This paper is the sixth in a series on Preparing the IT Organization for the Cloud from the ECAR-CLOUD Working Group. For institutions that have decided to adopt cloud services, transitioning to the cloud presents both opportunities and challenges. This series provides guidance to help institutions effectively prepare to address these challenges. More information can be found at the ECAR working groups website.

Introduction

Providing support for cloud services presents a unique challenge for institutional IT staff. Prior to the availability of software as a service (SaaS) and infrastructure as a service (IaaS), institutions often developed their own IT solutions from the ground up. Everything from system or application design to end-user support was covered by the IT organization. If a product didn’t suit the institution’s needs, it could be changed. If the frontline support team needed help, the designers were often just a few doors down the hall. With cloud, this is no longer the case.

One of the facts of life in cloud computing is constant and very rapid change. This is driven both by intense competition between vendors and the relative ease with which changes can be deployed to all customers at once. For example, between January 4 and February 12, 2016, Amazon Web Services made 51 announcements regarding new services or enhancements to existing services. Similarly, enhancements and feature additions appear frequently within Google Apps for Education and Microsoft Office 365 for Education. Workday customers see new features on a weekly basis. The rate and amount of change present additional risks and fundamentally challenge many of IT’s ingrained institutional habits, such as thinking that we need to develop our own documentation for users and provide formal training for all the software we support. We in IT, as well as end users, are more and more driven to a “just in time” approach to learning and a “learn alongside you” model of support. This shift requires intentional and thoughtful change management: IT staff need to become “accomplished novices,” comfortable with not having all the answers. Similarly, end users need to adjust their expectations about IT support and play a more active role in learning about a given cloud solution.

However, cultural and social shifts are hard to bring about and sometimes even harder to maintain. Thus it will be important for IT leaders to cultivate an organizational culture that expects to adapt to the rapid pace of change. Careful attention will need to be given to:

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Communicating about cloud computing, using language that demonstrates that the IT organization is engaged and aware

Recruiting cloud advocates to promote the value of the service

Designing incentives and rewards to encourage those who engage in continuous learning and appropriate risk taking (e.g., “Let’s give this a try and see what we learn”)

Celebrating wins and mining mistakes for what can be learned from them

For institutions that have embraced cloud services, efforts in areas such as support, documentation, training, and outreach need to address the contextual change created by the cloud model, and those changes need to be effectively communicated to end users. Providing support for cloud services requires organizations to blend institutional and vendor-provided resources and to develop a culture that is supportive of rapid change. Comprehensive documentation of services and end-user support might be provided by the cloud provider, the institution, or even user communities. Marketing materials are often available that can help end users understand the value and features that the cloud services offer. Institutions can leverage these materials to showcase the skills of the cloud provider, as well as those of the institutional support staff. All of these tools and services might be available for free or at a cost from the cloud vendor, raising questions about how and when this documentation is used and managed. No matter what the service situation, a certain amount of expertise is required of IT staff so that the team can address inevitable and frequent updates.

This paper outlines how institutions can address end-user support, end-user documentation, user training, and community outreach in the cloud.

Providing End-User Support

As colleges and universities transition services to the cloud, the support that IT organizations provide is adapting. Institutions are changing the way their IT organization operates by leveraging vendor-provided cloud tools and services rather than tools and services provided by institutional IT teams. End-user support often now includes direct vendor support, in which campus users are not calling institutional help desks but vendor call centers. A challenge that universities face is the need to adapt to an increased frequency of updates from cloud vendors and the lack of control the IT organization has. To help with some of the changes that organizations face with end-user support around cloud services, IT organizations are opting for add-on support and service agreements to get enhanced support from cloud vendors.

Also important is that end-user support for SaaS versus IaaS solutions takes different forms. Often SaaS end-user support is directed at campus users, including faculty, staff, and students who use the service as part of the work they do in support of academic, administrative, and research efforts. IaaS end-user support agreements, on the other hand, are directed at skilled faculty and IT staff who are responsible for managing IT systems. IaaS support often requires a deeper skill set and expertise, and thus the vendor end-user support costs more than SaaS for the end-user community.

Below are some details that will help IT professionals prepare their organizations to support cloud services.
Institutional IT Support

Institutional IT support staff are uniquely positioned to address the critical junction between the cloud service’s functionality and the institution’s business needs. Using a cloud service requires more than understanding its features. Whereas cloud vendors can provide support for their applications and systems, institutional IT support staff are able to understand institutional business processes and help users integrate their workflows with the cloud service’s features and functions. Further, institutional IT support staff are the first line of defense in enterprise risk management. These staff are positioned to interpret the institution’s security policies and can help end users understand and apply appropriate practices when storing and processing data in the cloud. Distributed IT support staff, whose users may be impacted by the deployment of a centrally selected cloud solution, can assist their constituents with use of the new, cloud-based tool, though they may not be able to assist with traditional account management functions.

