State College Agency Integrates Next-Generation Communications System

Technical College System of Georgia designs new voice and video IP architecture to replace traditional telephony system.

Executive Summary

Technical College System of Georgia

- **Industry:** Education
- **Location:** State of Georgia
- **Number of Employees:** 11,000+

CHALLENGE

- Help enable efficient delivery of more student services following extensive mergers and acquisitions
- Upgrade older and varying communications architectures of TCSG member colleges

SOLUTION

- Migrate campus infrastructure from traditional telephony architecture to next-generation voice over IP (VoIP) architecture
- Integrate Cisco Unified Communications solution

RESULTS

- Improved first-call answer percentage, increasing student satisfaction
- Facilitated meaningful colleague collaboration by making immersive technologies available to administrative staff
- Centralized and standardized communications architecture of 25 technical colleges, facilitating inter-college collaboration and streamlining administrative tasks

Challenge

The Technical College System of Georgia (TCSG) is the agency responsible for Georgia's technical colleges, adult literacy programs, and many economic and workforce development initiatives. The agency's primary objective is to create a well-educated, technically trained, and highly competitive workforce, thus supporting the economic success for the state of Georgia and its citizens. In line with this goal, the TCSG works to unify the education system across 25 technical colleges in Georgia, representing 100 campus locations and more than 170,000 students and 11,000 employees.

To improve efficiencies in college administration and help ensure continued student access to education programs during the national economic downturn that began in 2008, Georgia's technical colleges underwent a series of mergers. From 2008 to 2010, 13 technical colleges in Georgia merged into 6, bringing the entire technical college system from 34 to 25 in just two years, while keeping every campus location open.

The newly merged colleges suddenly acquired numerous geographically dispersed campuses and faced the daunting task of managing larger student bodies with a greater demand for student services. As a result, a comprehensive, efficiency-driven communications infrastructure became a critical need. However, Georgia's technical colleges had traditional Centrex telephony architecture in place, which posed many challenges. For example: calls made between separate campuses, even within the same college, were charged as long distance calls; simple capabilities such as internal dial plans and conference calling did not exist; and Centrex required that colleges purchase a circuit for each user, thereby making basic voice communications prohibitively expensive.

West Georgia Technical College is an example of the unique infrastructure challenges that the colleges faced. In 2008, West Georgia Technical College merged with West Central Technical College, resulting in geographically dispersed campus locations. Although the merger increased the scale of student services needed, West Georgia's newly acquired campuses were dispersed throughout the state, making administrative services frustratingly difficult to provide. With the existing traditional telephony system, there was no central "live data" hub to house critical administrative information, and because of the lack of an internal dial plan, connecting students from the main switchboard to appropriate campus-specific administrators was time-consuming. Students could be redirected to five people and not receive help. For students applying to programs, enrolling in classes and going through routine administrative procedures, the process was stressful and inefficient.

The TCSG wanted to provide a technology solution that would streamline internal communications between administrative staff at each college. Its goal was to migrate campus infrastructure from the older Centrex architecture to a next-generation technology model, which would help enable the efficient provisioning of student and administrative services and increase opportunities for collaboration between campuses and colleges.

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Steven Ferguson, CCIE #10202
Senior Network Engineer, Technical College System of Georgia

TECHNICAL COLLEGE SYSTEM OF GEORGIA
TCSG

Solution

The TCSG had been closely following the industry trend of moving from traditional telephony to voice over IP (VoIP). VoIP is a superior technology that carries voice calls over an IP network and is a foundation for IP telephony, which includes advanced unified communications applications such as web, videoconferencing, contact centers, and call routing.

In 2007, Central Georgia Technical College worked independently with Cisco for its campuswide migration to VoIP, implementing a Cisco® Unified Communications platform. Cisco Unified Communications integrates phone and Internet on a single unified network, reducing expenses because telephone calls travel via the data network rather than the phone company's network. The Cisco Unified Communications platform is built on a Cisco standards-based, open-protocol voice and data architecture. The standards-based services platform combines multifaceted message types, including VoIP, Internet fax, stored and forwarded voicemail, and email under a common message store and directory. This arrangement eliminates the need to synchronize disparate message stores and directories, such as different voicemail and email systems, and significantly reduces operational and maintenance costs while increasing efficiencies.

