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Features

August 2008

Wireless

Wireless delivers jitter-free VoIP

Hershey Resorts installs gigabit solution to improve performance and reliability.

When the network team at Hershey Entertainment & Resorts (HE&R) first was tasked with integrating the headquarters of the nonprofit M.S. Hershey Foundation and two foundation properties, the Hershey Theater and Hershey Gardens, to the corporate WAN, the initial connectivity requirements seemed straightforward. After all, the foundation is across the street from the headquarters, less than 300 feet away, and the theater is less than 700 feet from headquarters. The gardens posed the biggest challenge, as they are approximately one mile away.

Various challenges, however, immediately arose as the team sought a solution that could meet ever-increasing bandwidth projections. Substantial bandwidth was required to support IP video surveillance, voice-over-IP (VoIP) and data traffic. At the same time, an ultra-low latency solution was needed to ensure quality voice and video transmission.

HE&R is a privately held company founded in 1927 as an offshoot of Milton S. Hershey's world-famous chocolate company. Today, this thriving part of the Hershey empire has grown to include some 1,600 full-time and 6,500 part-time and seasonal employees.

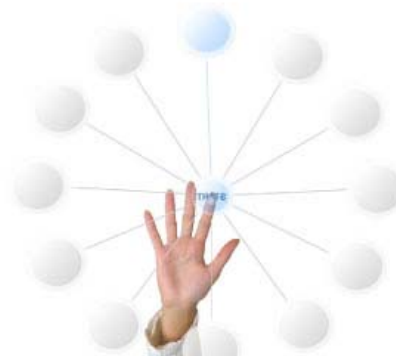
To help maintain its status as a leader in the hospitality and entertainment industries, HE&R has consistently embraced state-of-the-art communications technology, including high-speed networking to facilitate VoIP, as well as data and video communications within and between its various properties. The company also provides Internet access to its hotel, lodge and convention guests, while utilizing various wireless technologies, including Wi-Fi, to support ticket-scanning applications at its theme parks. Over the past decade, HE&R has relied on point-to-point wireless as a cost-effective means for linking hard-to-reach areas and point-of-sale locations, especially within its theme parks.

According to Andy Bomboy, director of network and communications services for HE&R, the company's six-person network and communications services staff oversees all the telephony and the network infrastructure that links about 20 sites to the company's WAN. The group also is responsible for a growing number of converged networking services, including VoIP, IP video surveillance, two-way VHF and sound over Ethernet.

For the headquarters-foundation installation, the IT team first investigated a metro-Ethernet connection, but recurring fees of up to \$3,500 per month for 10-Mbps to 100-Mbps connectivity derailed this path. The idea of installing multiple T-1 lines, while more affordable at \$500 per month each, would not provide sufficient bandwidth for HE&R's long-range growth plans and increased network traffic.

ALTERNATE PATH NEEDED

"We tried to forecast where we'd be in five years and realized a high-capacity network solution would meet our needs while ensuring quality of service (QoS)," explains Bomboy. "A server consolidation project at headquarters intensified the immediate need for a resilient link to provide an alternate, fault-tolerant network path."



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—Andy Bomboy

While private fiber could deliver the necessary bandwidth and QoS, this option was ruled out due to myriad rights-of-way issues and compounded by pricey installation and operating costs.

HE&R changed its focus toward wireless options, of which there were several to consider. As the company already had lower-speed point-to-point wireless links deployed throughout its network, however, the IT team knew this option would not provide enough bandwidth to serve as primary network connections.

Then, while attending a regional technology show, Bomboy was introduced to BridgeWave Communications, a supplier of gigabit wireless solutions. Bomboy heard positive reports about

the performance and reliability of the Gigabit Ethernet (GigE) wireless links, but remained skeptical. "We were concerned about how the radios would perform in heavy rain," he says. "So we reviewed the rain-fade calculations for our area and decided to test a link to verify that it could achieve 'five nines' availability."

First, HE&R deployed a BridgeWave GE60 point-to-point link to carry traffic from Hershey Theater to the network operations center at corporate headquarters. The team put particular focus on testing the radio's ability to carry VoIP traffic reliably as part of the deployment, including support for an automatic call distributor (ACD) application for a call center that handled high volumes of ticket sales.

"Thanks to ultra-low latency performance on the BridgeWave link, sound quality was great and the deployment was a big success by the first month," recalls Bomboy. While callers noticed no difference when contacting the call center, the most encouraging response, according to Bomboy, came from the IT team. The call center employees and network support staff gave the link high marks for quality and reliability.

Even after the initially positive results, Hershey continued to test the GigE wireless link while seeking and then obtaining buy-in from corporate executives, as well as additional network support staff and employees. Bomboy was able to provide HE&R's IT director with an ROI of less than two years for a quartet of BridgeWave links when comparing them with leased-line alternatives.

"The first link literally sold itself," says Bomboy. "It passed the true test of link reliability during our rainy fall season, so we moved forward with the remaining implementations."

MAINTAINING CONNECTIVITY

HE&R installed a BridgeWave GE60 radio between the foundation's main office and corporate headquarters, along with a BridgeWave AR80 that traversed the mile between Hershey Gardens and headquarters. For this longer-distance deployment, Hershey leveraged the unit's unique adaptive rate capabilities, which can momentarily switch transmission from GigE speed down to 100 Mbps, if needed, to maintain high-speed connectivity during periods of severe downpours.

In addition, HE&R took advantage of the BridgeWave radio's adaptive path capability to proactively switch traffic to a secondary, lower-capacity wireless link, ensuring 100 percent network availability, even during the most severe cloudbursts.

"Pairing BridgeWave's AdaptRate and AdaptPath technologies gave us confidence that our longer-distance gigabit connection would deliver the same network availability as we've experienced with our shorter-range links," offers Bomboy. "The actual performance and availability of the long-distance link has been indistinguishable from the shorter two links."

All HE&R's current network demands for voice, video and data communications, including an AS/400 ticketing application, have been accommodated by the BridgeWave links. The company now is poised to extend its video-surveillance application to other properties.

"With BridgeWave's high-capacity gigabit wireless links, we can put a much heavier load on our

network, while having sufficient bandwidth for the next five to seven years," notes Bomboy. "To that end, we'll continue to leverage our initial investment in gigabit wireless technology to connect more sites, add point-of-sale applications and deploy innovative solutions like sound-over-Ethernet applications."

In addition to using gigabit wireless to extend its corporate network, HE&R has taken advantage of BridgeWave's "virtual fiber" to create an alternate network path between Hershey Hotel and Hershey Lodge & Convention Center. The two sites, which are connected to the network core at the Hershey Park Arena via leased fiber, support business-critical credit-card circuits, so maximum uptime is demanded. Using BridgeWave's AR80X extended-range product, the company covers the 2.5 miles between the sites to provide a resilient link with different ingress and egress points to each respective switch room.

"BridgeWave's extended range radio provides essential network redundancy much more cost-effectively than leased-line fiber, while protecting against 'backhoe fade' or other disruptions to the primary paths," says Bomboy.

HE&R also is considering additional gigabit wireless links, including one next year to connect the clubhouse at Hershey Links to Giant Center Arena. "We now see point-to-point gigabit wireless as a core IT infrastructure technology," Bomboy concludes. "The benefits of gigabit wireless for reliability, performance and ease of implementation make these products an ideal connectivity option for adding new properties and increasing network resiliency."

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