



Tyler Independent School District



Tyler
Independent
School District



Leading-edge school district...



Tyler Independent School District — 120 Years of Educational Excellence

Founded in 1882, the Tyler Independent School District (ISD) is the largest in East Texas, with facilities at 31 sites. Dedicated to helping students achieve their maximum potential and instilling self-discipline, the district's mission is to provide an environment where children can become lifelong learners and productive citizens.

Focused on using technology solutions to streamline communication throughout the district, Tyler ISD decided that a next-generation communication system capable of providing Internet connectivity, e-mail, and advanced phone services was an essential component of reaching its goals. To meet this challenge, the district turned to Nortel Networks for help in adding an affordable, state-of-the-art Voice over IP (VoIP) phone system to their existing data network.



*The Nortel Networks
i2004 Internet Telephone*

meets 21st Century learning curve.

Why VoIP?

The Tyler ISD spent over two years reviewing their options for installing a new phone system, and concluded that Voice over IP represented the future of communications. Aware of their responsibilities to the taxpayers, the district needed a solution that would ensure the continued viability of the community's investment. Nortel Networks helped the district create a cost-effective solution that reused their data network to provide a next-generation telephony solution, and that would protect their investment over time.

The Challenge

To bring the Tyler Independent School District's 1970s communication network into the 21st century

Spread out over several hundred square miles, the Tyler ISD was faced with the challenge of replacing an aging telephone system that dated back to the 1970s. The system had become unreliable, complaints of static and poor sound quality were frequent, and maintenance costs were high.

After careful consideration, the district determined that adding voice capability to its existing Ethernet network was the most cost-effective alternative for creating a next-generation, scalable, low-maintenance communication system. Upgrading the network to provide phone service would result in a stronger link between the school staff and the community, helping to increase the staff's productivity and efficiency. Additional cost savings would also be realized by enabling the system to be maintained from a central site, without the network manager driving out to each of the schools.

The existing phone system was severely limited in the number of lines it would support, preventing individual classrooms from having phone service. This limitation caused a wide variety of communications problems:

- Extensions for each staff member were not available, restricting direct contact from the community
- When teachers needed assistance, they had to leave the classroom to place a call
- "Phone tag" made it difficult for parents and teachers to make quick and efficient contact
- Open lines were frequently unavailable when the staff was free to return calls
- Shared phones limited privacy, interfering with confidential calls to parents or school administrators
- School support personnel had to answer every call, reducing their effectiveness and creating an avalanche of written messages that could be lost or misplaced

“ This is a **significant cost-saver** for our district. With just a few sites online, **we’re saving \$3,000 to \$4,000** a month. When we’re finished, the system will **save us over \$115,000** per year.”

*J. Donald Gentry
Superintendent,
Tyler Independent School System*

The Solution

A cost-effective, converged network architecture capable of handling both data and voice

Nortel Networks worked with the district to develop a plan that would upgrade and take advantage of the existing Ethernet network, enabling it to provide voice services to every site in the district. According to Superintendent Gentry, “It made sense from an investment perspective – by adding more powerful equipment to our data network, we solved the problem of providing better phone service.” And by using the existing network cabling to carry voice traffic, the district eliminated the expense of running and maintaining separate telephone wiring.

Dynamic yet Simple Network Architecture

Tyler ISD solved its challenge by adding a VoIP-enabled Nortel Networks Meridian* 1 PBX at the central site, with the Nortel Networks Meridian 1* Option 61C installed to support VoIP. Each school was already connected over a full T1 and, therefore, could offer PRI trunking between the main school and branch locations. This innovative VoIP solution is now using excess available bandwidth to support the new phone system. To provide telephony services over the IP network, the Nortel Networks Business Communications Manager is being installed at the majority of the schools.

Offering the same familiarity and ease of use as a traditional telephone, the Nortel Networks i2004 Internet Telephone has been selected for use across the district.

At larger sites where more than 90 lines are needed, the district is deploying a Meridian 1 PBX with the Nortel Networks Meridian 1 Option 11C installed for VoIP support. And to ensure minimal latency over the entire network, Nortel Networks Business Policy Switches are being installed to ensure the Quality of Service (QoS) levels required for clear voice transmissions.

