case study

82 Alaskan Schools Satellite Distance Learning Network with RADVISION's Videoconferencing Solutions

Highlights:

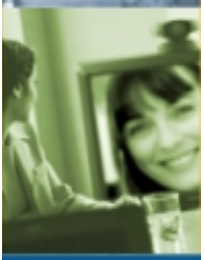
Client:	General Communication Inc. (Service Provider) Six School Districts in Alaska (End Users)
Products:	RADVISION's Enhanced Communication Servers (ECS) v*ia*IP Multipoint Conferencing Units (MCU)
Number of sites:	82 schools
Application:	Distance learning for remote schools in Alaska

Why General School Districts of Alaska Chose RADVISION:

RADVISION's vast experience in IP videoconferencing and the features, high density and scalability provided with this solution. With RADVISION solution the school district was able to tie together all sites using IP over salelite transmission, an impossible task if traditional ISDN services were used.

Introduction:

The State of Alaska has the most rural and isolated schools in the United States. Providing educational services to these remote regions is extremely challenging. In order to provide better classroom experiences, training for educators and communications for administrators, six pioneering school districts initiated a program to deploy a videoconferencing network to 82 schools all over Alaska. The school districts' objective was to facilitate distance learning and communication in their own districts and the entire region. They envisioned a network designed to provide both students and faculty an opportunity to meet, talk, teach, exchange ideas and learn across vast distances as well as access advanced placement programs, special education, tutoring and professional development resources.



Many of these communities, dotted along the landscape of Alaska, are accessible only by air. Due to the distances and extreme weather conditions, there is very little existing fiber in the ground and creating a new dedicated terrestrial network would be extremely cost-prohibitive, if not impossible. The Alaskan school districts each turned to General Communication Inc. (GCI), a leading telecommunications carrier in Alaska, who had experience providing Internet access to these villages through a satellite-based network called SchoolAccess®. GCI needed to expand the SchoolAccess service offering to include videoconferencing in order to meet the needs of their customers.

case study

GCI needed a partner with expertise in planning and building complex videoconferencing networks. GCI chose York Telecom, because of the company's unique and cost-effective proposal, which addressed the challenges of access, transport and infrastructure. York Telecom, a leading provider of visual communication solutions, has extensive experience engineering, deploying and managing large video networks. The network would incorporate eighty-two videoconferencing endpoints located at the designated schools and in a network command center. RADVISION's viaIP 400 solution was chosen to provide the essential multipoint conferencing, and Enhanced Communication Server network management solution for the backbone of the network.

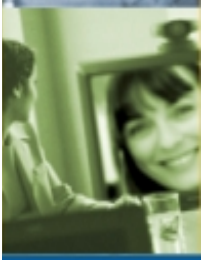
Challenge:

Developing a cost-effective and implementable solution to provide videoconferencing to the 82 schools in the project was a daunting task. There were almost no land-based communications available to the majority of these communities and the satellite services were flooded with data communications. Adding video communication to the satellite system was possible, but technical challenges surrounding the issue of latency (delays) in the network would make the communication awkward and difficult. Each time a call was made, it could go through several satellite 'hops' before it reached its destination. Enough 'hops' and the flow of video and voice would be incoherent.

The original initial Request for Proposal by GCI called for a single Cisco MCM gatekeeper at each of the schools. This added up to a very costly and complicated solution. Every gatekeeper would need to be updated and administered locally each time a change took place anywhere in the network.

The schools also needed multipoint conferencing services to connect three or more endpoints in a single conference and they wanted the solution to provide the appropriate number of 'ports' to accommodate the maximum number of participants they could envision, while staying within their budget. Finding a low-cost price per port solution was critical in order to maintain the capacity and level of service they were looking for.

Technology Note:
The satellite communication system was enhanced to handle the videoconferencing traffic by placing a proprietary device at each earth station. This made the network appear to function as frame relay and route the videoconferencing traffic via Frame Switched Virtual Circuits (SVCs). This allowed the videoconferencing traffic to be routed on a separate, but parallel, plane in the satellite system, providing Quality of Service using a 100% IP communication paradigm.



