As we look to the future of IT services in higher education, five things are almost certain: (1) demand for IT services and infrastructure will continue to grow; (2) off-premise (cloud) services will be increasingly leveraged; (3) collaborative (social) and mobile services will become the norm; (4) digital will develop into the preferred means of information and entertainment distribution and consumption; and (5) no one is going to show up with a wheelbarrow full of money to address all of our institutions’ IT wants and needs.
In fact, most of this has already happened. IT business plans, funding models, staffing preparation, and strategies just need to be aligned with these changes if IT organizations hope to help transform faculty, student, and staff experiences in teaching, learning, research, scholarship, operations, and campus life.

Recently, I looked through the EDU-CAUSE “Top-Ten IT Issues, 2014” and identified several areas that my campus wants to work on; however, I know we can’t accomplish all that we want to do in these areas, given our existing financial and human resources. Finding funds for everything that we want to do is getting more difficult every day. Most new funds are targeted (as they should be) for financial aid, faculty positions, research support, and direct support for items related to the university’s core mission.

So, keeping these restraints in mind, I have compiled two of my own top-ten lists, which complement the EDU-CAUSE Top-Ten IT Issues list. My first list highlights new activities—things I want to do—that will deliver value for my campus. My second list documents areas where I think I can find efficiencies or alternative ways to deliver more value with fewer added financial obligations. My hope is that I can use savings accrued from the second list to help accomplish my to-do items from the first list.

I fully understand that higher education encompasses different cultures: some are private and some are public; some are research institutions and some are focused on undergraduate education; some are highly centralized and some are extremely decentralized. Attributes in each of these areas will affect what IT leaders can do or will attempt to do, but in general, I believe that at least evaluating these opportunities can result in better service to all of our institutions.

### Top-Ten Campus Needs
The following are the top-ten IT needs that will require new resources on my campus.

1. **Teaching and Learning Support.** As faculty adjust their teaching styles and use more digital content, they will need help in developing, organizing, publishing, and maintaining digital materials. At this point, it is not certain that the need for this support will be ongoing, but until faculty feel more comfortable using new tools to create and manage digital learning materials, they will need assistance. Higher education institutions must establish the infrastructure, tools, and support models that allow digital production to flourish.

2. **Emerging Services.** With things changing as quickly as they are today, IT organizations should build in a bit of flexibility in order to be able to quickly take on a new service or to address a new challenge. Having a strategy that allows the organization to keep a little reserve available so that it can respond to needs that present themselves unexpectedly will be critical to getting faculty and staff to trust and have confidence in the IT service providers.

3. **Staff Readiness.** The one constant with IT services is that jobs constantly evolve. IT organizations must continuously develop talent and must assess which jobs are emerging and which jobs are no longer needed as more services are run off-premise and/or as the technologies and applications transform. Every time a job opens up, the ownership of that position should be held at the CIO level, and the leadership team should decide whether to fill the position or reallocate it to a new area or service. IT organizations must continuously invest in developing the talent of staff so they remain ready to contribute.

4. **Analytics.** We remain in the early stages of advanced analytics, but before long, every higher education institution will base its business decisions and strategies on sophisticated analytics. All aspects of higher education will be affected—from recruiting students and faculty to operating financial, student, and human resource services, to assessing learning outcomes and improving student success. The potential role of unstructured data is just now surfacing as an indispensable input in these processes, and we are starting to see incredible tools that can be placed in the hands of faculty and staff across institutions. Many IT leaders are discovering the importance of placing an initial focus on sound data-governance practices in analytics programs. Investments made now in analytics will position campuses to better compete for, and develop, the best students and faculty.

5. **Identity Management.** One of the greatest struggles in higher education surrounds the management of identity and the commensurate access, authorization, and authentication processes. Provisioning secure
access to people, services, and technology—whether as individuals or groups—has become one of the primary needs of faculty, staff, students, collaborators, and visitors. A tremendous challenge in this area is vendor-centric solutions that do not use standard higher education identity frameworks.

