

IP Convergence – Doing More with Less, and Doing it Better

Overview

The School District of Palm Beach County's (SDPBC) division of Information Technology (IT) was charged to *do more with less* while providing an infrastructure for 186 schools and over 8,500 classrooms. SDPBC is geographically the largest county east of the Mississippi River. Yes, geographically larger than the State of Delaware, SDPBC student population makes it the fifth largest school district in Florida and the 11th largest in the nation. It served 170,215 students during the 2009-2010 school year.

The Challenge Part I

Serving the voice (telephone) and data (computer) telecommunication needs for all the students is critical. The challenge was to provide this service at a lower cost. IT upped the stakes and said, "We'll do it for less and we'll do it better". The original design of the voice system was a hub-and-spoke configuration using analog transmissions, where the hubs were high schools and the spokes were the middle and elementary schools. When a call was made from any of the schools it showed on monitoring systems as being the high school (hub). Because the monitoring reports were not accurate, only one emergency "red phone" or outside line per building was available to call 911 because it would show the correct location for emergency responders. Emergency calls from other phones in the building reported the wrong location which caused confusion and delays.

The Challenge Part II

Leased AT&T T1 technology delivered both voice and data to schools. T1 technology was originally designed for phone systems and was old and slow, severely restricting students' on-line access to instructional assessments and applications, such as FCAT Explorer, Discovery, BrainPop, eLibrary, Weekly Reader, and numerous others. Bandwidth for students had to be increased while allowing mobility to assure and maximize the benefits and opportunities for student achievement to serve their growing instructional needs. When teachers are in class teaching, the data demand peaks because of the instructional use of technology; when class is over, data demand goes down and voice demand peaks because teachers are calling parents.

The Solution

The solution had to address these factors: increase bandwidth for instructional use; accurately identify emergency call location for every phone; be scalable for a District as large as Palm Beach County; address both voice and data requirements; resolve the voice mail limitations of capacity and expandability; all while reducing overall costs. The answer was found in modern technology – TCP/IP. TCP/IP or Internet Protocol is the methodology which enables computers and voice to communicate over the same shared network. The SDPBC chose to implement an IP Convergence for voice and data traffic which resolved all the challenges and:

- increased schools' bandwidth 6.67 times
- reduced connections by 67%
- decreased AT&T bill by 25% or \$1,000,000 annually
- installed REDSKY 911 for all schools (emergency notification system)
- increased voice mail boxes to 17,000
- won ComputerWorld Honors Design Award
- installed wireless footprint in all schools
- created remotely survivable voice service at schools
- enhances the home-to-school connection

The Outcome

IP Convergence improved school safety, removed the student access constraints, reduced costs, and solidified the indispensable underpinning for academic and operational activities within the School District of Palm Beach County. Technology's indispensability is evidenced by the recent need to increase the bandwidth to 50Mb at schools, an increase 33 times the original T1s and still the AT&T bill didn't increase above the original amount! District safety has been improved dramatically; every phone allows emergency responders to know the exact building, floor, and room of the emergency call. Now, district-wide responders arriving at the right location for 8 to 15 emergency calls daily of which 75% are valid and 99% are injury related. Additionally, every school can maintain emergency and full communication even if the District's network fails. The entire project paid for itself from the savings it generated and is doing more with less, plus doing it better!