AVAYA

Challenge

Develop a network with high reliability that could enable the deployment of advanced applications such as IP telephony, electronic records, and desktop virtualization.

Solution

A complete Avaya* data reference site with 5500 and 4500 Ethernet Routing Systems supported by Configuration and Orchestration Manager (COM).

Value Created

- System cost 10% lower than nearest competitor (approx. $30K)
- Business continuity, resiliency and redundancy—ensuring reliable delivery of critical services for citizens of the County
- Enabling applications that can deliver an estimated ROI of more than $190,000 per year, plus tens of thousands of man-hours per year on electronics records management, automated workflow strategies, and citizen access to online information and data services
- Dramatic increases in processing capabilities and throughput capacity

* References to Avaya include the Nortel Enterprise business, which was acquired as of December 18, 2009.

County government upgrades IT network to enhance citizen services and realize cost savings

Gastonia, North Carolina – The Central IT Network Team for Gaston County serves 35 departments, with 1,400 employees. The range of functions is vast, including: Social Services; the Sheriff, County Police, and Jail; Public Health; EMS/Ambulance; Tax Department; Financials and Payroll; Geographical Information Systems; and County Administration. In order to deliver such a wide range of services efficiently and effectively, County government needed to deploy advanced data and telephony applications that require a strong, reliable network.

Background: Brandon Jackson, CIO for Gaston County, described the IT outlook in 2005: *"Many of our functions were still heavily paper- and process-based. We wanted to move into a more e-oriented scenario in order to realize cost efficiencies and overall improvements in our delivery of services, and we had to face the fact that we didn't have the network environment to do that."*

Most of the equipment was, on average, seven years old, and about 70% of the network consisted of hubs rather than switches. There was no gigabit capacity; it was all either 10 meg or 10/100. There were even some circumstances where there was only 10 meg connectivity utilizing fiber lines between sites. The most serious issue they faced was the threat of network failure and resulting downtime.

As Jackson described it, *"Before we went through the network re-architecture, we were a decentralized or 'star' network. We had one managed switch in our central data center with connections going out to the remote sites. Anything that needed to flow back and forth had to traverse through that one device. It was a massive single point of failure that really gave us problems over the years. We also had single points of failure at every one of our sites. If one component went down, it could take down at least a significant part of the network, if not the entire network."*

One of the things the IT team hoped to do was leverage an existing fiber network that essentially created a "ring" among several of the main buildings. Jackson explained, *"We had a lot of our own fiber installed between County sites that were in close proximity. So there were some circumstances where we knew if we had the right technical solution, we could create more redundant pathing. With our old equipment we weren't able to leverage that loop. If we had a break at one point we couldn't reverse course and come back around the other way on the loop."*

> **"Our new network solution has given us the capability to run advanced applications that will improve the County's services to all of its citizens, and to save substantially on many of our processes. We feel confident that we will be able to meet all of the data and communications needs that will arise in the coming years."**
>
> *— Brandon Jackson*
> *CIO, Gaston County*

Ramping up for a wide variety of advanced network applications

The IT team knew that it would be essential for the County to deploy a much stronger network for the various applications it hoped to run in the future, including:

- voice over IP telephony
- medical records
- desktop virtualization
- records storage
- workflow automation

"Because of budget constraints at that time, we implemented an inexpensive 'fix' with commercial gear," Jackson commented. *"But we did that fully understanding that, once we had run the life on that equipment, and budget constraints were removed, we would replace it with an enterprise network solution. Long-term, that was where we wanted to go."*

Near the end of 2008, the interim equipment installed by the County was approaching end-of-life, even as the County's IT network team members were planning for the voice over IP installation and desktop virtualization pilot. They also needed to address a resolution passed by the County Board of Commissioners that mandated more e-government initiatives, in order to provide wider access to information for the County's citizens, and to reduce costs.

The County retained a consultant to help develop plans for the stronger network that would be required to achieve all of their goals. They began to evaluate the major enterprise solutions that were available, particularly with regard to flexibility, functionality, redundancy, and ease of management. After a six-month period of research and planning, the County sent out specifications that covered its technical, data, and business requirements.

The team presented their design to each vendor and reviewed the resulting proposals. Demonstrations were an important part of their evaluation criteria. Through the demonstrations and discussions they were looking for two things: first, to determine that the proposed solution would have the resiliency, features, functionality, and administrative capabilities that the County needed for its many departments; and just as importantly, that the vendor would be a knowledgeable, trusted business partner—someone whom they could rely on for the long term.

According to Jackson, *"We were particularly interested in having a true business partner that we knew we would be able to rely on in the long term. One of the greatest differentiators with our Avaya channel partner team was that they really demonstrated a desire to have a long-term relationship with Gaston County. They were always very responsive, and any time we had a question, they were right there to help us. What we saw was sincerity—a real*

desire to do the best thing for us. They earned our trust through the knowledge they demonstrated and by not overselling us on items we didn't need."

The new network for Gaston County is based on Avaya* 5500 and 4500 Ethernet Routing Switches, utilizing Communications Orchestration Manager (COM) for all of the software elements needed to control them. The new de-segmented network features a redundant ring that runs from the County administration building to the courthouse to the emergency operations center, then to the County police department and the Elections Office, and back to the Administration building.