6. **Mobile.** We often think of mobile as a “user experience.” But the more challenging part of developing and deploying mobile capabilities may be the infrastructure needed to ensure that the experience is secure, scalable, responsive (quick and always available), and independent of the unique idiosyncrasies of vendor offerings and products. Faculty, staff, students, and visitors are bringing onto campus their own mobile devices, which have a mix of institutional and personal applications and data. Concurrently, protecting institutions and recognizing the personal nature of the usage of these devices often complicate the management of these mobile ecosystems.

7. **Digital Production.** It is not unusual today to see students’ textbook costs eclipse $500 per semester. With 10,000 students, textbook costs for those students will likely exceed $10 million per year. What if we were able to develop programs that supported the production and reuse of faculty-created digital learning materials (e.g., books, videos, assessments)? How much could higher education institutions save, and how could these materials enhance the learning experience? Campuses will also see the need for more multimedia production and support for the development and curation of digital materials in recruiting students, in raising funds, and in publishing institutional administrative and scholarly content. Almost everything that has traditionally been produced as printed material will find its way to multimedia content.

8. **Information and Infrastructure Architecture.** The interdependencies of platforms, infrastructure, applications, and services are evolving from a world that is data-center-centric to one that is consumer-delivery-centric. IT organizations are quickly moving toward network, storage, identity, security, and platform services that must thrive beyond the physical campus. As the demands for each of these advance (more storage, faster networks, more compute cycles), we will see a growing need for loosely coupled infrastructure, systems, applications, and business processes that can be easily tuned to meet changing needs within campus borders and across global networks.

9. **Legal.** As campus IT service portfolios evolve, two areas stand out from a legal services perspective. First, there is more pressure to respond swiftly to faculty and staff requests for IT services, and second, there is less understanding regarding the potential institutional risks associated with new services and offerings. As a result, IT organizations are under growing pressure to move contracts and licenses quickly through the legal and contract process—when instead more due diligence is warranted. We often forget that this move to cloud, social, and mobile platforms is very new and that sorting through all of the implications requires significant due diligence.

10. **Security.** As increasingly sophisticated security threat patterns emerge, innovative approaches to security become a core capability that must be advanced. IT organizations will be faced with continuing expenses in traditional work protecting highly sensitive data, intellectual property, and FERPA/HIPAA data. However, traditional hacker threats have now been eclipsed by much more insidious, organized global threats that will require investments in proactive, technology-based solutions to watch over and protect all campus infrastructure components that can become potential entry points for attacks on campus resources.

**Top-Ten Potential Sources of Funds**

Addressing the ten items listed above will require resources, of course. The challenge is that colleges and universities are not always making substantial reallocations to undertake this work. With expenses in almost all areas increasing,
there are not areas from which reallocations can be made. Might there be another option—that is, can we change how we approach some other tasks to help fund new initiatives? None of the services listed below are likely to go away, but they may serve as potential sources of funds, to be applied to evolving needs.

1. **Data Center**

One of the largest capital expenses faced by campuses may be upgrading existing data center facilities or building a new data center. Looking at various options, campuses need to look at everything: the cost of money, energy consumption, the effect on campus services, and the opportunity to use buildings and infrastructure for alternative activities. The business models, network connectivity, legal arrangements, and security models for off-site data centers are beginning to show promise, and as a result, there is real hope that campuses may no longer need data centers (or at least not multiple data centers).

2. **Application Integration/Realignment**

One of the largest costs may be a portfolio that includes redundant applications addressing similar needs. Many colleges and universities have multiple customer relationship management (CRM) systems, event management systems, document management systems, imaging tools, and myriad other software packages that essentially deliver similar capability to different groups on campus. Sometimes having multiple systems is necessary, but often it is a very expensive luxury. Even if IT organizations start with just the largest cost items, they should assess the value of every software license and, in the case of unnecessary replication, should consider migrating to a single application. The cost of the license is only one cost. The support, training, and management of the applications create an additional layer of costs that are often not accounted for.

3. **Service Aggregation/Management**

IT organizations should integrate operations into a service-desk concept across as many IT services as possible. While aggregating these services, they should take care to keep the experience positive for faculty, staff, and students. Any customer-facing service operation should be considered for consolidation within a single operations structure. This is especially critical if there are multiple help desks or service centers scattered across campus or if more than one help-desk tool is licensed on campus. IT organizations should consider realigning all service management areas, including help desks, service desks, communications, operations, training and change management, content management units, communications teams, videographers, or media management specialists. This doesn't mean putting them all into one big unit, but their activities, tools, and services should be coordinated to create efficiencies and better service for campus.