Key Features and Applications

- **Centralized Management** offers simplified network administration from a single site. This streamlines the deployment of new applications, reduces on-site maintenance, and increases the efficiency of management personnel. Self-labeling Ethernet devices simplify network deployment and configuration.
- **Voice mail with CallPilot*** delivers capabilities that enhance communication between staff members, with parents, and with the community as a whole.
- **Enhanced telephony services** including unified messaging, conference call capability, and call forwarding give staff members new tools to increase their productivity.
- **Standardized equipment** supplies a consistent telephone solution across the district, simplifying maintenance and ensuring that all personnel can use the system with ease at all locations.
- **Plug-and-play connectivity** enables pre-configured i2004 Internet Telephones to be moved to any suitable port on the network, without intervention by the network manager. Self-labeling phones save money by dramatically simplifying the process of handling moves, adds, and changes.
- **911 call handling** routes emergency calls onto a local analog circuit. The emergency call displays its origin at the city’s 911 console, ensuring that the response team arrives at the proper location.
- **Wireless VoIP solutions** provide the potential for portable voice connectivity, extending higher levels of safety to crosswalks, athletic fields, and other remote locations.
- **Ease of use** translates to minimal training, reducing instructional costs and enabling staff personnel to get the most from the new system.

“ Our calls come through **perfectly, every time**. The choice was simple for us, because the **Nortel Networks equipment** had the best **sound quality, the best service and support, and the best price.**”

*John Orbaugh
Director, Information Systems*



By leveraging the robust Nortel Networks data networking equipment that was already installed at the network core, including a Backbone Link Node (BLN) Router, high-speed Layer 3 Passport* 8600 routing switches, and BayStack* 450 switches, the district was able to make a smooth, cost-effective transition to VoIP. The interaction between the Passport 8600 switches and the Business Policy Switches ensures that sufficient voice bandwidth and QoS will be available to support high-quality telephony at all times.

Network management is handled from the central site, sharply reducing the need to travel out to the remote locations to configure and maintain the network. The district is currently using Nortel Networks Optivity* Network Management System for the data network components, and Optivity Telephony Manager for the voice components.

Why Nortel Networks?

For the past six years, the Tyler ISD has been relying on both networking and telephony solutions from Nortel Networks. When the time came to create a converged network capable of supporting both technologies, the district examined equipment from several different vendors.

After extensive testing, Orbaugh concluded that Nortel Networks offered the best solution:

“The gear from Nortel Networks was the best hardware that we found. But if you don’t have the right people backing the equipment, you can have a major problem. Nortel Networks provided the experience and expertise we needed in these very specialized areas of technology, and that made it a very comfortable decision to make.”

Solution Overview

Company name Tyler Independent School District www.tyler.sprnet.org

The service A converged voice/data network providing voice, email, and Internet services to all 31 sites in the school district, including remote management from the central site.

The solution Nortel Networks Meridian 1 PBX with Meridian 1 Option 61C for VoIP connectivity, networked over full T1 links to 30 remote sites. Most remote sites are equipped with Business Communications Manager devices, with larger sites using the Meridian 1 Option 11C. Business Policy Switches are used to ensure QoS, and the system is fully integrated with the existing Nortel Networks data networking infrastructure. Nortel Networks i2004 Internet Telephones deliver phone service to the desktops of all staff members throughout the district.

Key benefits for Tyler Independent School District

- Enhanced communication between school personnel and the community at large
- Improved communication between the main office and the remote sites
- Cost-effective remote management capabilities streamline system administration
- Dramatic cost savings compared with the previous phone system
- Increased reliability as well as advanced telephony applications such as unified messaging, CallPilot voice mail, conference calling, and wireless VoIP connectivity
- Direct 911 calling capabilities to ensure school safety



For more information, contact your Nortel Networks representative or call 1-800-4-NORTEL (1-800-466-7835), or 1-506-674-5470 outside of North America.

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11002.43/01-02