How schools can embrace future communications while protecting their present investment

By adopting unified communications, schools can reduce costs, ease network maintenance, and improve information flow among staff, students, and parents

Not that long ago, the telephone was the only communications option for schools. Today, the variety of communications channels has grown exponentially—from faxes and email to instant messaging, automated alerts, and even video conferencing. Administrators, teachers, and parents have a number of options when they need to reach someone—and now a new challenge has emerged: the need to sift through a variety of messages, find the most important ones, and respond appropriately to them.

Addressing this challenge can be difficult, because the various communications channels have emerged autonomously. As a result, users are forced to bounce from application to application in search of important information, sometimes missing or delaying vital exchanges. What schools desire is a communications layer that slips over what is currently installed, provides users with a unified view of their communications, and enables them to respond quickly and effectively.

But this new communications infrastructure cannot cost a lot. Schools are facing tight budgets and don't have the money needed for massive network upgrades or infrastructure overhauls. They require a solution that works with whatever systems are now in place and consolidates various communications channels simply and efficiently. Fortunately, Unified Communications (UC) solutions are available that not only meet this requirement, but also cut communications costs, simplify network maintenance, and enhance the exchange of information among staff, students, and parents.

IT's Difficult Balancing Act

School and campus IT departments are under intense scrutiny. They are being asked to do more with less.

In the classroom, the old-school model of instruction—in which a teacher imparts information in lecture format—is being replaced with a bevy of new techniques that focus on personalized instruction and differentiated learning. Students regularly leverage the web for needed information from course schedules to class assignments, calendars, and test materials. Teachers rely on interactive whiteboards and streaming video to illuminate various concepts. In short, teaching has become more dynamic, more interactive, and more bandwidth-intensive than ever before.

Outside the classroom, collaboration has become quite common. Students collaborate on projects in online workspaces. School officials interact with local, state, and federal government agencies, working to understand—and comply with—complex (and often changing) regulations. Administrators work with various content management tools and share text files, spreadsheets, PowerPoint charts, as well as voice and video files with policy makers and stakeholders.

With the emergence of the BYOD (Bring Your Own Device) era, school IT departments need to support more types of devices. Today's school environment has become increasingly mobile. Information exchanges are no longer limited to desktops or laptops; users now walk the hallways with smart phones and tablets and have more information at their disposal than they ever have before.

Parents also play a vital role in the education process. When asked to identify the solutions that would have the greatest potential to increase students' college matriculation and career readiness, 23 percent of school administrators chose "engaging parents as co-teachers" as one of their top three choices. This same group listed identifying and implementing effective tools for communicating with parents as one of their top priorities right now.

As parents work with educators to ensure that their children receive the best experience possible, they rely on a variety of communications tools to exchange information. The most recent Speak Up survey on ed-tech use from Project Tomorrow found that email (64 percent) is now used more often than face-to-face meetings (53 percent) for information exchanges. In addition, parents communicate via school portals (51 percent) and automated phone messages (46 percent).

Straining Under Added Weight

Traditional school and college networks are struggling to keep up with the recent changes. The variety of new and emerging communications options has made it harder for school networks to perform adequately. As bandwidth-intensive applications (such as video) become more popular, bottlenecks emerge—and the need for greater bandwidth becomes clear.

In addition, traditional or legacy communication systems are often inefficient. Information typically is housed in sequestered silos, because vendors have designed their applications independently of each other and have relied on proprietary techniques to collect, store, and exchange information. Breaking down these barriers often requires schools to spend a lot of time, effort, and money integrating systems that have no common design points. These links then need to be maintained whenever those systems are enhanced.

As school and college IT departments grapple with these issues, they find themselves under increased pressure. Communications needs must be addressed as quickly as possible; notes must be exchanged and information acted upon immediately, because in today's 24/7 world, any delays simply are not tolerated.

Workloads Up; Budgets Stagnant

In schools, as in the corporate world, the demands placed on IT departments are rising. International Data Corp. found that IT workloads are increasing at a rate of about 25 percent per year. Yet, budgets remain largely stagnant, with increases (when given) in the 2 percent to 3 percent range at best. So, the gap between what is expected and what can reasonably be delivered is widening.