After the success of its initial VoIP deployment, TCSG partnered with Cisco in 2010 to integrate Unified Communications across a broader range of colleges and began standardizing their communications architecture. Geoff Catron, director of networks and information security at TCSG, explains the decision to work with Cisco: "We looked at the market and determined that the Cisco Unified Communications platform was the best fit for our needs. We saw that Cisco was quickly becoming one of the most widely deployed VoIP solutions, and because of our standardization on Cisco networking equipment, we felt very comfortable with their technology."

TCSG and Cisco worked with colleges to deploy IP telephony solutions, including Cisco Unified Communications, Cisco Unified Presence, and Cisco TelePresence®, establishing a unique IP end point for each college to support the deployment. An integral component of the Cisco Unified Communications system, Cisco Unified Presence is an open and extensible platform that facilitates the highly secure exchange of availability and instant messaging (IM) information between Cisco Unified Communications and other applications. Cisco TelePresence helps enable video collaboration between remote sites, offering secure, face-to-face communications from anywhere.

Gray comments on the reputation of Cisco as an IP telephony industry leader: "I personally came from the old telephony systems. Cisco is the most advanced player in the Unified Communications field; they've passed everyone."

TCSG's decision to partner with Cisco on this project also stemmed from its prior relationship with the company. Having previously worked with Cisco to standardize

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The stage at the 2011 TCSG Leadership Conference.

member colleges on Cisco LAN infrastructure, TCSG was drawn to the reliability of a single-vendor solution. "Cisco is the only logical choice for our colleges," says Steven Ferguson, senior network engineer. "Our colleges already train students using Cisco technology and equipment. We realized that with Cisco we can do it better, we can deliver more services, and we can do it for a lot less."

Results

Cisco and TCSG initially provided Cisco Unified Communications; however, today an increasing number of colleges are integrating more multifaceted communications capabilities, such as video, powered by Cisco technology. As of August 2012, approximately 50 percent of Georgia's technical colleges have migrated to the Cisco Unified Communications model, and as a result have seen significant improvements across their voice, video, and messaging communications abilities.

Return on Investment

The Cisco Unified Communications system pays for itself after approximately 2 to 3 years, resulting in tremendous long-term cost savings for each educational institution. For example, the TCSG is currently working on a project with Chattahoochee Technical College. The TCSG anticipates that, after implementation of the new technology, Chattahoochee's new system will pay for itself in three years, resulting in a savings of US$23,000 a month from the original dial-tone telephone system in place. Most colleges are realizing between $7,000 and $15,000 savings per month. The TCSG System Office was able to reduce monthly costs from $6,000 per month to $2,000 per month.

Voice

Because Unified Communications migrates calls to the IP network, administrators on campus benefit from efficiency-driving capabilities, such as being able to transfer calls, hold conference calls, and use four-digit dialing within the college, which eliminates long-distance charges and makes it easier to connect with colleagues. Prior to implementing Unified Communications, most colleges had a switchboard where a dedicated staff was tasked with answering the phone and transferring callers to unlisted numbers. Redirecting calls manually slowed the provisioning of services to students seeking answers to their questions. After integrating Unified Communications first-call answer percentage has improved, meaning that callers are assisted the first time that they call. For students, this means the ability to have admissions, enrollment, and other administrative queries answered in a timely, efficient manner.

Video

Cisco TelePresence has facilitated meaningful collaboration by powering real-time, immersive and multisite video communications. Many colleges have also integrated TelePresence Video Communication Server (VCS), which simplifies session

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Commissioner Ron Jackson speaking at the 2011 TCSG Leadership Conference. The following year Commissioner Jackson was able to attend via Cisco TelePresence®.

management and control of TelePresence conferences. Together, TelePresence and TelePresence VCS improve administrative staff productivity and enhance communication between colleagues. Geographically dispersed colleagues working at separate campuses are able to have meaningful, "face-to-face" dialogue with their colleagues, bringing even recently merged college staff closer together.

