

Case Study: University of Kentucky Uses Unified Communications to Enhance Communication and Cut Costs

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The University of Kentucky (UK) IT organization selected Microsoft Office Communications Server (OCS) 2007 to manage its large telephony infrastructure, then discovered that unified communications (UC) can also reduce costs and enhance communications. Although specific to UK, this Case Study provides a useful model for how other organizations can develop a practical UC strategy.

Key Findings

- Implementation of a UC strategy provides a foundation for efficiently growing, enhancing and managing all aspects of an enterprise communications infrastructure.
- The uniformity provided by OCS 2007 enabled the university to control and reduce communications costs, while improving personal productivity and fostering collaboration. An implementation doesn't necessitate the integration of OCS 2007 voice communications for all users, which diminishes the need to totally upgrade the time division multiplexing (TDM) platform.
- OCS 2007 audioconferencing costs significantly less than conferencing provided by service providers. When deployed with Exchange Server 2007, Microsoft's unified messaging (UM) solution was a cost-effective voice mail solution for the university.

Recommendations

- Approach UC with a holistic focus on the needs of various groups. Expect departments and people to adopt technologies at different speeds, in pace with their needs and job functions.
- Obtain senior management support, and look for benefits such as productivity enhancements to justify UC applications, rather than developing a business case based mainly on cost reductions.
- Focus on the value UC adds to an individual's job as a means of identifying opportunities to improve productivity and reduce costs, and offer comprehensive training. Understand that not everyone needs to use all technologies.
- Assemble a project team that represents many departments and includes members who exhibit a spirit of cooperation, especially required when technical and administrative challenges arise.

WHAT YOU NEED TO KNOW

UK's IT organization recognized that Microsoft OCS 2007 could bring order and uniformity to the growth and modernization of the university's telephony infrastructure. However, IT personnel were uncertain whether the professional staff, professors and students would accept the voice and video quality. OCS 2007 R1 beta test included video that was rolled out to 1,000 users in various departments. All the groups reported better communication among departments, as well as with customers.

CASE STUDY

Introduction

UK is in Lexington and has an enrollment of approximately 27,000 students. Programs include undergraduate, graduate and doctoral curricula. The university's communities are divided into three areas:

- North campus contains primarily residence halls.
- Central campus is home to classrooms and offices.
- South campus comprises classrooms and offices. It also contains athletic and recreational facilities and the Chandler Medical Center, with a total population of 4,400, which includes physicians, residents and staff.

The university's telephony infrastructure primarily consists of an on-campus Alcatel-Lucent (ALU) 5ESS (see Note 1) for large-scale campuswide deployments, and Cisco Unified Communications Manager (UCM), which is confined to the medical center. IT personnel recognized Microsoft's capabilities for providing large implementations of software applications at the desktop, and saw the potential for using Microsoft OCS 2007 to bring uniformity to the campus communications system. However, they were uncertain about whether the voice and video quality of Microsoft OCS 2007 would meet the expectations of the professional staff (for example, college deans and vice presidents), professors and students, and they were also concerned about network quality.

The Challenge

The biggest challenge was to bring uniformity and order to a rapidly growing communications network.

"The university is like a small city, and communication among and within the various campuses was starting to become complicated," said Doyle Friskney, CTO and associate vice president of IT. "We could tell what was going to happen. The various departments would first put up presence systems and control their own little PBX worlds or Internet voice solutions." This would result in departments bypassing campus communication systems altogether, and simply used the infrastructure for their own purposes. "We wanted to avoid a 'hodgepodge,' so our goal was to get in front of that."

Friskney and his team looked at Microsoft solutions, specifically OCS 2007. UK's goals became order and uniformity, ease of management and cost control.

Approach

The initial commitment was to conduct a pilot test of OCS 2007 for 300 users to gain insight into the possibilities of Microsoft's UC product. The test group included representatives from all campuses, as well as medical center technology organizations.

"This [medical] group is noted for its 'show me' attitude, and its commitment to ensure the applications it approves will meet rigorous demands of a complex healthcare environment, and will bridge the gap between the campus legacy applications and the students' expectations for emerging technologies," Friskney said.

Questions at the outset included:

- Would OCS 2007 integrate tightly with Microsoft Active Directory, which is the core of security, collaboration and integration?
- Would the integration of OCS 2007 presence, video and voice be consistent with UK's direction to support SIP-based products?
- Would the video quality fit into a complex and comprehensive e-health and distance learning infrastructure currently in place to support the university communities?
- Would Microsoft leverage its position on the desktop and offer a highly integrated solution, or would it deliver a collection of parts?
- Would Microsoft's UC technology be integrated seamlessly into the campus telephony architecture?

