as an engine for growth and maintaining

a competitive edge. By removing typical IT constraints—such as long lead times for infrastructure improvements, limited resources for maintenance, and incompatibilities between systems and tools—cloud computing frees businesses to focus on business strategy and innovation.

Shift from IT-centric to user-centric computing

Thirty years ago, the first wave of computing was dominated by centralized mainframes with limited functionality and highly specialized users. In the 1980s and 1990s, more user-friendly systems were designed to serve the growing number of ‘average’ desktop users in every sector—as well as strengthen local area networks. This period saw the proliferation of IT organizations devoted to steady-state operations and system maintenance. In the last 10 years, the focus on IT-centric operations has shifted to a more user-centric, service-driven paradigm. Processes have been automated, services have been aggregated, and the technology platforms we depend on have become more flexible and open.

Today, internet-based services are ubiquitous, bringing low-cost, enterprise-level capacity to individual users. Driven in large part by the widespread adoption of mobile technologies, cloud services have evolved to support email, mapping, storage, photo sharing, collaborative tools, and more. Decision makers in every sector are bringing their own personal experiences to the table when making decisions about how cloud services fit into their organization’s strategic priorities. Computing itself is now personal.

So, while in the past an organization may have allocated 80 percent of its IT budget to infrastructure and 20 percent to service delivery, today’s cloud inverts that paradigm. Increasingly, IT investments are designed to help organizations deliver better end-user services and empower its leaders to focus on strategy and growth.

Higher education institutions are rapidly embracing the potential of cloud technology to improve the way it serves both internal and external constituents.

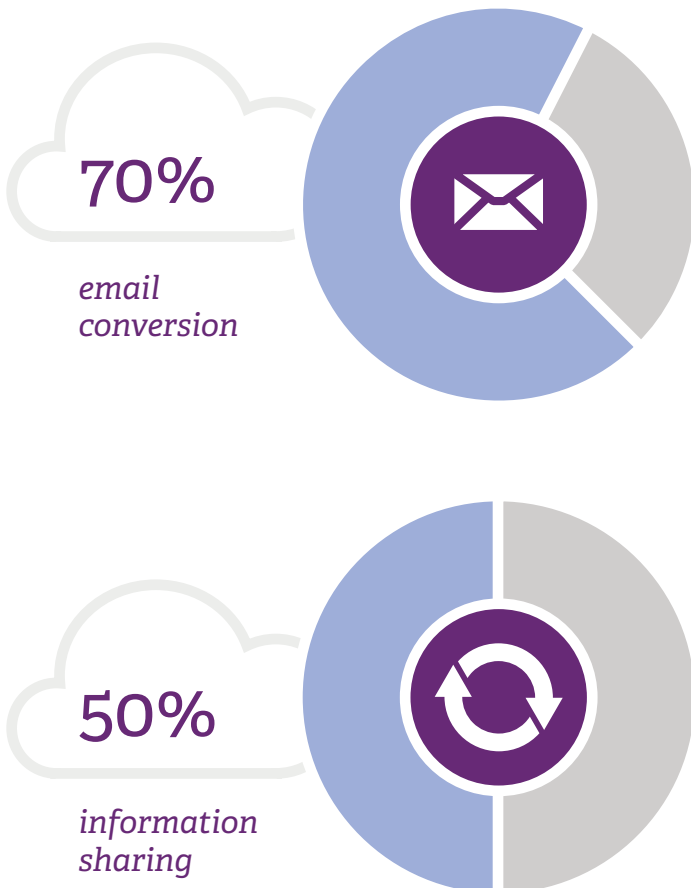


Higher education and the cloud

Current adoption levels

Already, nearly 70 percent of higher education institutions in North America have moved (or are in the process of moving) their email systems to the cloud. About 50 percent have adopted a cloud-based collaboration system to improve information sharing across campus.

Higher education institutions can now find point solutions for student recruiting, talent management, research, administration, and fundraising in the cloud. Cloud-based enterprise-level solutions are also available, with several vendors offering financial management solutions.



Higher education's unique needs

Like businesses that are rapidly adopting cloud services, higher education institutions are seeking a better and more cost-effective way to implement IT services, without the burdensome cost of maintenance and upgrades. Like businesses, higher education institutions want to respond more rapidly to new opportunities, without taking months, or even years, to implement a business-critical software application. And like businesses, higher education institutions want to realize the full potential of their data to better inform strategic decisions about the future.