The rapid pace of change in cloud services requires continuous learning, and institutional IT support staff are responsible for keeping pace with that change. By keeping up, IT support staff can anticipate the impact of these changes on end users and proactively address concerns related to usability, functionality, and impact to business processes and workflows. To do so, it is essential for IT support staff to develop solid partnerships with end users.

Most cloud-based services are evaluated, launched, and supported by a central IT department. While there will certainly be legitimate examples of individual departments rolling out a niche SaaS service, ideally there is still some central IT involvement, even if only for legal, data, and technical vetting. The world has shifted away from a model in which a department would buy SaaS on its own, and units engaging cloud vendors without some sort of central touch (especially around legal and security/privacy/compliance issues) is not ideal, especially when those units are working with sensitive data. It is not uncommon for groups to think only of the data they are providing, not what the vendor may also be collecting from users.

However, in many cases, each department on campus will have distributed IT staff tasked with bolstering support from central IT. Distributed IT staff are uniquely situated to share information and build support among end users, their peers, and the units they support. Ensuring that distributed IT staff are aware of upcoming changes and have the resources to deal with those changes can dramatically improve the adoption and support of a cloud service.

Similarly, a strong working relationship between distributed and central IT helps central IT understand the needs of the community and puts institutions in a position to better respond to the needs of users with all the resources available. Distributed IT understands the needs of its user base not just in terms of how to best support a new campus-wide product but also in terms of the products and services its users need. A strong working relationship not only bolsters support but also enables all IT staff to better respond to the need for new solutions and services.

Communication is key when building a relationship between central and distributed IT. Often, existing IT-specific communication methods have been established and can be used to start conversations about upcoming cloud services or current needs. If your organization has an IT message board or mailing list for the entire IT community, use those methods not only to share knowledge but also to solicit feedback. Setting up an IT meet-and-greet or initiating meetings with IT leadership can also help, particularly with
rollouts of significant products. For larger organizations, an IT-specific “town hall” meeting covering specific products during rollout can provide an excellent way to communicate and prepare distributed IT staff for upcoming products.

Institutional IT support staff also have a role to play in training and documentation. By identifying frequently asked questions and observing pain points, frontline staff can help those responsible for training and documentation to sift through the myriad of available resources to select those that will be most helpful to the end user.

**Direct Vendor Support**

Some cloud services are completely vendor supported, with little or no institutional IT involvement. Smaller, specialized solutions tend to fit into this category. With this support model, the vendor supports end users, only involving local IT when needed. The vendor is essentially the first tier—all initial questions go directly to them—and local IT support is only invoked when the vendor needs help with institution-specific technical challenges.

In most situations, however, local IT support staff will be the first point of contact for problems with cloud-based services. The vendor essentially becomes a support tier in an institution’s escalation path. Local support specialists gather information and can solve many problems in this model, but the vendor may be available for problems that local staff can’t solve. In these cases, support staff act as a vendor liaison so that users will have a familiar point of contact. Support staff also have access to the expertise needed to support a product they don’t control.

**Updates**

Updates from cloud providers can be fast and furious, with little or no warning, and even when warning is given it’s often buried in massive update documents detailing each and every feature change. It is critical for IT support staff to interpret and communicate important service changes to cloud users; at the same time, it is also critical to build understanding in the community that cloud services are updated frequently and without institutional control. Both end users and support staff will need to be prepared to deal with features that change or disappear, as well as constantly shifting user interfaces. IT staff cannot create an environment in which updates are carefully rolled out at a pace set by the institution. End users will need to be prepared for that new reality.

**Added Cost**

Support isn’t always included in a cloud agreement and, even when it is, it may fall short. Cloud service providers don’t always provide functional support without an added support plan. Sometimes this is sold as unlimited access to an additional tier of expertise, but more often support is provided on an hourly basis. Not only is paying for support a direct cost to your organization, but it can result in administrative costs as well. How do staff go about paying a vendor for support? Who manages the budget and approves such a cost? Who manages contact with the vendor? Who can use this support, and to what extent? All these questions need to be clearly answered at the onset of implementing a cloud solution and should be part of a broader conversation about how the IT organization will provide support for cloud services overall.
Providing End-User Documentation

Providing comprehensive end-user documentation is key to successful implementation. Institutions can use documentation provided by the cloud service provider, develop in-house documentation, or customize documentation received by the cloud vendor.