Deploying new solutions is one way to close that gap. But in the past, the only way to deliver new communications solutions was by doing a "forklift upgrade": that is, by ripping out and replacing a school's current system with a new one. While that can be easy enough to do with a single application, communications touches upon so many different modules that such a change requires taking out half a dozen—or more—interdependent systems. That involves a massive infrastructure investment, which is unlikely to be granted at a time when budgets are stagnant and many schools are laying off staff.

Consequently, school and college IT departments find themselves in a quandary. They want to expand the range and richness of the communications options available to their users. But, they find themselves without the time or the resources needed to make the shift. To solve this problem, they require a new type of communication system.

Unified Communications Delivers Many Benefits

Unified Communications offers a solution to this dilemma. It dynamically integrates real-time communication services, such as instant messaging, with asynchronous communication services like email, voice mail, and faxes.

UC technology allows an individual to send a message on one communications medium and receive a reply on another medium. For example, users can access a voice mail message as an email notification on their cell phone. If the sender is online and currently accepting calls, a response can be sent immediately through text messaging or a voice or video call.

To deliver those benefits, a UC solution needs to add a layer on top of a school's existing infrastructure and integrate them. In effect, this approach enables schools to consolidate their voice and data networks, which leads to numerous improvements—such as more efficient bandwidth utilization, simpler network management, and lower total cost of ownership.

With the right system, schools deploying UC can gradually update their aging legacy equipment. For instance, many PBX systems have been in place for a decade or longer. They're inefficient and difficult to maintain, while offering rudimentary functions. Schools can replace them with more modern systems that are simpler to manage.

Out with the Old

Older communications systems lack the intelligence and automation found in more modern systems. By moving to a UC system, maintenance chores—such as moves, adds, and changes—take less time and enable a school's IT staff to work on other projects instead of routine maintenance. Schools gain the benefits that come from centralized administration. Instead of a series of autonomous systems, they can oversee their communications infrastructure in an integrated fashion and improve staff productivity.

In addition, many schools operate separate voice and data networks creating duplication and inefficiencies. With UC technology, they can consolidate the two. Their voice-only phone systems can be displaced with voice over Internet Protocol (VoIP) solutions, which send voice calls over internet connections. The consolidation can help schools lower their voice and data networking costs. Rather than two autonomous networks, they now carry their data and voice traffic over one set of network links. In addition, many voice systems have been running for many years and often utilize multiple inbound and outbound phone lines, so schools can reduce the number of lines along with their related communications expenses.

Unclogging Network Bottlenecks

As their communication systems age, many schools still use legacy connections that deliver suspect call quality. Once the change to new systems is made, the number of busy signals drops; users experience less crackling on their calls; and bandwidth is available to support intensive tasks, like moving video or complex graphic files.

Schools also gain much-needed flexibility. A popular protocol used with VoIP is SIP, or the Session Initiation Protocol, which runs on many devices, including mobile systems. It can control video calls just as easily as audio calls or data exchanges. In the past, video conferencing might have required desktop videocams or expensive, cumbersome room devices, but today, smart phones and other intelligent devices can send HD video on the fly. The video calls can be integrated into a UC system, using the same directories and dialing plans as a school or district's voice calls.

In addition, the integration with directory services, such as Microsoft's Active Directory, enables schools to secure their communications. School and college IT departments can establish various sets of privileges for their users, granting more freedom to those with more responsibility, and the directory system provides the appropriate level of access to sensitive information.

Finally, I Have Found You

UC technology helps make users more efficient. Staff, students, and parents can find their messages and contacts quickly, from a single interface. Rather than sift through a series of communications channels, they can access all their messages in one consistent fashion. Unified communications systems give them point-and-click access to all communication services: video, email, audio messaging, and texting.

Richer communications options emerge. “With conferencing, teachers are able to conduct parent/teacher conferences outside the bounds of normal school hours and the physical school building. This allows the teacher to spend more time with the parent,” noted CDW-G’s 2011 Unified Communications Tracking Poll.

UC systems also make it easy to send mass emergency notifications or announcements via multiple modalities. In the event of an emergency, such as an armed intruder on campus, a variety of notifications can be sent out through a single action: automated text, email, phone alerts, instant messages, on-screen “popup” warnings, messages flashed on digital signs around campus, and voice alerts broadcast over public address or intercom systems. This makes it more likely that school personnel are aware of the problem and respond to it properly.