In spite of these similarities, higher education institutions have a unique culture and mission that affects how decisions about cloud computing are made.

- Commitment to students.** Above all, higher education serves students. And those students come to campus with their own devices and expectations about how and when they want to use them. IT departments must now provide greater interoperability between campus and student platforms—24/7 access to secure, reliable networks and the ability to create, deliver, and share content campus-wide on any number of devices. Cloud computing is now as much about meeting student needs as it is about running an efficient campus.
- Complex finance models.** Higher education finance models are complex and precarious, comprised of various combinations of tuition, philanthropy, investments, public funding, and research dollars.
- Participatory decision-making model.** Another piece of the puzzle is higher educa-

tion governance, modeled on a participatory culture often precluding—or at least complicating—top-down decision-making. Seeking consensus takes time, especially when stakeholders are dealing with decisions about where to allocate limited resources. In this environment, stakeholders need to fully understand the benefits of cloud-based services models.

When developing a cloud strategy, higher education can draw on certain general principles from the business community. But an effective and durable cloud strategy for your institution will require: creating a framework built around the needs of your unique stakeholders—from students to faculty, board members to alumni, engaging all stakeholders early in the process, and developing an institution-wide cloud strategy that addresses IT challenges specific to higher education and your campus (as outlined below).

Using the cloud to meet top IT challenges

In our experience with IT professionals at more than 2,400 institutions around the globe, we see a common set of challenges that need to be addressed if IT is to remain relevant to the institutions it serves.

Constituent service

In an age of consumer technologies, smartphones, and social applications, expectations from all constituents—students, faculty, and staff—have never been higher. IT needs to provide quick, informed, 24/7 service, which requires a whole new service model. Students are not just bringing one device to campus; according to a recent EDUCAUSE Center for Applied Research (ECAR) study, they are now bringing three or four. And in an environment where knowledge reigns supreme, ready access to content and to collaboration tools that enhance teaching, learning, and research is paramount. The help desk of old, located on-premise and manned by an embedded support staff, is at considerable risk if it does not evolve. More resources, faster service, and smarter tools are critical.



Hiring and retaining IT staff

A shortage of skilled information technology workers has and will be a fact of life. When CIOs complain about the difficulty of hiring and retaining staff, they are not just angling for a better budget. Rather, they are responding to an ongoing demographic reality. The challenge is also compounded by geography—institutions in rural areas have a hard time finding staff, while institutions in urban areas have a hard time retaining them due to fiercer competition.

Capital technology expenditures

IT organizations have been hit hard by new economic realities. Typically, the response has been to reduce staff or table more innovative programs in lieu of creating more responsive technology.

Most technology professionals believe an IT refresh should occur about once every four years; historically that model has helped to lower costs overall and increase productivity.

Upgrades and maintenance

Upgrading and maintaining application environments—whether core ERP or an integrated solution—is essential to the needs of user communities. Users continually require new functionality, regulatory updates, better automation, and speedier processing. For the IT department, upgrades

Funding challenges

Funding challenges are still a reality, though we may be leaving the slash and burn era of 2009–10 behind. Sources indicate that slightly more than half of most higher education organizations saw moderate gains in IT funding after several years of decreases; close to a third of those institutions saw an increase of 10 percent or more.

Ever-changing IT environments are yet another factor affecting staffing. New solutions are developed every day, infrastructures needed to support these solutions are constantly evolving, and IT organizations are expected to respond with increasing agility to every new opportunity. Finding and keeping the right talent will be as difficult as it is critical to ongoing success.

But an IT refresh requires significant capital outlays—a difficult challenge when trying to do more with less. Further complicating matters is the fact that many technologies on college campuses today did not even exist 10 years ago, which is when most IT governance policies were developed. Integrating new technologies into existing frameworks, as well as finding the capital to do so, is a high wire act for even the most experienced CFO or CIO.

can mean significant cost in project time, resources, and training—all of which are hard to predict and harder still to manage. But the value that IT brings to an institution should rest on its ability to innovate, not simply maintain the status quo.

That's good news. But the study also reveals some important nuances. Increases vary greatly by institution type. Most notably for community colleges, with 51 percent still facing decreased funding. Where funding did increase, institutions applied 74 percent to operational budgets, indicating a shift in how IT budgets will be managed in the future.