The pilot lasted three months, ending February 2008. It impressed so many people that the IT organization increased the number of seats from 300 to 1,000. UK allowed individual departments to join the project, which was limited by verbal invitations, and 1,000 licenses were deployed in less than four months. The pilot included the use of 50 Microsoft-certified OCS 2007 phones.

Initial goals were to:

- Determine the quality and robustness of the voice and video components of OCS 2007.
- Evaluate using OCS 2007 to replace collaboration tools, such as Cisco WebEx.
- Test the ability to integrate OCS 2007 applications with UK's Microsoft Active Directory.

At the end of the evaluation period, campus and medical center IT personnel concluded that the stated goals were surpassed. Applications included offering audio and video help desk support for a wide range of users; holding intradepartmental and interdepartmental meetings among disparate sites; and using OCS 2007 click to dial for establishing instant messaging (IM) and voice calls.

The campus IT organization agreed to expand the pilot to other locations at the conclusion of UK's participation in the beta test for OCS 2007 R2, which will be completed during the first half of 2009. All necessary equipment and software have been purchased to adopt Microsoft OCS 2007, with plans to distribute the software to all the students, plus 15,000 faculty and staff, including the healthcare partners, which will occur throughout 2009.

Pilot Program Description

UK purchased and installed the Microsoft OCS 2007 system. The initial enterprise configuration consisted of:

- Two front-end servers
- One access edge server
- One Microsoft Communicator Web Access server
- One mediation server for newly added ("greenfield") voice over IP (VoIP) services, as well as necessary support services, such as the SharePoint updates server and archiving server

For external calls, OCS 2007 users access the public switched telephone network (PSTN) via a gateway connected to the university's ALU 5ESS (the same way Cisco UCM users access outside trunks). Eventually, UK plans to replace this arrangement with SIP trunks. This configuration replaced a Live Communications Server (LCS) 2005, initially configured with 100 select licenses, and was later added to UK's campuswide Microsoft Enterprise Client Access License (ECAL) agreement for all faculty and staff. External connectors were purchased for all servers to open system access to UK business partners, students, and the agriculture and healthcare communities. Approximately 1,400 OCS 2007 voice devices use client software installed with primary voice capabilities. These include IP telephones, Universal Serial Bus (USB) telephones, wired headsets and speakerphones from vendors such as LG Nortel, Polycom and Plantronics, and are listed at <http://technet.microsoft.com/en-us/office/ocs/bb970310.aspx>.

The IT organization wanted to offer the user community all the features and functions available when using OCS 2007. Live Meeting and small-room videoconferencing were important initial capabilities, as was the use of presence. Test-group participants widely agreed that staff productivity increased, although difficult to document. Integration of these features with Microsoft Office also helps improve user productivity.

Results

UK's initial Live Communications System (LCS) had been underutilized (that is, fewer than 100 users) due to problems with quality and ease of use. However, the OCS 2007 R1 beta test, which included video, was rolled out to 1,000 users in many departments throughout the university. The IT organization considered the rollout to be very successful. The groups included administration, athletics, healthcare and academics; they all reported better communication among departments and with customers. Especially important is that OCS 2007 voice quality was equal to Cisco UCM and ALU 5ESS.

Library staff use OCS 2007 presence to assist students, and Live Meeting has been installed on several remote computers in branch libraries so that students can ask reference librarians questions via IM, voice or video without leaving their study sites. Furthermore, in 2008, the College of Medicine moved first-year medical students to a building separate from upper-class medical students. To ensure that no student is overlooked, the academic advising and support associate dean uses OCS 2007 to stay in touch with all students using presence and IM, and the College of Medicine and the e-health group are evaluating OCS 2007 as an "e-medicine" tool.

Live Meeting desktop sharing has helped personnel manage remote desktops, assisted in troubleshooting and provided a platform for just-in-time training. In general, users find that video enhances routine meetings without the need to go to a conference room. As a result, UK is expanding the deployment of video, presence and OCS 2007 telephony to enable users to work from home or office.

Benefits of UK's OCS 2007 Pilot Program

The uniformity of OCS 2007's software-based architecture enables the IT organization to manage the telephony infrastructure more easily than it could with a mix of TDM and IP telephony solutions that depend on disparate hardware components and implementation procedures. UK expects to offer OCS 2007 R2 enterprise voice, pending the outcome of further testing slated to begin in April 2009.