Jackson explained, *"The 5500 switches sit on top of the network at each location, with redundant, bigger connections going basically two different ways on that loop. This provides tremendous redundancy and resiliency capability, so if one GBIC fails in one of those switches we don't go down, and we won't go down even if a whole switch fails or if there's a physical break in the fiber. That's the kind of reliability we have gained by going from a centralized star configuration to a de-segmented ring."*

Benefits of a high-performance enterprise solution

Increase in processing ability, throughput, and management capabilities

Jackson commented, *"We have definitely noticed an increase in processing ability within each individual site. Part of that is due to the fact that we are running gigabit all the way to the wall, where we were only doing 100 meg to the wall in the past. In the Social Services area, for example, we instituted electronic records management for 100 users. Seeing the amount of traffic that they're producing, the amount of documents that they are scanning, the number of forms that they are processing—10,000 to 20,000 per day!—there's no doubt in my mind that we would have seriously struggled from a network throughput standpoint if we had been sitting on the old network architecture. However, the new network solution has just cruised right through it. We anticipate similar successes as we continue our implementations of desktop virtualization and medical records."*

Proactive management vs. reactive. The County's previous data network gave them no capabilities for tracking throughput, whereas the new solution enables them to see where the flow of traffic is and where additional links are needed. Graphing capabilities enable them to perform proactive rather than reactive management, and Jackson has found this very useful. *"With the applications that we run now,"* he stated, *"it is really essential to have the ability to analyze, monitor, manage, and troubleshoot everything down to the port level, all the way down to the level where wire is going to an end-user's desk."*

Convergence of voice and data. The IT team's initial concerns about voice over IP are echoed throughout the IT industry. As Jackson described it, *"The idea of merging and placing all of your data and all of your voice communications on the same network was a daunting proposition—especially in an environment that is so diverse, with data volume being unpredictable, in constant peaks and valleys. However, since we went live with the first phase of our voice implementation, we have not had one single flaw, failure, outage, or issue that was network-related. We feel this is due to the integrity of our new network solution and to the partnership we have with our Avaya channel partner."*

* References to Avaya include the Nortel Enterprise business, which was acquired as of December 18, 2009.

Cost savings/ROI

After conducting a thorough requisition process, the County was able to acquire their new Avaya network solution for $30,000 less than the closest competitive quote. The County also calculated specific ROI estimates for the various applications they are now able to run on the new network. These include annual savings of:

- $80,000 on storage and server
- $50,000 for virtual desktop
- 20,000 man-hours per year on electronics records management
- Over $60,000 for telecommunications

Additionally, the County will save on the many face-to-face or phone contacts that are eliminated as a result of citizens directly accessing information and data online, and more electronic processes and automated workflow strategies being instituted.

Business continuity – addressing the criticality of services provided by the County

According to Jackson, all of the County services are critical because they serve needs of citizens, and any disruption in services or communications can have serious consequences. There are departments with particularly high levels of criticality, such as Social Services, which provides food stamps, Medicaid, Medicare, and other services; County police; public health; and EMS/ambulance services. In order to ensure business continuity for these and other critical services, the County's new network provides a high level of resiliency and redundancy, to the extent that there have been no outages or service disruptions related to the network infrastructure.

Jackson concluded, *"I can honestly say that we could not even think about running all the applications that we have today, nor could we be planning those we have in mind for the future, without such a robust and reliable network. We definitely made the right decision, both on our equipment and on the team that supports it. We're well equipped to handle all of the County's needs both now and in the foreseeable future."*

APPLICATIONS AND SERVICES

Avaya Data and management Portfolio, comprised of:

- Ethernet Routing Switch 4500
- Ethernet Routing Switch 5500
- Configuration and Orchestration Manager (COM) 2.0
- Enterprise Policy Manager (EPM)

Learn More

For more information on how Avaya Intelligent Communications can take your enterprise from where it is to where it needs to be, contact your Avaya Account Manager or a member of the Avaya Connect channel partner program, or access other collaterals by clicking on **Resource Library** at **www.avaya.com**.

All statements in this Case Study were made by Brandon Jackson, CIO, Gaston County.

ABOUT GASTON COUNTY

Gaston County is located in the South-Central Piedmont section of North Carolina. Among the 100 counties in North Carolina, it ranks 74th in size and is seventh in population with approximately 190,000 people recorded during the 2000 Census. The County enjoys a diverse industrial base with over 4,000 businesses employing nearly 95,000 workers. The Gaston County public school system is the sixth largest in the State with an enrollment of more than 32,000 students. Institutions of higher education in the County include Gaston College, a county-supported community college, and Belmont Abbey College, a private 4-year institution. The moderate climate and natural resources provide an abundance of recreational activities for residents and visitors.

ABOUT AVAYA

Avaya is a global leader in enterprise communications systems. The company provides unified communications, contact centers, and related services directly and through its channel partners to leading businesses and organizations around the world. Enterprises of all sizes depend on Avaya for state-of-the-art communications that improve efficiency, collaboration, customer service and competitiveness.

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