Institutional Documentation

Due to the dynamic nature of cloud services, and the fact that interfaces can change with little warning, we recommend that institutions try to minimize the amount of documentation they develop and increasingly rely on vendor-specific documentation as their standard materials. However, in certain cases, you may need to create documentation to support vendor-provided cloud solutions. For widely used applications, it may make sense for an institution to establish a web page as a collection point for key information. Such a page could contain any local materials (e.g., FAQ) and links to vendor materials. This can result in a mix of vendor-created reference documents and institutional help pages, depending on the need. Documentation requiring institution-specific data or settings works best if it is written from the ground up with the proper settings. E-mail client configuration is a good example of institutional documentation being significantly more useful than vendor-provided instructions. Although re-creating vendor instructions with settings specific to your institution is more work than pointing to the provided instructions, your campus community may appreciate a single set of instructions rather than piecing together what needs to be done from multiple sources.

Vendor-Provided Documentation

Cloud vendors will usually provide a robust set of documentation aimed at end users. However, introducing and promoting vendor-based documentation can sometimes be a challenge, especially since using a noninstitutional source for help will be a transition for many users. Although you should include language around the notification of documentation updates in SLAs, cloud vendors often change documentation—both substance and location—without notice.

Often, a reference page or FAQ is created locally to introduce and point back to the vendor’s documentation. Both local support specialists and users will be able to use your existing documentation infrastructure to point to vendor-provided materials without re-creating them. In addition, any customizations or special settings can be referenced in these documents, further enhancing the documentation provided by the vendor.

User Training

Because of the rate of change in cloud services, training materials can quickly become outdated. Traditional approaches to user documentation—such as creating annotated screen shots—are difficult to maintain, and inaccurate materials frustrate end users. With cloud computing, the approach to user education needs to shift. Instead of having end users memorize repeatable steps, trainers must help users learn how to find what they need. For example, the “Send” button may change its icon or position on the page, but if end users know it’s there and become comfortable with exploration and experimentation, they may be able to find it without calling the help desk. The pedagogy of user education must enable users to understand and apply concepts so that they can adapt to a changing world. This
requires trainers to learn new ways to teach end users and may require a culture shift within the training organization.

Many cloud vendors will provide resources to help with training. These resources are occasionally available as part of the base cost of a service or, if not, are frequently available for an additional fee. Training resources can come in a variety of packages.

What end users need, ultimately, is enough information to accomplish the tasks they care about. The institution can facilitate this by curating training materials and highlighting those that are most relevant. Providing suggested paths through the sometimes-overwhelming variety of training materials and classes can help users get the most value from the time they are investing in learning about the cloud service. Time-saving approaches, such as producing three-minute videos on single tasks that users can watch when they have a moment, can encourage users to self-educate.

**Online Training**

Online training is the most common option available from vendors due to its low cost and high impact. Online training often takes the place of face-to-face training and can be almost as effective. However, despite being the most common training offered, online training is one of the least used types of training because it typically does not need to be scheduled. Institutions can help by scheduling in-person training sessions or even by making classrooms and meeting rooms available for online training sessions. Attending online training scheduled in a classroom can lead to IT-facilitated discussions or Q&A sessions that will often formalize and elevate the importance of online training.

**Face-to-Face Training**

Face-to-face training can be arranged by gathering users in a formal classroom setting to collectively conduct an online training session delivered by the cloud provider. Augmenting online training and labs with follow-up live sessions or discussions may prove to be the most beneficial training methodology for your institution.

Another way institutions can leverage the cost-effective delivery of online training is to create a hybrid training model to provide specific, in-person, live training to supplement or reinforce a particular component of the tool or service that your institution is implementing. This type of hybrid training model can be particularly effective with SaaS tools for which—once users have the prerequisite knowledge of navigating or using the common interface of the tool—an in-person trainer can help users quickly drill down to the those functional tasks that are important to their role at the institution.

Many companies offer train-the-trainer sessions for institutions wanting to run their own training programs. These usually consist of a high-level, in-person course for the potential trainers. Training materials are often already prepared and offered for duplication. This solution works best when trainers are already on staff at your institution or when support staff, whether central or distributed, are able to provide training.

The train-the-trainer approach also provides quite a bit of flexibility. When an institution runs the training program, any number of classes can be offered, varying in duration and size. This allows institutions to tailor their training program for each individual or department.
Larger vendors may offer advanced programs aimed at IT professionals working with their technology at a high level. These IT professionals can then use their knowledge to run workshops, classes, one-on-one sessions, and much more. Similar to “training the trainer,” these programs use vendor-provided training and materials to turn IT staff into experts, and that knowledge can then be passed down to users. Unlike train-the-trainer offerings, advanced training programs usually run over several weeks or months, involve many different courses, and often come with additional recognition from the vendor, such as certificates or memberships in advanced training groups.