Replace Manual Tasks

By automating tasks that previously were done manually, UC technology gives schools more control over the routing of inbound and outbound calls. Schools can streamline inbound communications, such as parents calling with attendance tracking information. Outbound information, such as school closures, emergencies, and special announcements, are sent via the touch of a button, rather than wading through long lists of complex commands within a number of different systems.

What’s more, schools and colleges can offer more self-service options for items such as course selection and registration, financial aid, and special events like class trips. Using UC technology, an agent answering a call can more easily transfer a student with a question to a specialist, because the expert’s availability would be apparent through a presence function. Experts could join calls and respond more thoroughly and more promptly to questions, which raises first-call resolution rates.

Where Should Schools Turn?

Schools need a UC solution that can overlay their current network and enhance its capabilities through a “blend and extend” model. The NetVanta UC Server from ADTRAN is an easy-to-deploy software system that provides a comprehensive, low-cost way to add UC features to a school’s network.

The NetVanta Enterprise Communication Server incorporates a full-featured, standards-based SIP server to provide common telephony features found with legacy PBXs. Combined with SIP-compliant handheld telephones and soft-phones, the NetVanta Enterprise Communication Server provides a rich set of telephony services.

The solution's unified messaging enables users to quickly and effectively retrieve and manage voice mail, faxes, and email messages, all from the familiar interface of their email client or telephone. The NetVanta UC Server integrates with Microsoft Outlook/Exchange Server, Lotus Notes/Domino, Google Gmail, and other email clients that are compliant with the Internet Message Access Protocol—IMAP4.

The NetVanta system includes a full fax server. The built-in fax server provides advanced features, such as DID fax, and individual "fax on demand" using the multimedia personal call control capabilities. In addition, NetVanta UC Server uses standard TIF or PDF formats so that users can view faxes on any PC.

What Did You Say?

The NetVanta UC Server's speech engine provides text-to-speech conversion. This feature enables users to listen to email messages from any telephone and have their speech converted to text from their auto-attendants, Interactive Voice Response (IVR) applications, or Personal Assistants.

The NetVanta UC Server creates multiple auto-attendants using its drag-and-drop, database-enabled, graphical service creation environment. These assistants integrate with Microsoft Outlook contacts and internal/external databases, allowing employees to configure their own assistants easily to establish multifaceted rules for call screening, call routing, find-me/follow-me, and call notifications.

The paging server allows live paging, record and review paging, and paging using prerecorded announcements. Paging groups can be established to allow pages to be played over phone sets or overhead speakers in precise locations. Employees simply dial a code or use a speed dial from any handset and issue a page.

Ready When You Are

The solution drops into current network infrastructures and allows schools to slowly phase in new functionality. Schools and colleges facing funding issues are not forced to make a large capital outlay up front and instead can add new capabilities at their own pace.

Interoperability is one of the system's key features. The product supports industry-standard gateways, so it can be deployed in a variety of ways. Schools can link it to their existing key systems or PBXs or install a new VoIP switch. Administrative integration with Microsoft Active Directory allows IT administrators to manage the entire communications system using the same user accounts and security policies built in the Windows environment, automatically and without any programming or special integration.

A number of schools (see sidebars) are reaping significant benefits by moving to a UC environment. For instance, the University of Northern Alabama, which supports a campus of 7,500 students and more than 800 faculty and staff, chose ADTRAN when upgrading its campus-wide communications network in the spring of 2011. Stephen Putman, UNA's director of computer and telecommunications services, said the choice of ADTRAN's NetVanta Unified Communications solution allowed the university to maintain its existing network infrastructure as it migrated to advanced unified communications services.

School IT departments now stand at an important crossroads. The demands being made on their staff have never been greater. The need for rich communications has become more important than ever, but supporting this need has become much more complex. To deliver critical capabilities, schools need a new unified approach to communications—one that gives them flexibility and functionality without forcing them into a massive network upgrade. ADTRAN's NetVanta UC solution effectively meets this need.

Frontier School Division slashes maintenance requirements—and costs

The Frontier School Division in northern Manitoba, Canada, spans an area larger than the state of California—yet it encompasses only 42 schools, 60 facilities, 6,500 students, and 8,000 users. Because of its remote geography, the school division faces many challenges—such as serving some communities that are only accessible by boat or air.

For years, the school division relied on a PBX from Avaya Inc. to support its voice communications, but the system had become antiquated. The local service provider was charging the school division up to $150 for routine maintenance, such as troubleshooting calls and moves, adds, and change requests. Also, the lines were so expensive that staff often went without a desk phone.