Solution:

The team at York Telecom presented an innovative network plan that addressed all the needs of the School Districts while significantly cutting costs and simplifying the administration and deployment of the videoconferencing network.

case study

The York Telecom plan called for deploying six RADVISION *via*IP 400 chassis' equipped with 30-port or 60-port Multipoint Conferencing Units (MCUs). Each *via*IP chassis can hold up to four cards to fulfill a variety of functions including increased MCU capacity, data conferencing services, and gateway services for connectivity between IP and ISDN networks. Although none of the other cards were needed at the time of deployment, this gave the School Districts an immediate answer to their needs while deploying a scaleable solution to accommodate future growth when necessary.

viaIP Multipoint Conferencing Unit - renown for its high-density, unlimited scalability, and its proven performance, the viaIP MCU bridges conferences for voice, video and data between three or more endpoints.

York Telecom also found a solution for the network management with the RADVISION ECS. The ECS has the unique ability to set up a hierarchical structure for multiple gatekeepers. This means that administration and management of the network can be implemented from a single point - the 'parent gatekeeper' - and all of the other 'child gatekeepers' can immediately be updated with the right configuration. This greatly simplified the administration. The ECS was able to manage enough communication and traffic that only one gatekeeper was needed per School District instead of at each school, which was the original plan. Deploying six ECSs to manage this vast distributed network was economical and efficient. In addition, the School Districts decided to deploy an alternate ECS in the parent zone in Anchorage for redundancy and network assurance.

Enhanced Communication Server (ECS) – The RADVISION ECS is an advanced management application with H.323 gatekeeper functionality that is essential for the management of IP telephony and multimedia communication networks. The ECS can set policies and control network resources, such as bandwidth usage and traffic direction, to ensure optimal performance.

"The RADVISION ECS communications manager with gatekeeper functionality, hierarchical structure, PBX-like features and flexible distributed nature saved the School Districts a lot of money without compromising on performance," said Dean Gonteski, VP Solutions at York Telecom. "The *via*IP MCU proved to be the most cost-effective and reliable system for IP videoconferencing."

In addition, RADVISION was the only vendor with the technology to deploy a hierarchical architecture for gatekeepers in the network. This means that one gatekeeper acts as the 'parent' gatekeeper and all the other gatekeepers in the system are subservient to the 'parent'. This means, that only one gatekeeper needs to be updated and changed to manage settings and traffic flow in the network and it provides the instructions and parameters to all of the other gatekeepers in the system. This critical feature enabled administration of the expansive network from a single source saving valuable human and financial resources. In addition, because the network was Satellite-based, latency in communications was a problem because of the number of 'hops' conferences went through in order to complete a call. RADVISION's ECS virtually eliminated this problem in the network through support of a complex dialing plan that routed calls for single hop connections.

case study

Results:

In spring of 2002, the GCI team and York Telecom field engineers boarded GCI's small plane and set out to deploy the network. Two teams flew to two schools a day performing the installations and within two months all of the systems were in place and the network was ready for testing.

The School Districts have planned a rich curriculum for the Fall of 2002 with advanced math courses, English, foreign language instruction, and other programs. The videoconferencing network will allow them to leverage teachers in multiple schools and open up a world of education to their students that was previously restricted to their own village.

In the future, the system may be expanded for telemedicine applications in these remote villages. The residents are already taking advantage of wireless Internet access in their homes and can utilize Internet-based videoconferencing applications.

About RADVISION

RADVISION (Nasdaq: RVSN) is the industry's leading provider of high quality, scalable and easy-to-use products and technologies for videoconferencing, video telephony, and the development of converged voice, video and data over IP and 3G networks. RADVISION has two distinct business units. RADVISION's Networking Business Unit (NBU) offers one of the broadest and most complete set of videoconferencing network solutions for IP- and ISDN-based networks, supporting all end points in the industry. The company also provide businesses and service providers with integrated solutions that deliver converged IP-based video telephony applications to employee computer desktops and residential broadband homes worldwide. The Company's Technology Business Unit (TBU) provides protocol development tools and platforms, enabling equipment vendors and service providers to develop and deploy new converged networks, services, and technologies. For more information please visit our website at www.radvision.com.

SchoolAccess is a registered trademark of GCI.

For more information on GCI and York Telecom, please visit www.gci.com and www.yorktel.com respectively.