It Service Management – White Paper

Why IT Service Management

About five years ago I was approached by several faculty who told me that they were having problems with their new university-issued laptops. The wireless in their laptops kept failing. IT would repair the laptop, and it would work for a while, but then the problem would come back. Upon investigation, it turned out that there was a manufacturing defect in the wireless card used by the laptop vendor. The vendor replaced all the wireless cards with another model, and the problem went away.

Shortly after that, we had an unplanned outage of our learning management system. Our systems support team was upgrading a development server, and needed to reboot that server. They thought that there were no production services on that server, so that the upgrade could be performed during normal business hours. However, the development team had just released a new module into the learning system that synchronized information between the learning system and student information system, and that module had not yet been moved to a production server. Unfortunately, that module did not fail gracefully, so that without that module, logins to the learning system were failing.

These problems either occurred or were exacerbated breakdowns in communication between different areas of IT – in one case between the PC repair facility and the IT service desk, and in the other between the developers and system administrators. Maintaining good communication is essential for any organization to provide high quality services, but is often a challenge, especially in large, diverse IT organizations. IT Service Management (ITSM) refers to a set of policies, procedures, and practices that help minimize service problems. In the language of ITIL, one of the more popular ITSM frameworks, the IT organization in the first case did not recognize that multiple incidents with wireless were indicators of a larger problem. In the second case the IT organization did not effectively manage the release of a change in the learning system, in part because it did not have a comprehensive view of their system configurations for all servers that would have alerted the system administrator to the dependency of the learning system on the development server.

ITSM and ITIL

IT Service Management (ITSM) is a way of viewing IT services from the perspective of the customer. Customers have a holistic view of IT services. If their computer doesn’t connect to a server, they don’t know whether the problem is with the server, the network, or their computer, all they know if that they are experiencing a service disruption. The goal of ITSM is to manage the various IT systems that deliver that service to customers in a way that enables IT management to make reasonable assurances regarding the reliability of that service. For example, if that service depends on five components, each with a reliability of 99%, the service itself has 95% reliability (since there is a 5% chance that one of the components has a problem).

There are a number of frameworks for implementing ITSM. One of the more popular is ITIL. ITIL initially referred to the IT Infrastructure Library, a series of operation manuals for IT organizations that was first published in 1989 by the United Kingdom's Office of Government
Commerce. There are other frameworks for implementing ITSM, including COBIT and ISO/IEC 27000.

An Overview of ITIL

ITIL 2 is one of the most popular ITSM frameworks. While it has recently been replaced by ITIL 3, version 2 remains the starting point for ITIL implementation because of its simplicity of structure. For the remainder of this section, I’ll focus on ITIL 2 concepts.

ITIL 2 is focused on supporting and delivering IT services to end users. Figure 1 provides a model of the key process in ITIL 2 and how they support the goal of Service Level Management.

Service Support has two major processes categories, Problem Management and Change Management. Problem Management has as its goal to find the root cause of any disruptions to services, which in ITIL are called incidents. The goal of Incident Management is to get the user productive, through workarounds or fixes. Change Management has as its goal ensuring that all system changes are done in a way that minimizes service disruptions. This requires Configuration Management – understanding the current state of the system and the dependencies between systems to provide a service – and Release Management – planning, testing, communicating and implementing and changes to the system.

Service Support requires two key components, the Service Desk and the Configuration Management Database. In ITIL the Service Desk serves as the contact point in IT for all end users. The Service Desk can provide documentation or answer questions about an IT service. The Configuration Management Database (CMDB) contains an inventory of all the devices managed by IT - servers, routers, desktop and laptop computers, etc. – which includes their configurations and their relationship to other items in the CMDB. For example, a network router’s record in the CMDB will show what other computers and routers connect to it, so that if a user reports a service outage, IT management can all the devices that are involved in providing that service.

