

Spotlight on Cloud Computing Series

Professional Development and Staffing for the Cloud

This brief summarizes the EDUCAUSE webinar “Spotlight on Cloud Computing: Professional Development and Staffing for the Cloud,” held on August 25, 2010. The speaker was Joanne Kossuth, Vice President for Operations and CIO at, Franklin W. Olin College of Engineering.

Cloud computing raises legal issues as well as concerns about stability, security, finances and other questions, but eventually it comes down to people. Cloud services will change the way we hire and educate our staff, raising some critical questions:

- What new skills will be required?
- What skills will be obsolete?
- How will technical work change?
- How will the changes impact the work of the CIO or senior IT leadership?

For this webinar, cloud computing is defined as the delivery of scalable resources over the Internet, as opposed to hosting and operating those resources locally. Collaboration between institutions is likely to become more common, and management skills like creativity and relationship building will be required throughout an IT organization.

Reworked Skills

Technical Skills

Staff will probably need reworked technical skills. One view is that if services are not hosted onsite, less work will be required for maintenance. An alternative view is that the cloud will increase the complexity of managing services. Strong technical skills will probably still be required in managing bandwidth requirements and monitoring systems,

but staff will also need a greater understanding of the big picture.

Communication Skills

Another staff skill set that will need further development is communication. IT staff need to understand technical information and present it in a way that nontechnical listeners can understand. Flexibility and accommodation are critical, given today’s always-on work environment, global nature, and prevalence of teamwork and collaboration. Staff must understand different cultures’ ways of working and values.

Project Management Skills

Project management may become more complicated, with multiple partners having deliverables for a critical cloud-related project path. Project managers will need to know how to work effectively with their institutional colleagues, project staff from many institutions, and vendors, on timelines, cutover, training, status updates, and the flow of information.

Negotiation Skills

The nature of cloud computing is fundamentally about managing contracts, relationships, and collaborations. Whether resolving disputes, producing agreement on a course of action, or bargaining for individual or group advantage, strong negotiation skills will be vital.

Knowledge of the Law and Institutional Policies

Cloud services contracts will require guarantees and service level agreements at a higher level than typical today. Managers and staff involved in managing cloud contracts must understand such factors as the risk profile of your institution and related institutional policies. This will help in deciding what services to use in the cloud and which need to remain in-house, and the pace of adoption of cloud services.

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Similarly, how does your institution handle intellectual property? Do students, faculty, and staff own what they create, or does the institution own part? Ownership will be critical in contracting for cloud services.

Skills for Conducting Due Diligence

The complex nature of cloud computing will require IT staff and leaders to use due diligence before contracting for cloud services. For example, how will your institution preserve ownership of its data in the cloud? How will your data be protected for backup, security, and privacy, and what is the rollback strategy if upgrades do not work? What is your exit strategy if your vendor goes out of business? What are the full nature and ramifications of financial arrangements, service level guarantees, and project incentives? How well do you know the backgrounds of the companies you are contracting with and those of their individual staff? What are your institution's policies about nondisclosure agreements, and are the proper ones in place?

In cloud computing you give up elements of control. At a minimum, your staff should understand the questions to ask; the tools to use to look for comparable institutions, comparable RFPs, and best practices; how to check references; and how to document these processes.

Helpful resources include:

- [“If It’s in the Cloud, Get It on Paper: Cloud Computing Contract Issues,”](#) by Thomas J. Trappier, *EDUCAUSE Quarterly*, vol. 33, no. 2, 2010
- [“Structuring the IT Organization for Cloud Services,”](#) by Beth Schaefer and Melissa Woo, EDUCAUSE Center for Applied Research, Research Bulletin 12, 2010

Obsolete Skills

In the era of the cloud, existing skills in computing may become obsolete. Staff who prefer to program in a particular language and not interact with the community might have to change their ways of working. Maximizing the cloud's potential will require leveraging human capital.

New Skills

No matter what form cloud computing ultimately takes, one constant will be increasing change. That means that IT operations will need to develop new skill sets.

Creativity

Staff must be creative, envisioning and capitalizing on new opportunities. They will need the ability to focus on solutions, not just technologies. Originality and a capacity for brainstorming will be invaluable.

