

The Myth about IT as a Utility

“IT Is Just a Utility—Like Electricity or Water.”

Information technology is just a utility like water or electricity. We'd all like that statement to be true. When we want to connect to the Internet, we want it to be there—instantly. And most of the time, it is. For the most common applications—e-mail or Web browsing—the Internet can be turned on or off. We can get e-mail on our computers. We can get e-mail on our mobile phones. We can get e-mail from kiosks in airports. We can use the campus e-mail system or gmail. But thinking about IT as a utility is misleading. Thirty years ago, e-mail was an exotic application available only to scientists with access to ARPANET. IT has come a long way since then—just like utilities.

On the main street of any small town in the 1950s were a drugstore, a Western Auto store, a grocery, a bakery, a clothes store, a bar, a movie theater, a bank, a dime store, and a couple of gas stations. What many have forgotten is that there was also an electrical store that sold coffee pots, electric frying pans, toasters, and the like. In the early part of the twentieth century, many local power companies had their own standards for voltage and amperage, and appliances were made to those standards. Not even the plugs and the wall outlets were standardized (many older homes still have these outlets, long since painted over). Rural electrification led to common standards, which allowed for the commoditization of appliances.

For decades, electricity has remained the same. Standards are in place. There is a single service provider. The evolution is in the appliances that use the electricity, not in the electricity itself. In some ways, IT is going through a similar evolution. In the 1980s and early 1990s, technologists

were sorting out networking standards and protocols. Only when those differences were resolved did the commoditization of networking become possible.

But the commonality between electricity and IT may end there. What operating system do you use? Are you a Mac user, or do you prefer a PC? Do you have a Blackberry server to support e-mail on your handheld, or is your mobile device based on Windows or Palm software? You can exchange e-mail, but you can't interchange the devices. If a campus records lectures as podcasts for students, someone made a choice about whether the podcast would be distributed over iTunes U or on the campus Web site, whether it would be saved as an MP4 or an MP3, whether it would be released as audio alone or enhanced with video. Just because something is podcast doesn't mean that it will work on any device. If it doesn't work everywhere, is it a utility?

Assuming that IT is limited to commodity services is incorrect. Beyond the everyday tools are IT applications that are critical to discovery and learning: 3-D graphics, visualization, grid computing, high-throughput computing, large distributed databases, and so on. Even the network—the component most like a utility—is constantly evolving. The third generation of fiber optics carries 10 trillion bits per second on one strand of fiber. Predictions are that by 2013, a supercomputer will be built that exceeds the computation capacity of the human brain.¹ Maybe IT isn't quite like a utility.

Much of IT involves people, not just “plugging in” a technology. For the faculty member who is exploring how to make his or her class more interactive or the

student who needs help using Excel, the personal touch is critical. Disaster recovery is at least as much about staying in touch with students and faculty as it is about making backups. Even “technical” issues such as identity management, authorization, and security aren't just about IT alone; they concern people, risk, and judgment. None of these issues have yet been simplified to commodity status.

In thinking about IT as a utility, the CIO and other members of the executive team should ask themselves the following strategic questions:

1. *Do we make the assumption that all IT is the same?* IT encompasses a range of activities, some routine and others experimental and highly individualized. Although network access, e-mail services, and Web sites may come to mind first, IT also includes advanced decision-making tools, simulations, high-performance computing, worldwide databases such as for the human genome, and assistive devices. Many IT applications have stabilized, but others are just emerging. Does the institution inadvertently make the assumption that IT changes are in the past?
2. *What systems and applications are commoditized?* Some campus applications, such as e-mail, are as readily available from external providers as from internal ones. Other applications may be critical to campus operations without being tied to the core mission. Payroll and administrative systems are certainly critical to the institution but may have routine, stable requirements that make them candidates for outsourcing. Is there an advantage

to moving responsibility for selected applications to another provider? Will doing so free up valuable time for the IT organization to provide services of greater value? If there is no competitive advantage to keeping an application in-house, what is the process for identifying another provider?