**Campus Outreach**

The saying “Build it, and they will come” may have some truth to it, but only when users know it’s there and see its value. Outreach to various groups of users is essential in order to encourage adoption of the cloud service and to help users find ways to effectively use it. Institutions have many options for reaching users, from passive (distributing marketing materials) to direct engagement (hosting tech fairs and developing communities of practice).

**Vendor-Provided Marketing Materials**

In addition to documentation, many cloud service vendors provide marketing materials free for use in your own publications. These materials often include product and company logos designed to help communicate your partnership to the campus community. Often a help page or product announcement that includes branding from the vendor can help your campus community understand the close relationship between the vendor and local IT.

While larger cloud providers typically advertise these materials on their websites, smaller companies might still have materials to share, even if they aren’t well advertised. In situations where marketing materials are not readily available online, check with the company’s support and/or sales staff to see if they exist.

**Tech Fairs**

Tech fairs are one of the more common approaches to IT outreach. Some institutions host specialized events for specific groups, such as focusing on faculty and staff for one event and students for a separate event.

Many cloud providers are eager to communicate directly with the users of their products and will often contribute handouts, posters, and other fun items such as bags, stickers, and pens to help draw interest. Often, a company may even be willing to send a representative to talk to students, staff, and faculty directly. This can be done independently—where each cloud service provider sponsors a booth, for example—or cloud providers and local IT can team up and host a booth together. Sharing a booth with a cloud service provider is particularly helpful when a product is heavily customized for your environment.

**Communities of Practice**

Experts can be found in unexpected places, and often the best resources for learning about a service or product are right down the hall. Identifying and connecting all the local experts in a community of practice can result in an entirely new support structure for users. The community becomes a new support
Building a strong community of practice can start with something as simple as a monthly meeting. Bringing together all the expert users of a product generally benefits everyone participating, and in many cases, the community itself can become self-sustaining.

**Faculty Engagement**

Students represent the largest base of users for many of your cloud services, yet they will often not use a university-provided technology unless/until they are compelled to do so in a class. This makes faculty a key partner in ensuring the success of the investment in and deployment of your new cloud service.

Faculty are the gateway to the students. By reaching out to faculty, you can establish ongoing partnerships that will span not only many services but also many cycles of new students. Faculty first need to be engaged in person to help them understand the role of the new technology and develop a comfort level with it. They may also want assistance in implementing it for their classroom. Younger faculty are often the most open to trying new tools. New faculty orientation is a good place to begin building those relationships.

Many faculty manage the environment in the classroom prior to the start of class by running slide decks with news or announcements. Providing slides to the faculty with information about new IT services makes it easy for them to incorporate that message into their decks. Keeping those slides up to date in an easy-to-find central (cloud?) location makes it easy to distribute.

Faculty understand the value of having everyone comfortable with the technology being used for the class. It then becomes a tool and not a distraction. At the beginning of the term these faculty might give your IT outreach team a couple of minutes at the start or end of their classes for quick demos. That face time in front of hundreds of students a day at the start of a semester can have a tremendous impact that often ripples out to others as they share their new knowledge with their peers.

**Conclusion**

We’re accustomed to constant and rapid change in IT, but cloud-based products take change to a new level. Many IT professionals can feel intimidated by the constant push for new features coming more and more rapidly every day. End users are no different. The days of using the same program for years are gone. Stability and comfort are fighting a battle with change and improvement, and IT is at the center. End-user support is key in this new age of rapid product rollouts and version changes coming from sources over which the institution has little control.

Fortunately, these changes, regardless of frequency, are manageable. New techniques can be used for support and documentation. The disadvantage of having no control over a product can become an advantage when you use the support and marketing materials a vendor provides. Communicating with users is always critical, and using new communication channels greatly helps everyone adjust to a world of rapid change and improvement. As is the case with any service IT offers, success depends on the success of end users, and changing with our changing environment is key to users’ success.
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Notes


2. “A healthy alternative is one that celebrates being an ‘accomplished novice’ who is proud of his or her accomplishments but realizes that he or she is still a novice with respect to most that is knowable and hence actively seeks new learning opportunities.” John D. Bransford and Daniel L. Schwartz, “Rethinking Transfer: A Simple Proposal with Multiple Implications,” Review of Research in Education 24, no. 1 (January 1999): 61–100.

3. For instance, Microsoft offers a program like this called the Microsoft Imagine Academy. Similarly, Google offers many education programs, including educator-focused training.

4. For example, marketing materials are available from Google, designed to help with the creation of customized documentation for your institution while protecting the brand and the accuracy of information provided by Google. See Guide to Going Google.