Cloud's value: capability, capacity, cost, control

While cloud strategies are not a panacea, they do offer IT organizations meaningful solutions, particularly when delivered by a vendor that understands higher education. A cloud service model offers benefits in four key strategic areas: capability, capacity, cost, and control. We call them the 4Cs.

Capability. In an environment where new technologies are introduced almost daily, and where speed of adoption is critical to competitive advantage, capability is key. Notre Dame CIO Ron Kraemer has identified at least 50 different cloud services running on campus, supporting everything from infrastructure to software applications to collaborative tools.

“For me, the most compelling aspect of cloud services is that they allow us to move quickly into new areas and then scale quickly. If we can deliver new services and achieve savings by adopting cloud strategies, we can reallocate existing budgets to other core needs.”

—Ron Kraemer, vice president and CIO, Notre Dame

Capacity. Massive Open Online Courses (MOOCs) are the hot trend of the hour; whether they become just another option in the toolkit or transform higher education is not a question we can answer today. What MOOCs illustrate, though, is the need to scale services in ways that are not always predictable. In a world that insists higher education graduate more students faster, it must be able to service new populations and changing needs more effectively. Cloud services provide intriguing new ways to do just that.

“Cloud adoption enables universities to take advantage of economies of scale they could never achieve on their own, leaving more resources available to support the core mission of the university in other ways.”

—Shel Waggener, senior vice president, Internet2 and former CIO, University of California-Berkeley

Cost. Do cloud services reduce costs? The short answer is “it depends.” It depends on what services you adopt, the service-level agreements you negotiate, and the resources you do or don’t reallocate as a result. It is clear, though, that cloud services offer greater flexibility and predictability when it comes to costs.

As you investigate sourcing options, you will likely hear the phrase “own the base, rent the peak,” a reference to spikes in services like online registration. Sourcing one-time or user-dependent services in the cloud, while keeping base-level operations in-house, results in greater agility, speed, and cost control. In fact, the cloud can reduce infrastructure costs by up to 30–40 percent.

Another advantage of cloud services is the ability to shift certain capital expenses (CapEX) to operational expenses (OpEx)—since many cloud services function on a “pay as you go” model. This funding trend began as a response to severe fiscal pressures, but has taken hold because it provides greater clarity and more predictable expenditures. Cloud services provide a meeting point for CFOs and CIOs who are seeking both.

Control. Moving services to the cloud does not have to mean giving up control. It’s true that higher education is generally risk-averse, which makes sense in an environment where data security and mandated compliance are top priorities. Some IT leaders remain skeptical of being able to deliver the same level of security in the cloud vs. in house. But a cloud vendor often has more secure facilities and more rigorous processes. Vendors can more rapidly implement the security updates needed to meet stringent compliance protocols. And, finally, while risks still exist, including the possibility of down time, clear service level agreements (SLAs) can help your organization manage and mitigate that risk with the same or more flexibility as you do now.

“When you say cloud, CFOs hear flexibility. They like paying only for what you use rather than building capacity that sits unused 80 percent of the time.”

—Scott Bills, Everest Group

Embracing the cloud

The question of whether or not to embrace the cloud has largely been answered—by students, faculty, and staff, who are already relying on cloud services each day. Higher education professionals in IT and well beyond are not asking if but when and how they can begin the transition.

That's a sea change in how we perceive and practice technology. Managing that change requires a partner who understands higher education and the benefits the cloud can deliver to your constituents and to your mission.



About the author

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As vice president of Ellucian Cloud Services, Mr. Bomfim is responsible for architecture, design, and service delivery of Ellucian's higher education cloud platform. Ellucian's cloud platform enables institutions to aggregate and integrate application that drive student success while delivering on business requirements for institutions and systems. Prior to joining Ellucian, Bomfim was vice president of Xerox's application management services, with global teams providing cloud solutions, hosting, and application administration services for PeopleSoft, SAP, Oracle eBusiness, JD Edwards, Microsoft, and Lawson solutions to global companies across various industries.

Previously, Bomfim was responsible for global service operations at Electronic Arts (EA), providing global support and maintenance of EA's global online and gaming environment, IT infrastructure, and enterprise applications. He has more than 20 years of technology management experience, including leadership with large teams and complex organizations. Bomfim is recognized as an expert in the area of cloud services (SaaS, PaaS, IaaS) and has been providing multi-tenancy infrastructure and application services since the inception of the application service provider model in 1991. He holds a computer science degree from the University of Maryland.



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