Recently, one of Georgia's technical colleges began to use the upgraded technology as a unique way to register students across its six separate campus locations. The college in question wanted to provide the same "home campus feel" despite the geographic disparity of their students. As such, the TCSG helped the college set up a virtual advisement center via video. Today, staff advisors and registration personnel work from the main advisement center, but use video phones to connect to students across the state and guide them through the often-stressful registration process.

TCSG uses TelePresence during its regular meetings with the IT staff from all 25 member colleges. Recently, TCSG brought in Commissioner Ron Jackson to the meeting by projecting a TelePresence session onto a 35-foot screen. Geoff Catron describes the high quality of the two-way communications, despite the remote participant: "Our commissioner actively participated in the meeting from his desk in Atlanta. He could see the 60+ participants in the meeting so well that he called people by name in the back of the room."

Messaging and Comprehensive Communication

Colleges recently began integrating Cisco Unified Presence as an additional administration communication tool. With Unified Presence, staff from separate campuses can rapidly connect by seeing one another's' availability and exchanging instant messages. This capability eliminates "phone tag" problems and enables staff to handle administrative tasks, such as enrollment and admissions, efficiently. Cisco Unified Mobility also helps enable administrators and staff to answer incoming office calls from their mobile phones and communicate between campus locations via video anytime, anywhere. Ferguson says, "When you're working two hours away and your peers are physically on another campus, Unified Presence enables the user to have seamless communication, even video conferences."

TCSG is working to expand Unified Presence to all 25 colleges, which would centralize communications across all the entities and facilitate intercollege collaboration.

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Product List

VIDEO

- Cisco TelePresence EX60, EX90, Profiles, C20, C40, Precision HD USB Camera
- Cisco TelePresence Video Communication Server (VCS)
- Cisco TelePresence Management Suite (TMS)
- Cisco TelePresence Content Server
- Cisco Webex®
- Cisco Show and Share®
- Cisco Unified Videoconferencing 3515 Multipoint Control Unit (MCU)
- Cisco 894x and 99xx Series IP Handsets

VOICE AND IP COMMUNICATIONS

- Cisco Unified Communications
  - Cisco Unified Communications Manager
  - Cisco Unity®
  - Cisco Unity Connection
  - Cisco Unified Presence
  - Cisco Unified MeetingPlace®
  - Cisco Session Management Edition
  - Cisco Jabber™

Next Steps

In the latter part of 2012, TCSG will be initiating a project to enable dynamic multipoint VPN (DMVPN) between TCSG and all its member colleges. This IP-to-IP communications will allow one college to instantly connect to a phone at another college through an encrypted connection across the IP network.

TCSG also plans to establish trunk links (VLAN identification for frames traveling between switches) to strategic locations in Georgia communities, to facilitate unified communications capabilities with critical external college partners (Cisco account management team and engineering resources, IT professionals in other organizations and schools that have instant messaging capabilities).

Technical Implementation

Many of TCSG's colleges are Cisco Networking Academies, and Cisco technologies are a core competency for TCSG. The TCSG engineering team has worked with various Georgia vendors to design all of the currently installed UC deployments. Although the TCSG leverages its engineering resources to configure, deploy, and support all of the deployments, thereby greatly increasing the return on investment and enhancing the skillset of its IT staff, it has occasionally partnered with vendors to assist in complex implementations of Contact Center and other advanced features. Various other vendors in the Georgia community have worked with colleges individually to deploy Cisco TelePresence and other integrated UC applications that were not a part of the initial, major UC deployment.

For More Information

To learn more about Cisco TelePresence, go to http://www.cisco.com/go/telepresence.

To learn more about Cisco Unified Communications, go to http://www.cisco.com/go/unifiedcommunications.

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