Moving to the Cloud

Gonzaga University's site crashed during March Madness. A major operating system at Arkansas State University-Beebe had the administration scrambling as it neared the end of its life. During class registration, Dominican University's site was overloaded and slowed to a crawl. Each of these institutions—and thousands like them—ran into IT problems that the cloud could solve.

At Gonzaga, IT managers moved its mobile-optimized website to a cloud service to ease the load for the on-campus servers that host the main site. Arkansas State's faculty and staff worked through migration issues and other concerns so that now a majority of services reside in the cloud. Staffers at Dominican University discovered they could buy additional cloud capacity during busy periods, like registration, and then return to a lower capacity later—something they couldn't do with on-campus servers.

To people outside of IT, the cloud is a familiar term because they use it to store photos from their phones, data from apps, music and more. Still, though, it seems like a vast and nebulous place. It's more than personal data storage, and it has significant advantages for most institutions of higher education. In fact, a CITE Research survey of 200 education IT administrators in the U.S. and U.K. showed that many colleges that aren't using cloud computing for most of their apps and plan to start within the next year.

Colleges and universities need to keep looking for ways "to be more streamlined, more efficient, drive costs down, and I think all the CIOs and everybody will realize that cloud is the way to go," said Steve Dowdy, Director of Research Information Systems & Integration at the University of Maryland. "We know that's where the world is going; it's just taking some of them a little bit longer."

Though many institutions have already moved most or part of their operations to cloud-based services, some administrators still have concerns about the cloud, including data migration, security, and money. However, cloud-based services are tackling those concerns and proving that there are benefits.

As Tom Dugas, Duquesne University's Director of Information Security and New Initiatives, told Inside Higher Ed: "Everyone has seen the writing on the wall, but the real challenge for all of us is finding the time, money and resources to make it happen."

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Transition

Data migration isn't easy when moving to the cloud, and it is a major hold-up for many institutions of higher education. Though it's not simple, it's a challenge that colleges and universities can overcome.

One of the significant challenges of migration is money. Dugas [has said](#) that during the transition, institutions might have to run dual infrastructure, which could be costly.

Mapping out the transition or data migration is a vital step in the process to save money and resources.

Derek Masseth, CTO at the University of Arizona, [has said](#) that administrators at the U of A were more comfortable with the data migration process after they saw the reports and diagrams of the process comparing cloud data infrastructure to the on-campus infrastructure.

Having a detailed plan and architecture for migration is essential for success when moving to the cloud, especially for complicated systems, wrote Chris Harrison, CTO of Nova Southern University. Many cloud-based service providers offer customers a smooth transition experience with migration plans.

With those blueprints in place, the transition can be smooth.

"When I got to Maryland, we decided to go to the cloud. I cannot believe how smooth that transition went," Dowdy said.

It helps when you've got a collaborative partner and the experience of universities who've gone before you.

"Kuali has that information and has worked for many of those institutions to go through this process," said Jason DeFay, Director of Research Administration Initiatives at the University of California San Diego. "Kuali is doing [the migration] for us, and so, because they're doing it, I don't have to hire a team of data migration engineers and ETL programmers to go through this."

And for DeFay, partnering with a company that uses "best practices that they have learned from MIT and other institutions who have gone through this" is really comforting.

"It really builds on everything that all those other institutions have done. All of the issues and problems they've already sorted out. We are getting the benefit of that, and I didn't really want to look forward to having to invent the wheel myself, I would much rather use the wheel that's already been invented and simply improve upon that, for us and for anybody who comes behind us."

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Price Tag

Transitioning to the cloud will require an investment. The initial investment includes project and change management, training, setup, annual operating expenses, and more. It may take up to several years to break even, [said Vicki Tambellini](#), president and CEO of the Tambellini Group, a higher education consulting company. For smaller colleges, the cost may be too much to move all their services to the cloud.

The answer for some institutions is to move to the cloud bit by bit. Many schools start by moving email and other SaaS services, including using products like cloud-based Office 365 by Microsoft.

Cost savings—even if they're not realized for several years—can be substantial, though, depending on the size of the institution and services it migrates. Once an institution moves services to the cloud, it can free up space, finances, and resources once dedicated to buying, operating and maintaining services and hardware. For large institutions, savings in costs to power, cool server farms, and data centers may be enough reason to transition to the cloud.

"A school like Maryland is trying to move everything toward the cloud because it frees up all the space of all those server rooms, it frees up the electric charges of trying to keep those server rooms cool," Dowdy said. "People don't think about some of those kinds of costs in running these large data centers on campus."

Dowdy said he was impressed at the low expense of the University of Maryland's transition to the cloud. "I cannot believe that they did it for the little, teeny tiny sum of money that it took to do it. So it was truly amazing."

Once schools free up resources and money from IT hardware and operations, schools can put more focus on valuable strategic initiatives targeted at improving the student experience, [Harrison wrote](#). In addition, IT staff can focus on improved support, instead of spending the majority of their time operating and maintaining complicated equipment.

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Security

For many administrators, security is a concern that holds them back from migrating services to the cloud. In reality, though, the security of the cloud is one of its significant benefits.

Companies that provide cloud-based services often invest more money in security than an individual institution of higher education. So the level of protection will likely be much higher than with on-campus hardware. Also, protecting, encrypting, and storing data—along with keeping it private—requires specialized expertise that cloud-based service providers have, but many colleges and universities don't. Especially in this age of data privacy laws, like the General Data Protection Regulation in the EU, California's data privacy law and others, you don't want to risk a data security error.

Mike Scheuermann, retired Associate Vice President of Instructional Technology and Support at Drexel University, argues that higher education should get out of the data security business and focus on its core competencies.

"Data security and all that it represents is challenging and detailed business—it requires knowledge, expertise, and credentials that are increasingly rare and specialized (read: very expensive)," Scheuermann wrote. "Higher ed simply cannot afford to keep paying higher and higher salaries to attract these experts, let alone develop and retain them. Whether moving to a public cloud, a private one, or some sort of hybrid, the expertise that comes with cloud-based services is cutting-edge. That is their set of core competencies, and they cover all of these areas. In moving to the cloud, we in higher ed would be able to return to our own core competencies, focusing on and funding our research endeavors as well as our teaching and learning initiatives."

Even though the cloud may be more secure than on-campus equipment, it's still essential to reduce security risks by choosing the right vendors when moving services to the cloud.

Scott Sandlin, Research Information Systems Operations Specialist at the University of Alabama Huntsville, said one of the major selling points when choosing Kuali as a partner was security. "We don't have to worry about housing the data, and we get our [data security] guarantee from Kuali... so we don't have to worry about that."

Dominican University's Jill Albin-Hill, Vice President for Technology and Operations, told University Business that the security concerns of the cloud of five years ago have been alleviated. Still, though, it's essential to have a "well-vetted contract" and ensure your cloud-based service provider complies with its terms.

Additional Perks

The [benefits of the cloud](#) are more than security and cost savings.

- Transparency: "Being cloud-based and ... having the updates applied basically transparently is great," Sandlin said. "That was a big selling point to us on the technical side."
- Reliability: Cloud computing offers increased reliability.
- Consistency: Cloud-based systems perform normally during peak usage.
- Upgrades: Systems housed in the cloud have seamless, continuous updates.
- Backups: Cloud backups happen in real-time, as do backups of the backups.

Over the last several years, cloud-based service providers have proven the benefits of moving from on-campus hardware to the cloud. Though data migration may take time and money, the security, long-term cost savings, and other benefits make moving to the cloud worth the investment.