

the city of richardson embraces

growth

with a converged network solution

Success Story

**950 employees,
17 locations,
1 big problem**

New network architecture
delivers performance,
dependability... and
IP Telephony

Challenge: Richardson, Texas, a suburb of Dallas with a population near 100,000, experienced steady growth for a number of years. As a result, the communications infrastructure of the City of Richardson became strained. The city's 950 employees faced inconsistent network performance, and the congestion was particularly troublesome to the fire and police departments. With a new dark fiber network being installed, the city needed a new network design that delivered reliability, scalability and consistency—without putting undue strain on the city budget.

Solution: Nortel Networks and Verizon designed a switch-based solution that improved system performance while providing maximum stability and availability. The impact on the city's bandwidth was dramatic, as data speeds increased 10 times over. The new system included IP Telephony services that utilized some of the city's existing voice gear, increasing productivity while helping the city to realize substantial first-year cost savings.

Richardson, Texas is a fast-growing suburb of Dallas that is home to the Telecom Corridor®, one of the highest concentrations of telecommunications and technology-based companies in the world. Richardson has traditionally been very progressive in terms of technology; it was the first city in Texas to accept utility payments over the Web. However, steady growth had put a strain on the network utilized by city employees. With 950 municipal government employees spread between 17 different facilities, the city's existing T1 line was becoming too congested. Larger, heavy-traffic sites such as fire and police facilities were experiencing potentially dangerous slowdowns. To make matters worse, the old network infrastructure was expensive to maintain and difficult to upgrade.

Steve Graves, the city's Chief Information Officer, needed a cost-effective way to update the network infrastructure and give dependable high-speed network access to employees in 17 different locations. As they began exploring network upgrade options, city officials had five primary goals in mind:

- Replace unreliable systems
- Minimize expenses
- Deliver consistent high-speed network access to employees in 17 different locations
- Ensure scalability for long-term usage
- Provide maximum flexibility

Timing is everything

When the local school district put out a Request For Proposals to get a private dark fiber network run between all of its schools, city and school officials recognized an opportunity. A joint venture was proposed, and a new RFP went out to have the network installed between all the schools, as well as 17 city facilities. This enabled the two entities to share the cost and minimize the impact on their budgets — and on the taxpayers. As engineers were brought in to design the new network, it became apparent that the city's existing Nortel Networks* phone systems were in need of an upgrade as well. The new fiber installation presented the ideal opportunity to investigate IP Telephony. The advantages of a converged network were apparent, and a requirement for IP Telephony capabilities was added to the RFP. This new wrinkle eliminated many of the contenders, and a single IP Telephony provider quickly rose to the top.

The decision comes down to dependability

Nortel Networks, with its U.S. headquarters in Richardson, partnered with Verizon to provide the City of Richardson with the technology it needed to optimize its new network and implement IP Telephony.

“We felt that Nortel Networks had the best IP Telephony solution for the city of Richardson’s needs at the time.”

- Steve Graves, Chief Information Officer, City of Richardson

The city’s IS department felt the design of the Nortel Networks solution was the most dependable of its options. It was not just the quality of the hardware, but the design of the overall solution that had the greatest impact. Most other companies proposed systems that utilized software often susceptible to viruses, worms and Denial of Service attacks. There were concerns about the stability of such a system. Because the city’s network has to support emergency services such as 911, dependability and availability are crucial. The Nortel Networks design employs telephony systems that use the highly reliable VxWorks operating system. The design placed switches at each of the largest facilities, using the fiber as a backbone.

The broad portfolio of products available from Nortel Networks allowed the city’s existing Meridian 1* systems to be enabled for IP Telephony, providing a more cost-effective solution.

The Nortel Networks deployment included:

- (6) Passport* 8600 Routing Switches with CWDM capabilities
- (35) BayStack Business Policy Switches
- (1) Meridian 1 Option 11C
- (4) ITG trunk-side cards
- (5) ITG line-side cards
- (200) IP phones
- Symposium* Express

These were deployed in conjunction with the city’s existing:

- (2) Meridian 1 Option 61Cs
- (3) Meridian 1 Option 11Cs

Performance equals productivity

Nortel Networks designed a system that provided:

- A simplified network with voice and data delivered on the same fiber
- Improved, uniform network performance
- New technology using familiar protocols without all new equipment
- Reduced costs related to telco services
- A clear migration path for future upgrades

The system changeover has been practically seamless for the City of Richardson’s 950 employees. With little downtime and no new training, data speeds have gone from



1.2–1.5 MBps to a minimum of 1 GBps per site. The transition from traditional telephony to IP Telephony has also been painless, and the resulting improvement in functionality has drawn raves. A particularly popular feature is the CallPilot* unified messaging application that enables users to get their voicemail, e-mail and fax messages from a single mailbox on their PCs.

The IS staff remains constant at 20 employees, 10 of which are technicians. Their jobs have actually been simplified, since five servers that were previously at five different locations have now been consolidated into a single centralized server.

The City of Richardson will realize considerable savings through the years thanks to this new network. Savings on telco costs alone will total \$10,000 a month. In addition, by remaining with the Internet Protocol, there is no need to add more IS staff, resulting in an estimated savings of \$130,000 a year. There were savings on equipment costs as well. Without the Nortel Networks hardware, the city would have had to purchase over \$50,000 in new servers this year.

Thanks to these savings, the IS department has been able to reduce its budget by roughly 8% while increasing the performance of its network. In the current economy — with tax revenue down and budgets under tight scrutiny — this fiscal performance is as critical as the network's performance.

The future is always a factor

Nortel Networks investment protection strategy was a key factor in Richardson's decision. The ability to incrementally upgrade as new features and services become available means the city's investment is protected and that there will be quick and cost-effective pathways to grow the system as the city's communication needs grow. The expanded bandwidth of the network will benefit the citizens of Richardson as well by enabling the city to increase its Web-based services. In the next year, the city plans to enhance its Web presence and give citizens greater access to city services and information. From a single seamless interface, a citizen will be able to pay traffic citations, receive utility service payment information and more.

Another key application will be in the wireless arena. In the future, the city is considering providing WiFi services in the city's library that will provide Internet connectivity to visitors with notebook PCs. The police and fire departments will also have its own WiFi "hot spots," where emergency service vehicles can park to receive secure system updates without leaving their vehicles.

A role model for the modern city

Steve Graves, the city's Chief Information Officer, has received numerous calls from other cities, requesting details on the Nortel Networks design of the improved network. As Richardson continues to take advantage of this technology to increase the efficiency of the city's employees and implement new services for its citizens, it is sure to be a model for other forward-thinking communities throughout the country.

"Nortel Networks helped us reach our goals by supplying a cost-effective solution that does not require additional expertise or people."

- Steve Graves

"I am counting on Nortel Networks to keep us tech-savvy and to help us move toward our future goals."

- Steve Graves

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