In early 2010, Avaya moved to retire the system and offered a migration path to a new system. During this period of uncertainty, the Frontier School Division decided to examine its options and talked to half a dozen Unified Communications suppliers. "The ADTRAN solution was about one-third the price of alternatives," said Bradley Hampson, assistant superintendent for technology at the Frontier School Division.

Switching to an ADTRAN UC system resulted in many benefits:

- Because the solution is based on industry standards, it works with SIP (Session Initiation Protocol) phones that offer much more functionality than the previous phones.
- Network performance improved, because the underlying hardware is less prone to errors and easier to restore than the previous system.
- The school division cut its long-distance costs by routing calls over its VoIP network.
- IT department technicians do not have to attend training classes to learn obscure command sequences; the new system is quite intuitive.

- Travel costs were reduced because IT staff are able to perform tasks such as moves, adds, and changes remotely with the centralized management infrastructure.

- Customer service improved: Users were often waiting weeks for service, but now alterations are done in days or even hours.

As a result, the school division is happy with the switch. “By moving to Unified Communications, we reduced our communications costs while improving [our] capabilities,” concluded Hampson.

Norwood School provides 24/7 communications

Founded in 1952, Norwood School serves more than 500 students and has approximately 130 faculty and staff members. Located in Bethesda, Md., its 40-acre campus includes four educational and administrative buildings, an arts center, and an athletic center.

School leaders decided that faculty, students, and parents expect anytime, anywhere access to communications. To address this need, Norwood examined Unified Communications systems, which would combine various autonomous channels (email messages, voice mails, and faxes) into one integrated platform.

After a thorough evaluation, Norwood School selected ADTRAN's NetVanta Unified Communications Server running on top of the school's Avaya IP Office PBX. The new solution combines self-service call-flow management, unified messaging, fax server, and line-of-business integration and visual service creation tools.

The system has driven productivity, simplified administration, and reduced costs. Norwood's phone system now links to a computer server, enabling calls to be routed internally or externally and then managed via a central console. UC technology has bridged the gap among faxes, email messages, and voice mail messages emanating from desktop phones and cell phones. Consequently, Norwood employees now access messages in real time, regardless of their location and via whatever interface that suits them best.

The ADTRAN UC server also improved safety and security. Now, urgent messages—such as a last-minute school closing owing to dangerous weather—are sent out immediately, saving time and providing administrators with peace of mind.

That is one of many reasons the change has been well received. "Because of our move to the ADTRAN solution, our faculty, staff, and even parents are thrilled to be able to manage and receive consistent, up-to-date information," said David Rossell, administrator of network services and planning at Norwood School.

University of North Alabama adopts next-generation IP communications

The University of North Alabama (UNA) is a public university that is home to about 7,300 students enrolled through four academic colleges. In 2011, UNA decided it was time to migrate from a time-division multiplexing (TDM) communications system to an Internet Protocol (IP) system using ADTRAN's NetVanta Unified Communications solution. By deploying ADTRAN's open-architecture NetVanta technology, the university was able to maintain its existing infrastructure during the migration—saving significant cost and time, as well as preserving the capital value of its legacy network.

"UNA needed a reliable solution to support our communication needs today and in the future, and ADTRAN's proven stability and continued innovation made it the right partner," said Stephen Putman, the university's interim director of computer and telecommunication services. "NetVanta UC has provided UNA with an affordable solution on which we can update our entire, campus-wide communications network to provide higher-quality communications services—and the means to easily expand the deployment … as our campus grows."

With ADTRAN's NetVanta UC Enterprise Communication Server, UNA was able to deploy unified messaging, voice mail, fax service, call redirection services, auto-attendant service, and more. Given UNA's large user base, the ability to tailor the configuration to meet the specific needs of each user offered another advantage.

"NetVanta UC is an ideal solution for campus environments, like UNA, that are looking to upgrade or move away from aging TDM-based technologies and serve their staff, faculty, students, and guests with next-generation communications capabilities," said Jeff Wissing, product manager for NetVanta UC.

He said the NetVanta UC solution allows users to "blend and extend" their existing communications network, letting them migrate at their own pace. The solution eventually will allow UNA to eliminate its legacy PBX solution altogether, while offering improved services and accruing significant cost savings.