After allocating ECAL and network costs among all users, UK estimates the incremental turnkey cost to provision OCS 2007 voice communications per user per year is significantly less than the equivalent cost to deploy ALU 5ESS-based Centrex. This discourages UK communities from acquiring their own telephony solutions. In addition, Friskney pointed out that the OCS 2007 cost structure, including upgrades, is more economical than the total cost to support UK's Cisco UCM. Although UK continues to support Cisco's UCM platform, IT personnel decided OCS 2007 was better suited for its UC requirements and objectives.

The UM component of Exchange 2007 is a viable and cost-effective replacement for the university's hosted voice mail solution.

For users of OCS 2007 R2, UK estimates the cost of audioconferencing will be at least 20% less than the external service that the local telephone company provides. Users of the ALU 5ESS-based service will also achieve these savings if they use the OCS 2007 client for connecting to the conference bridge.

User Training

UK IT personnel consider communication to the user group critical for a successful implementation. UK training leverages the Microsoft OCS 2007 Learning Portal (see www.microsoft.com/learning/ocs2007/default.msp). Furthermore, UK developed a SharePoint portal for all OCS 2007 users. This portal serves as the communications source for users and midlevel support staff, and is also used to distribute software and announcements. The university is researching other methods to deliver training, including Web-based methods and desktop video.

Critical Success Factors

- A well-laid-out plan that includes redundant system architecture. This provides maximum uptime, which translates into increased productivity and faster adoption rates.
- Collaboration with users to better understand their requirements. This improves productivity and reveals opportunities to reduce costs.
- Partnership on specific implementations. UK worked with Enabling Technologies (see www.enablingtechcorp.com/) to implement Microsoft UM with Microsoft Exchange due to Enabling Technologies' collaboration and OCS 2007 proficiency, as well as its experience with Exchange UM.
- Cooperation. The IT organization had combined telecom and network responsibilities for the communications software, infrastructure, voice platforms, and voice and videoconferencing units. This organizational and technical shift made it possible to consolidate end-user support functionality.
- A focus on job function and communities of interest during the implementation of UC. For example, the collaboration tools of Microsoft UC impressed a number of individuals. The IT organization expects the following areas will comprise the earliest deployments:

- Adoption of the Microsoft UM solution and the integration of incoming calls with OCS 2007 presence and Outlook meeting schedules by faculty, staff and students.
- Adoption of desktop video and videoconferencing to support telemedicine and distance learning applications. The university's e-health organization is deploying OCS 2007 as another tool in its technology toolkit.
- Deployment of collaboration tools from Microsoft to meet the research requirements of "neighborhoods" in the university community.

Lessons Learned

- OCS 2007 voice communications and enterprise voice can coexist in a successful OCS 2007 deployment, with users discovering independent applications for each communication mode. For example:
 - OCS 2007 voice is suited for location-independent internal conferencing and collaboration.
 - Enterprise voice provides the most efficient means to connect to the PSTN.
 - For users who want to access the PSTN via OCS 2007 voice, UK adds \$13 per line per month to the Centrex cost of \$25 to cover the cost of provisioning this capability with a gateway and the university's ALU 5ESS.
- The pilot revealed that OCS 2007 users don't need as much telephone technology as anticipated.
- Personnel in different departments and communities of interest will adopt OCS 2007 technology at their own pace, while using specific capabilities that best suit their job functions.
- OCS 2007 not only leverages UK's Microsoft Exchange implementation, it is also scalable; and the ongoing cost of maintenance is manageable. With UK's long-standing commitment to Cisco VoIP, IT personnel had to choose a product that would work in conjunction with Cisco UCM while not limiting the university to a single vendor. UK will deploy OCS 2007 as a stand-alone service, or as an integrated solution with Cisco UCM or the ALU 5ESS. Customer needs will determine the degree of integration services provided.
- OCS 2007 enables the IT organization to combine software and telecom help desks to support end users more efficiently.

RECOMMENDED READING

"Case Study: Indiana University Deploys Unified Communications"

"Magic Quadrant for Corporate Telephony"

"Magic Quadrant for Unified Communications"

"Critical Capabilities for Corporate Telephony"

"Critical Capabilities for Unified Communications"

Note 1

Summary of ALU 5ESS

The ALU 5ESS is a carrier-grade voice switching platform developed by AT&T Network Systems in the early 1980s, for use in telephone company central offices. Customers include AT&T and Verizon, as well as large universities, such as the Massachusetts Institute of Technology and Duke University.

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