Openness to Change

The cloud can help us be more agile in adapting to and meeting the changing needs of our customers, but it will require us to be more adaptable, too. In a cloud environment, changes come fast and regularly, and there is ongoing pressure to “keep up.” Staff must be comfortable with change, which might require extra training. As a corollary, we need to become more comfortable with failure and learn from it.

Teamwork

The ability to work effectively in groups will take on even more importance. The cloud opens opportunities for new collaborations in higher education. Staff may need additional training in teamwork; managers need to recognize, reward, and model collaboration.

Collaboration

With common goals, partnerships and consortia can effectively share ideas, services, and support while saving money, but this model requires time, care, and energy to succeed. Staff will need the skills to recognize opportunities for partnerships and make them work.

Define the scope of any collaboration carefully. Decide the tools needed to make it work. Decide which partners bring which skills and resources. Define parameters for systems access, upgrades, and scheduling, and make sure all partners have the same understandings and expectations. In building consensus, some decisions will hinge on institutional policy, which requires that staff understand their own and the collaborating institutions' policies.

New Possibilities

Entrepreneurship

Cloud computing raises the potential for entrepreneurship—searching for new sources of revenue or reinvesting cost savings. We might test an idea by starting small on a faster track and, if it succeeds, looking at quick expansion. Partnerships can make piloting easier and mitigate risk. To recognize and capitalize on opportunities, staff may need additional training.

Data Analysis

An ongoing challenge is making sure IT staff have skills to support—or lead—an institution's data needs: to determine and track metrics, highlight useful information, and understand trends. With cloud services, we need to enforce requirements for data collection and analysis so that our organizations have the business information needed to make decisions. Conversations should take place before, during, and after we contract for cloud services and may require staff with business analysis skills.

Assessment

Universities need to assess how well they are doing in critical areas. They must know what they know, what that information means, and what additional data they might need.

As we move to cloud services, we must ask ourselves how those services affect assessment and how we can align cloud services to future requirements. Which services best serve our emerging needs? Which emerging technologies better serve our future needs?

Budget Development

The economies of scale in cloud computing may change budget assumptions. A common model is that 20–30 percent of costs are

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variable and the rest fixed, but might cloud computing enable us to change that ratio significantly? If cloud services enable smaller fixed costs, we could apply variable budgets to pilot projects that might lead to better ways of meeting student needs and those of our academic missions.

Compliance

Cloud computing will require developing and enforcing policies and contracts. Because we give up some control and outsource services, agreements about privacy, security, and reliability will be more critical. Staff will need the skills to ensure compliance with contract terms, including ensuring third-party compliance with institutional, regulatory, and legislative mandates.

The CIO's Role

Leadership

Strong leaders need to invest time in establishing and sharing a vision. Share information with staff about emerging trends. Work to find common ground with colleagues and providers. Find ways to drive your vision through the work of others, and find the right mechanisms to drive your vision to completion.

Having the right people in the right jobs at the right time is challenging. A tool for keeping good people is to provide a good career

path. Actively support staff development and skill-building.

Managing Organizational Behavior

What does using cloud providers for your network infrastructure mean? What does it mean to use cloud-based services for learning management systems?

Assuming collaborative institutional partnerships become more common, we need creative ways of staffing such consortia. One option would be joint appointments to share expertise.

A SWOT analysis can help you build your strengths and identify areas for further attention. Conduct exercises in a way that engages your people, making change part of your business.

Research

Given that the cloud is rapidly changing, leadership means ensuring that your organization researches the different vendors

and products and identifies new opportunities. Your organization must keep abreast of emerging laws. Assign staff to scan the broad cloud environment and report regularly about evolving options and developments. Partners can also be an important source of knowledge.

Potential New Jobs as Cloud Services Evolve

The rapidly changing computing environment might require broad thinking about staffing needs, positions, and training. Professionals with technical knowledge could work as cloud component engineers, cloud IT architects, administrators, and integration architects. Another group will work in the essentially plug-and-play world of cloud and web-based services and applications. You also will probably need people with strong business skills and integrators who can determine the best approach: a private cloud, public cloud, or hybrid model.

Access this and other briefs in the Spotlight on Cloud Computing Series, as well as recordings, transcripts, and slides from the webinars, at <http://www.educause.edu/Resources/SpotlightOnCloud>.

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