4. **Organizational Structure**

IT organizations should take every opportunity to increase spans and reduce layers. Increasing the number of staff that individuals supervise (spans) and reducing the levels of management (layers) will create opportunities to redirect the work force to service delivery and innovation. No doubt this type of action will cause some anxiety, but staff adapt surprisingly quickly, and customers see positive results swiftly as well.

5. **Messaging/Communications**

It is now just a matter of time, perhaps several years, until campuses no longer run their own messaging services. E-mail, calendars, and group messaging have become readily-available commodity services, and IT organizations that have already moved messaging services to organizations that specialize in that arena have experienced lower capital and operations costs. Related to messaging, any IT organization that has not yet moved its campus to Voice over IP (VoIP) should consider doing so in the very near future. Campuses that have made the move are seeing incredible financial savings, as well as improvements in services and opportunities to leverage unified communications.

6. **Software and Service Licensing**

We are in an incredible time of flux, and this creates a great chance for IT organizations to revisit almost every contract—whether it is a software, a service, or a hardware contract. The number of choices available for supporting IT service delivery continues to expand, creating massive leverage opportunities. Also, as open-source offerings continue to mature, IT organizations will see increasing opportunities to promote collaboration and innovation by leveraging one another's expertise.

7. **Apps Development**

IT organizations have almost completed the transition from apps developers to apps configurators in many services. Although IT groups still write custom code for a few things, that world is quickly evolving. Every time an IT organization is asked to develop a new application, it should check to see if something similar already
exists on its campus or on another campus. The open-source platforms have matured to a point where they have become real options for more than just the largest campuses.

8. Administrative Support. In the “old” days, computing centers employed numerous keypunch operators, and every department had a secretary. Today, the need to do routine office tasks has almost been eliminated. Administrative support activities have become much more sophisticated, and the skills needed are considerably advanced. Aggregating administrative professionals into advanced support teams can have an incredible impact on the quality of services delivered and can create efficiencies within work units. This also creates a career stream for administrative professionals in many other areas of work on campus.

9. Enterprise Resource Planning (ERP). Many of us who have been in IT services for a while never thought we would see the day when we would say: “We have built the last ERP we will ever build.” But it’s true: future ERPs will be, almost exclusively, software-as-a-service ecosystems that are hosted and managed beyond any individual campus. They will still require significant resources, but the types of resources will be pointedly different. Instead of needing to cover tens of millions of dollars of cost upfront, the IT organization will move to an operational cost model in which it pays for services as it consumes them.

10. Platform. Finding the right mix of on-premise and off-premise services is crucial. Over the last several years, IT organizations have “virtualized” their data centers; the next move is to transfer those assets to off-premise locations in privately or publicly hosted environments. The long-term costs, service models, and risks associated with off-premise offerings are just beginning to be understood, but there will certainly be a role for these offerings in the future.

Conclusions
If those of us in higher education IT organizations generally agree with my five “nearly certain” assertions stated at the beginning of this article, and especially with number 1 and number 5—that demand will continue to grow and that acquiring funds will not become easier—then finding innovative ways to run our IT services and infrastructure may be our best source of funding additional work. But as we consider options, we need to consider the culture of our campuses: the appetite for change and the openness for considering entirely new operations models.

There are no silver bullets. There is certainly risk. We will need durable relationships far beyond the IT organization if we hope to adopt many of these new models. Transitioning to new service models will cause anxiety, yet these models can result in extraordinary savings that can be redirected to pressing short- and long-term needs. The expectations for our services will not lessen, and the rate of change will not decelerate. To address these demands, the IT organization can start by making a list of the top-ten things it wants to accomplish and a list of the top-ten ways it might find resources to accomplish those things. For IT service providers, the future is actually very bright. Through innovative leadership and management processes and collaboration, we can contribute at levels never before realized on our campuses—that is, we can advance, even without new resources.

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Note

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