



BridgeWave



Case Study

Bayonne Medical Center

Bayonne Medical Center Prescribes BridgeWave's Extended Range Gigabit Wireless Links to Share Critical Patient Healthcare and Computing Systems with Staten Island Hospital



Since 1888, Bayonne Medical Center has provided comprehensive, community-based healthcare services in Hudson County, N.J. Today, the 278-bed, acute-care hospital assists more than 70,000 people annually in the heart of the New Jersey-New York metropolitan area. Bayonne Medical Center offers a complete spectrum of healthcare specialties, including medical and radiation oncology; cardiac care; a diagnostic laboratory and radiology; renal care; and maternal and child health.

In January 2007, the facility broadened and diversified its portfolio with the acquisition of Richmond University Medical Center (RUMC), formerly part of Saint Vincent's Catholic Medical Centers and now an affiliate of Bridge Regional Health System. Located in nearby Staten Island, N.Y., the 440-bed hospital provides a full range of medical services to nearly 500,000 residents. The hospital operates a level-one trauma center, designated stroke center, regional perinatal center for high-risk expectant mothers, as well as an academic medical center of New York Medical College.

According to Anthony Antinori, IT director at Bayonne Medical Center, the opportunity to offer different and additional healthcare services was a



major factor in unifying the Bayonne and Staten Island facilities, which are approximately a six-mile drive apart across the Bayonne

Bridge. "The potential to expand our services and enhance patient care was a compelling benefit of joining forces," he explains. "However, we had to clear a variety of technical hurdles in order to begin the integration process."

CHALLENGE

With the acquisition of RUMC, Bayonne Medical Center's IT team was tasked with sharing access to critical computing systems, applications and data while ensuring the highest levels of security for complete compliance with HIPAA regulations. Extending Bayonne's voice and data network to include RUMC meant crossing state lines, resulting in higher costs for data services and long-distance voice charges. Linking the two sites also involved traversing an important waterway that spans Upper New York Bay and Newark Bay, which added further costs and complexities.

Initially, the Bayonne-based IT team contemplated building a data center for the Staten Island hospital since its technology services had been outsourced previously. When the projected cost for the new data center topped \$1 million, the decision was made to centralize IT services at Bayonne Medical Center's existing data center. The 15-member IT staff already managed a Voice over IP (VoIP)

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- Anthony Antinori,
IT Director,
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phone system, wide- and local-area networking as well as technical support for 400 desktops and 70 Citrix and Windows servers. A 2006 deployment of an all-digital Picture Archiving Communications System (PACS) for capturing, storing and distributing medical images had led to upgraded Citrix and Virtual Private Network (VPN) connections to give physicians anytime, anywhere secure remote access to archived images. Internet services also had been increased to a 50Mbps circuit for improved, web-portal access to bandwidth-intensive X-rays and patient files.

It made sound economical sense to consolidate IT services for both hospitals at Bayonne Medical Center. "We already had several leading-edge technologies in place," explains Antinori. "Our email, file and application servers were here along with help desk and tech support services. We wanted to centralize everything from the phone systems to different healthcare information systems, which required a high-speed, secure communications link."

SOLUTION

The search for cost-effective connectivity initially yielded limited options. The team considered T3, 45Mbps services as well as OC-3, 155-Mbps carrier-based offerings, but found them out of budgetary range. For example, Verizon's fiber-optic based 45Mbps service cost upward of \$5,000 a month and yet was insufficient for meeting ever-increasing bandwidth requirements.

Since the distance between the six-story hospitals was approximately 2.25 miles with clear line-of-sight, Bayonne Medical Center decided to leverage its wireless expertise to seek a more affordable, higher bandwidth alternative to a wired LAN extension. Strict adherence to internal HIPAA security guidelines eliminated any WiFi-based, 802.11b solutions because they could be prone to interference and physical interception. MTM Technologies, a Stamford, Conn.-based provider of IT solutions and trusted integrator for Bayonne Medical Center, suggested aggregating four, half-duplex Cisco 52Mbps wireless radios to achieve close to 100Mbps network bandwidth. Skepticism about the performance and reliability of the 52Mbps radios led to a review of a new high-speed FSO product from LaserBit, which provided Gigabit speeds. In the long run, however, neither product matched the hospital's distance and availability requirements.