3. *Is there a regular, systematic process for reviewing which applications are mission-critical, unique, or commoditized and then determining the implications for how these services are delivered?* Since IT is ubiquitous, colleges and universities are so often caught in the tyranny of the urgent—applying a patch or upgrading a service—that they fail to examine what they are doing. A periodic “audit” of services—of who provides

5. *What opportunities do we miss if we think of IT only as a utility?* Higher education cannot afford to assume that IT is a constant or a commodity. If IT were constant, Web 2.0 would not have emerged from the search-and-retrieve Web of a few years ago. We would have missed Flickr, Wikipedia, blogs, YouTube, and Facebook. If IT were just a commodity, cyberinfrastructure would not be emerging from the Internet. We would have missed 3-D rendering, virtual reality, and access to worldwide databases and powerful research communities. IT does not stand still.

Most of the time, IT is a utility—ubiquitous and taken for granted. But it



Illustration by Steve McCracken, © 2007

them and even whether they are still necessary—is advisable.

4. *How much of IT is about the technology, and how much is about people and the work IT enables?* Although IT is a technology, its value is in the service it provides to people, whether through automation, speed, insight, or convenience. Simply applying IT to a problem or process will not necessarily yield benefits: people are a critical part of the equation. How much of those human interactions could be treated as a commodity? How much should?

is also a rapidly evolving, mission-critical resource. Few institutions can risk underestimating the power of IT to catalyze change and create competitive advantage.

Note

1. Text for “Did You Know?” presentation, <<http://www.lps.k12.co.us/schools/arapahoe/fisch/didyouknow/didyouknowtext.doc>>, *The Fischbowl*, August 15, 2006.

Brian L. Hawkins is President of EDUCAUSE. Diana G. Oblinger is Vice President of EDUCAUSE, where she is responsible for the association’s teaching and learning activities and for the EDUCAUSE Learning Initiative (ELI).

EDUCAUSE Review

Why IT Matters to Higher Education

PUBLISHER/EDITOR
D. Teddy Diggs

ADVERTISING
Greg Farman, Advertising Director
Geri Farman, Advertising Manager

DESIGN AND PRODUCTION
the magazine group
Jeff Kibler, Art Director
Jerry Parks, Project Manager
Brenda Waugh, Production Artist

DEPARTMENT EDITORS
E-Content:
Susan L. Perry, Andrew W. Mellon Foundation;
Council on Library and Information Resources
New Horizons:
Lev S. Gonick, Case Western Reserve University
policy@edu:
Jeff C. Kuhns, Pennsylvania State University
Viewpoints:
Polley Ann McClure, Cornell University

EDUCAUSE Review is the general-interest, bimonthly magazine published by EDUCAUSE. With a publication base of 20,000, EDUCAUSE Review is sent to EDUCAUSE member representatives as well as to presidents/chancellors, senior academic and administrative leaders, non-IT staff, faculty in all disciplines, librarians, and corporations. It takes a broad look at current developments and trends in information technology, what these mean for higher education, and how they may affect the college/university as a whole.

EDUCAUSE and EDUCAUSE Review are registered trademarks. Copyright © 2007 by EDUCAUSE. Materials may be photocopied for noncommercial use without written permission provided appropriate credit is given to both EDUCAUSE Review and the author(s). Permission to republish must be sought in writing (contact editor@educause.edu). Statements of fact or opinion are made on the responsibility of the authors alone and do not imply an opinion on the part of the EDUCAUSE Board of Directors, staff, or members. For more information about copyright, see <<http://www.educause.edu/copyright.html>>.



4772 Walnut St, Ste 206
Boulder, CO 80301-2538
phone: 303-449-4430; fax: 303-440-0461
info@educause.edu
<http://www.educause.edu/>

For subscription information, contact EDUCAUSE: 303-449-4430 (phone) or 303-440-0461 (fax) or <er-subs@educause.edu>. For advertising information, phone 512-258-6462, or fax 512-233-1012, or send e-mail to <advertising@educause.edu>. Send editorial submissions or comments to <editor@educause.edu>.



EDUCAUSE Review is also available online at <<http://www.educause.edu/er/>>.