

## Honeywell

### Customer Profile:

The Beau Rivage Resort & Casino in Biloxi, Mississippi is one of the biggest business and gaming destinations in the North America. The original resort cost \$800 million to develop, and post-Katrina renovation cost another \$550 million. The building itself is the largest and tallest in Mississippi, with 3.2 million square feet and 32 stories. A subsidiary of MGM Mirage, the Beau Rivage is rated one of the top U.S. resorts by both Conde Nast Traveler and Travel + Leisure magazines. The newly designed complex re-opened in late August of 2006 and features 1,740 guest rooms and suites, four lounges and bars, seven restaurants, 12 retail venues, spa and salon, pool and convention center, and a redesigned casino area with a state-of-the-art video surveillance network to protect guests and assets.

*“The Wynn in Las Vegas and MGM’s property in Macao, China – which has more than 40 switches – use a similar design, and they work great. D-Link has a history of doing this well.”*

–Richard Gibbs, Beau Rivage Resort & Casino Surveillance Technician

## Beau Rivage Resort & Casino Secures Assets, Premises and Customer Safety with D-Link / Honeywell Video Surveillance Solution

*MGM Mirage Property Installs Highly-Reliable Multicast Switching Solution that Supports Thousands of Video Streams*

### Challenge

In 2005, Hurricane Katrina devastated the Beau Rivage Resort & Casino in Biloxi, Mississippi. The complex re-emerged a year later, however, with upgraded construction, re-designed casinos and improved recreation areas. A brutal natural disaster offered some opportunity for change and improvement, and Beau Rivage seized the moment.

access only a few streams of video, audio or data. Their situation was the exact opposite.

The nature of Beau Rivage’s business requires 100% uptime, so scalability and reliability were crucial. The new solution would replace an aging, labor-intensive VHS system with degrading tape quality, and manual review and back-up processes.



*The Beau Rivage Resort & Casino in Biloxi, Mississippi*

Part of that change included plans for a new digital video surveillance infrastructure for securing the casino and protecting guests. To pull it off, Beau Rivage needed a highly reliable, fail safe solution that could handle massive amounts of traffic on the network and thousands of video streams – 1,536 streams of real-time, high resolution video. The system would need to deliver 6,144 Mbps of video and data to over 40 servers and 20 clients. Multiple live shots would have to be sent to multiple clients simultaneously without increasing bandwidth considerably. The casino’s particular situation was unique. Usually thousands of clients attempt to

### The Solution

Honeywell and D-Link offered Beau Rivage a proven, end-to-end surveillance solution for managing thousands of multicast video streams across a high-performance network. Honeywell designed a method for managing video streams through a standby server in the event of planned or unplanned server maintenance issues. The system requires multicast to switch video seamlessly to the standby server. Their design also enabled video delivery to multiple servers for recording at different retention times and frame rates (30 fps for 30 days on one server, for example, and 5 fps for 120 days on another).

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### PRODUCT FEATURES:

#### xStack – DGS-3324SR 24-Port Gigabit Layer 3 Switch with 40Gbps Stacking

- Integrated Dual 10-GbE Stacking Ports
- Recoverable Ring or Star Stacking Architecture
- Stacks up to 12 Units per Stack\*
- Advanced Standards Based Enterprise Features

#### DEM-310GT - 1000BASE-LX Mini Gigabit Interface Converter

- Gigabit Speeds on Multimode/ Singlemode Fiber
- Hot Pluggable
- Multi Vendor/Device Support

### D-Link Business Class Solutions:

- NICs
- Routing
- Security
- Network
- Switching
- IP Cameras
- Voice and IP
- IP Telephony
- Wireless LAN
- Management
- Firewall / VPN
- Communications
- Services & Support

Honeywell's Director of Technical Services, Greg Skarvelis, and D-Link's Senior Director of Strategic Development, Brad Bester, devised a way to implement an industry standard multicast routing protocol without over-engineering the solution or inflating project costs. The new design allows for easy expansion and is extremely reliable.

The hardware consists of 1,536 Honeywell analog cameras, 15 D-Link xStack DGS-3324SR switches, and D-Link DEM-310GT Gigabit interface converters. Digital encoders sit between the Honeywell cameras and the D-Link switches. The system handles 6,144 Mbps of video and data that is sent to more than 40 servers and 20 clients.

"The multicast performance of this network is very impressive from a purely technical standpoint, and the image quality is like day and night," said Richard Gibbs, Surveillance Technician for Beau Rivage. "The new digital system cuts video review time in half for our security operators. They now have more time to monitor live operations rather than deal with tapes and poorly recorded video."

"The D-Link xStack DGS-3324SR switches were a perfect solution for the multicast network traffic and fail-over support we required for this application," said Howard Simpson, Systems Architect at Honeywell. "The project was highly complex, with thousands of video streams. So we needed a technology partner that could deliver a robust, highly-reliable switching component."

D-Link added enhancements to the switch firmware for this project which eventually became part of the standard D-Link firmware. "D-Link was forward thinking enough and fast enough to move on the fly and develop a solution designed specifically for our customer," said Simpson. "We were impressed with their ability to tackle new challenges and deliver results quickly."

Overall, Beau Rivage opted for the Honeywell/D-Link solution because of performance and reliability. "We know these configurations work with the D-Link switches," said Gibbs. "The Wynn in Las Vegas and MGM's property in Macao, China – which has more

than 40 switches – use a similar design, and they work great. D-Link has a history of doing this well."

The final solution delivered on all counts. "Before, the VHS tape was grainy," said Gibbs. "Now, we're getting superior, real-time resolution – and everything's right there at our finger tips. We efficiently handle massive amounts of video, the clarity is definitely higher with digital because it's stored as is, not on a degrading medium like magnetic tape, and the resolution's higher so you get a clear, full-frame 4-CIF image every frame."

There were other factors to the project's success, as well. For Honeywell, support was very important. "I heard nothing but good things about D-Link's technical support people and the engineers," said Simpson.

The Beau Rivage installation started in late June of 2006 and was finished a couple of months later by the resort opening date on August 29th. It was a rushed job, but they assembled an excellent, hard-working Beau Rivage installation team with support from Honeywell, North American Video and D-Link.

D-Link's Bester performed initial programming for the switches and walked Beau Rivage's staff through the user interfaces. His design and support expertise has been instrumental at numerous surveillance sites, including MGM Mirage's Macao, Las Vegas and Biloxi sites. "Everything went really well, and we haven't needed D-Link support since," said Gibbs. "Every time you do a new install, you expect hiccups, but we haven't experienced any problems. We usually factor in a certain percentage of error for downtime, but we haven't experienced any. It's a very stable network. We formed great relationships with the whole Honeywell/D-Link team, though, so we know that we'll get great support if and when we need it."

\* Actual number of units will vary.