The goal of Service Delivery is to ensure that IT delivers the services necessary to support the business at agreed upon levels of reliability and within budget. The key component of Service Delivery is the catalog of services that specifies what IT services the IT organization provides the business. Service Delivery processes support the development of agreed upon service levels for each of those services. Availability Management is concerned with the reliability of all the components on which a service depends. Capacity Management is concerned with how much additional network, server, or storage capacity will be required to add users or services. Continuity Management is concerned with planning for the recovery or replacement of any components that might fail. Financial Management is concerned with understanding the costs of the services and how much it will cost the organization to add users, increase the availability of a service, add a new service, and the like.

ITIL 3

In 2007 the UK Office of Government Commerce released an updated version of ITIL known as ITIL 3. In 2009 ITIL 2 was officially desupported, although many institutions continue to use ITIL 2 processes. ITIL 3 takes an IT lifecycle approach to ITSM. ITIL 3 consists of five

Implementing ITIL

ITIL is not a set of fully formed processes that can simply be implemented at any institution. Rather, it is a framework for designing a set of processes for each institution that will support their goal of delivering and supporting quality IT services to their customers. For that reason, most colleges and universities do not implement all of the ITIL components, but will select those that make the most sense for their institutions and customize the ITIL processes for their campus. ITIL is designed to be flexible and nonproscriptive.

While the concepts and processes of ITIL will make sense to any IT manager, and ITIL promises to improve user satisfaction wit IT while reducing inefficiencies, the decision to implement ITIL should not be undertaken lightly. ITIL implementations are large, multiyear projects that require executive support and buy in from the IT staff.

One of the first steps in implementing ITIL will be training the IT management team in ITIL. Another important step is inventorying and assessing the current process in the IT organization. Most campuses that have adopted ITIL have begun by implementing the problem management and change management processes. This often requires the acquisition of new tools, such as a new help desk incident tracking system and a configuration management database system. Several organizations provide ITIL consulting to assist campuses in the planning and implementation of ITIL.

Related Presentations at EDUCAUSE 2009

A number of related presentations are available at the EDUCAUSE 2009 Annual Conference, November 3-6, 2009 at the Colorado Convention Center in Denver, Colorado. Registration is required. All times listed are Mountain Standard Time.

Managing a Student Help Desk on Donuts and Achieving Success
Wednesday, November 04, 2009; 2:15 p.m. - 3:05 p.m.; Korbel Ballroom 1D
Juan A. Torres, Manager, Computer Help Desk, Ohio Dominican University

Competencies Drive Successful Technology Organizations
Wednesday, November 04, 2009; 3:50 p.m. - 4:40 p.m.; Korbel Ballroom 1E/F
Ross Canning, Executive Assistant to the Vice Provost and CIO, Pepperdine University
Timothy Chester, Vice Provost and Chief Information Officer, Pepperdine University
JoAnn McNayr, Assistant to the Deputy CIO, Pepperdine University

Collaborating Outsourcing of the IT Help Desk [*]
Thursday, November 05, 2009; 8:10 a.m. - 9:00 a.m.; Korbel Ballroom 2A/3A
Richard Bertrand, IT Advanced Analyst, Pima County Community College District
Mary Covington, Director Information Technology Services, Arizona State University
Cynthia Dooling, Director, IT Client Services, Pima County Community College District

Making Progress: Measurement, Collaboration, and Communication
Thursday, November 05, 2009; 11:45 a.m. - 12:35 p.m.; Meeting Room 401-403
Rebecca L. King, Associate Vice President for Information Technology, Baylor University
Pattie Orr, VP for IT and Dean of University Libraries, Baylor University

Implementing ITIL in South African Universities
Friday, November 06, 2009; 8:10 a.m. - 9:00 a.m.; Meeting Room 301/302
Geoff Hoy, Capacity Development Manager, TENET
Aldine Oosthuyzen, Campus IT Manager, North-West University

Training IT Professionals: Transformational Ways to Develop People in Your Organization
Friday, November 06, 2009; 9:30 a.m. - 10:20 a.m.; Korbel Ballroom 2B
Jeffrey Carpenter, Senior Quality Analyst, University of Rochester
Samantha Singhal, Assistant Director, Office of the CIO, University of Rochester

