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# Connecting the casinos

**By April Jacobs**  
*Network World, 09/20/99*

Visit Las Vegas, and it's hard not to notice the erupting volcano at Mirage, the battling pirate ships surrounding Treasure Island or the soaring fountains of Bellagio. But one thing tourists don't spot is the ATM network that runs those three Mirage Resorts casinos.

Removed from the glare of the slot machines, gaming tables and floor shows, Mirage Resorts' ATM WAN links the Bellagio, Golden Nugget, Mirage, Treasure Island and an office building in Las Vegas with Beau-Rivage in Biloxi, Miss., and the Golden Nugget in Loughlin, Nev. All told, the network comprises some 13,000 nodes, including about

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7,000 desktop PCs.

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The fast-growing casino operator began upgrading its network from FDDI to ATM two years ago. Each casino has an ATM switch, as does the Las Vegas office building that houses the data center. The Las Vegas sites rely on OC-3 and OC-12 connections, while Beau-Rivage is linked to the WAN via multiple T-1 lines.

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Mirage Resorts' network runs virtually every aspect of casino operations, from guest room card reader access to gaming stations and lines of credit. If the network goes down, operations can crash to a halt. Each hour of downtime can translate into hundreds of thousands of dollars in lost revenue, says Glenn Bonner, chief information officer of Mirage Resorts.

With bandwidth requirements soaring from new properties and increased business, Bonner faced a challenge: to deliver data to multiple sites with the best possible performance. To get a handle on what was happening on the network, Mirage Resorts turned to Network Associates' Sniffer Total Network Visibility (TNV) Suite 3.0 network monitoring and analysis tools.

"Part of our problem was being able to pinpoint where problems were coming from," Bonner says. TNV's network monitoring and control features help Mirage Resorts' IT staff detect and fix problems more quickly, as well as proactively address trouble that is brewing. For example, TNV can detect traffic issues, alerting network managers to jams or potential failures.

Bonner says Mirage Resorts is working toward centralized network

management, but the company still needs roving administrators to troubleshoot and correct problems on-site. TNV allows the staff to plug into the network and access the same troubleshooting features available in the data center.

While TNV has been helpful for monitoring traffic, the process of upgrading the WAN is still not without potential pitfalls and anxiety.

The company's various hardware and software upgrades have entailed adding bandwidth or changing topologies, and Bonner notes that these changes have had an effect on the rest of the network. Mirage is rolling out TNV in conjunction with the upgrades.

Complexity has always been an issue for Mirage Resorts, as well. The company has no fewer than 17 operating systems in place, with 450 switches controlling network traffic. The goal is a state-of-the-art network with the best available tools to keep it up and running with as little downtime as possible.

In terms of business process improvements, the ATM network will undoubtedly play a central role, Bonner says. Enhanced functionality will enable Mirage Resorts' move toward a more paperless environment and automated business and technical processes.

So far, the network upgrade has let Mirage Resorts link and centrally manage its human resources, inventory/purchasing, casino credit and finance/accounting applications. According to Bonner, this move brought savings through reduced administration.

TNV has helped Mirage Resorts automate its help desk with trouble-

ticketing. When a network problem arises, TNV alerts a technician who can get to work before end users notice any difference in performance. TNV also automatically queues end users for problem resolution.

Now that Mirage Resorts is able to provide better performance, the firm is focusing on deliver browser- based applications for Web transactions.

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