While doing some online research, Antinori came upon BridgeWave Communications, a pioneer in Gigabit Ethernet wireless networking and the leading supplier of GigE outdoor wireless products. BridgeWave's licensed 80GHz E-Band links offer 10 times the bandwidth of comparably priced 100Mbps solutions while supporting connectivity ranges up to four miles. The highly secure product boasted a narrow antenna beam width, which offered enhanced data security and interference immunity.

Additionally, a unique AdaptRate™ capability momentarily switches from GigE to 100Mbps speeds to provide continuous operation even during moments of intense downpours. "We have a few rough storms each year, so we were concerned about the effect of rain on the link," notes Antinori. "We reviewed BridgeWave case studies and using BridgeWave's link analysis tools we were able to determine that the link would be impaired less than 30 minutes a year. We quickly realized their licensed GigE wireless product met our criteria for network speed, security and availability."

After hearing about BridgeWave, MTM signed up for training and learned BridgeWave was working on an extended range 80GHz product that could deliver up to 40 percent better link availability at distances over two miles. "BridgeWave's new AR80X is ideal for ensuring maximum network uptime with our wireless-over-water application," adds Antinori. "We are confident this new GigE radio will deliver better than 'four nines' uptime in all weather conditions, while producing the fastest return on investment compared to leased-line alternatives."

BENEFITS

In January 2007, Bayonne Medical Center began deployment of BridgeWave's AR80 to test capabilities while awaiting availability of the extended-range AR80X product. Ease of implementation and overall performance were instantly impressive. "We were up and running in less than one week and performance was phenomenally fast," says Antinori. "We tested remote access, downloaded digital X-rays as well as large files, emails and databases and there was no discernible impact on performance. It's as if everyone was in the same building."

In March 2007, BridgeWave assisted in swapping out the AR80 bridges for the new AR80X. Two wireless bridges were installed side-



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by-side for full redundancy while also providing up to 2Gbps of aggregated bandwidth. OSPF (Open Shortest Path First) routing protocol was added to the hospital's Cisco switch for automatic fail-over to the backup BridgeWave link if the primary link experiences a problem.

The AdaptRate capability continues to draw raves. "This feature was a real dealmaker for us as now if we have severe weather, we can drop down from GigE to 100Mbps, instead of potentially losing connectivity altogether," Antinori adds. "It gives us great peace of mind knowing we'll sustain a highly available and reliable network extension to support mission-critical voice and data traffic."

Another overarching benefit is the projected ROI. "Our fully redundant BridgeWave links will pay for themselves in a just over two years compared with the cost of a carrier-based fiber-optic service," concludes Antinori. "The best part is we have sufficient bandwidth to expand our network between the two hospitals without recurring monthly service charges. We also predict significant savings in manpower since our help-desk team can access remote desktops without having to dispatch anyone to Staten Island. We now have a future-proof solution at an outstanding price point with unprecedented uptime—that's hard to beat."

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CUSTOMER:

Bayonne Medical Center, 278-bed, fully accredited, acute-care hospital in Bayonne, N.J.
www.bayonnemedicalcenter.org

INDUSTRY:

Healthcare

CHALLENGES:

- Two facilities in different states and separated by water needed access to bandwidth-intensive, highly sensitive healthcare information.
- Strict adherence to HIPAA guidelines required a secure communications link that was immune to interference.
- Extending the LAN with a wired, fiber-optic based solution was inordinately expensive and included costly recurring charges.

SOLUTION:

BridgeWave AR80X Extended Range 80GHz E-Band AdaptRate wireless links.

CHANNEL PARTNER:

MTM Technologies, a nationwide provider of IT solutions, www.mtm.com

BENEFITS:

- Ample bandwidth provides seamless connectivity to patient files and PACS as though everyone is working in the same location.
- One centralized data center enables streamlined integration of healthcare information systems while reducing operating costs and administrative overhead.
- Maximum network uptime and capacity delivers future-proof communications that scales easily to meet growing needs.
- Outstanding value-for-performance: ROI of two years when compared to slower fiber-optic based alternatives.

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