[*] This session is also available in the EDUCAUSE 2009 Online Conference (Registration is required)

Related Resources on the EDUCAUSE Web site

Driving Organizational Change with ITIL and a New Service Desk, Setareh Sarrafan, Lee Thompson and John Charles, California State University, East Bay, presentation at the Western Regional Conference, April 17, 2009
http://www.educause.edu/Resources/DrivingOrganizationalChangewit/170278

ITIL Bubbles to the Surface: Best Practices Arising from the Trenches, Victor Ponelis, Jack Lepak, and David Lawver, University of Wisconsin-Madison, presentation at the Midwest Regional Conference, March 23, 2009
http://www.educause.edu/Resources/ITILBubblestotheSurfaceBestPra/163819

A Starting Framework for Successful ITIL Implementation, Andrea Stevens, University of Michigan-Ann Arbor, presentation at the Midwest Regional Conference, March 23, 2009
http://www.educause.edu/Resources/AStartingFrameworkforSuccessfu/163884

Designing and Implementing a Five Nines Strategy, Shah Ardalan and Link Alander, Lone Star College System, presentation at the Southwest Regional Conference, February 24, 2009
http://www.educause.edu/Resources/DesigningandImplementingaFiveN/163744

http://www.educause.edu/Resources/InformationTechnologyProcessIm/163384

Understanding and Applying ITIL in Higher Education, William Cunningham, Yale University, presentation at the Enterprise Technology Conference, May 28, 2008
http://www.educause.edu/Resources/UnderstandingandApplyingITILin/163002

An Incomplete List of Colleges and Universities That Are Implementing ITIL
I have not been able to find a comprehensive list of campuses that have implemented ITIL; however, the following list is a compilation from several sources of campuses that have implemented or are implementing ITIL. Information about ITIL can be found on many of these universities’ Web sites:

- Brigham Young University
- California State University-East Bay
- California State University-Sacramento
- Cornell University
- Duke University
- Georgia Tech
- Harvard University
- Lone Star College System
- Marquette University
- Michigan State University
- New York University
- Purdue University
- University of California at Santa Cruz (UCSC)
- University of North Carolina-Chapel Hill
- University of Kansas
- University of Miami (Ohio)
- University of Michigan
- University of Minnesota
- University of Notre Dame
- University of Pennsylvania
- University of Wisconsin
- Saint Louis University
- Wake Forest University
- Yale University

Wake Forest University maintains a Web site (University ITSM) for colleges and universities to share their experiences in implementing ITIL and other IT Service Management frameworks. This site can be found at: http://itsm.is.wfu.edu/

Sources: EDUCAUSE, the University of Kansas, and Wake Forest University

A Glossary of Key ITIL Concepts

Here are some key concepts that will help you when discussing ITIL with colleagues or attending an EDUCAUSE session on ITIL.

An IT service is a means of enabling customers or end users to achieve an outcome without the ownership of management or cost of that enabling technology.
A **service level agreement** is an agreement between the service provider and the service consumer about the performance and dependability of a service.

A **service catalog** is a catalog of services provided by an IT organization for its internal and external customers.

An **incident** is any disruption to a service.

**Problem Management** is the set of processes for handling incidents and determining and correcting the root causes of incidents. Some of these processes involve reviewing incidents to see if there is a pattern that will allow IT management to detect underlying problems and proactively reduce incidents.

The **Service Desk** is the point of contact between the IT organization and end users.

**Change Management** is the set of processes for managing changes that affect services. Changes may be requested by the end users to improve the effectiveness of a service, while other changes may be initiated by IT to fix a problem. The goal of change management is to make changes while minimizing disruption to the users.

The **Configuration Management Database** (CMDB) is an inventory of all devices managed by IT, their configuration, and how that relate to or are connected to other devices. The CMDB will show what devices are necessary to provide a service to an end user, and so will be used for a variety of purposes, such as troubleshooting an incident, proactively communicating with affected users when a device malfunctions, and planning the impact of a change on specific users.