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FEATURE

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Aladdin Gambles On Spectacular Sound

■ Las Vegas' Latest Hotel/Casino Features Cutting-Edge Systems Solutions



The new Aladdin Resort and Casino covers 135,000 square feet on multiple levels and is the site of the first Las Vegas installation of Media Matrix using the new NT software and CobraNet networking on an in-house fiber optic backbone.

Time is money, the saying goes. But in Las Vegas, money buys time—less time. Fueled by a booming economy and high-stakes one-upmanship among resort owners, mega-resort construction seems to proceed at warp speed along the fabled Strip. Working overtime is practically the norm.

For example, if you attended the NSCA show there in 1998, you may have witnessed the implo-

sion of the old Aladdin Hotel. Yet, barely 28 months later in August of 2000, the new \$1.4 billion Aladdin Resort and Casino opened for business on the same chunk of real estate.

This was no minor feat, even by Vegas standards. A few key numbers outline the dizzying scope of the project. The hotel offers 2,567 luxurious oversized rooms. The main casino covers 135,000 square feet on multiple levels, ample room for 2,800 slot machines and 87 table games. But that's not all. For the high rollers, there's the separate 15,000-square-foot London Club, the first exclusive European-style gaming salon in the city. For meetings, there's the 75,000-square-foot convention center, and for headline entertainment there's the 7,000-seat Theater for the Performing Arts. Shoppers can browse 130 retail establishments along the Desert Passage (see accompanying sidebar on that installation), and then visit any one of Aladdin's 21 restaurants when hunger strikes. You could spend days in here and never need to go elsewhere—which is, of course, precisely the idea.

The property owners, Aladdin Gaming LLC, contracted all audio and video systems directly to the Las Vegas office of PRG/SPL, a company with extensive experience in large hotel/casino systems (Bellagio, Venetian, MGM Grand and Paris, among others). Kent



Three JBL Sound Power SP215 speakers hang above the stage in the Sinbad Lounge.

Corbell served as the senior design engineer and overall project manager, with assistance from project engineer Carlos Dominguez and site project managers Keith Davies and Randy Robbins. According to Corbell, the Aladdin project was the largest design-build job yet undertaken by the Las Vegas SPL office, with a total contract amount of \$2.3 million.

"To a great extent, owners of the hotel relied on us to anticipate future needs and determine what would be possible," Corbell said. "We decided to start with the standard amenities, and then take it a step further by making operation more efficient and doing some things that haven't been done yet with other systems in town."

For example, to Corbell's knowledge, the Aladdin is the first Las Vegas installation of Media Matrix using the new NT software and CobraNet networking on an extensive in-house fiber optic backbone. The Aladdin contains two independent systems, one for the convention center and another (referred to as background music or "BGM") for the casino and most other public areas in the hotel and restaurants. The two systems are networked together via CobraNet, with an additional fiber run from the main BGM control room to the London Club, which functions as a semi-independent subsystem of the main BGM system. Scattered throughout the hotel

and convention center are more than 150 tie-in points to the network, which can be used as audio or video feeds, or as control points for accessing the Media Matrix mainframes at either of the head ends in the main control rooms.

The vast size of the Aladdin installation is difficult to

grasp, and a detailed description of all systems is beyond the scope of this article. As a quick measure of the project scope, the four systems installed by PRG/SPL—convention center, main casino, London Club, and Theater of the Performing Arts—comprise a total of over 120 power amplifiers (QSC and Crown) and more than 1,600 loudspeakers from JBL, Tannoy, Speakercraft, V-DOSC, EAW and SoundTube.

All equipment had to be installed, connected and tested on a tight schedule. Although SPL personnel were on site in February to coordinate conduit runs with the electrical contractor, wire pulling did not begin until late in April, less than four months in advance of the scheduled opening. To meet the hard deadline, PRG/SPL had crews of up to 15 technicians working overtime on site.

Although the four systems involved some different approaches to design and engineer-

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ing, a focus on the casino BMG system nevertheless illustrates PRG/SPL's overall strategy in tackling such a massive project.

By far the most difficult single design problem was how to provide uniform sound throughout the main casino, a vast glittering cavern nearly 250 feet long with 45-foot ceilings. One entire wall of the casino is dedicated to the Enchanted Garden Wall, a dazzling light display 140 feet long and 30 feet high with its own dedicated, performance quality sound system. Jutting out into the casino space is the elevated Sinbad Lounge, which features performances by live bands over another high-level performance system. The challenge facing Corbell was how to create a uniform level of high fidelity music—with an energetic presence but not overly intrusive—in the difficult space with all loudspeakers essentially hidden from public view.

"The system runs in three modes," Corbell said. "There's the default BMG mode, with music source usually coming from the DMX receiver. Then when the Enchanted Garden Wall show runs on its 40-minute program cycle, the dedicated wall system turns on and Media Matrix switches most of the casino zones over the wall source, a Tascam hard-disk playback unit. The third mode is live band, when the lounge system operator activates a contact closure which blocks the wall program cycle and switches adjacent zones of the BMG system over to the lounge source. This approach keeps the main casino space from degenerating into a jumble of conflicting sound sources."

Each time the system switches modes, Media Matrix automatically resets EQ settings and delay times for optimum effect.

Loudspeaker selection and placement were crucial elements in Corbell's design for the casino system. He realized from the outset that relying solely on ceiling speakers would not produce the desired effect. In order to get clear, coherent sound on the casino floor, he endeavored as much as possible to place speakers lower down, either concealing them in the walls behind dyed-to-match cloth, or suspending them inside the

decorative canopies that were hung over many of the gaming tables. Accordingly, final loudspeaker selections were based on sound quality, installation ease and ability to fit neatly in the assigned spaces. Also, Corbell admitted, guaranteed product availability was crucial as well.

"We did a number of demos before making our final decisions," Corbell noted, "and we realized that JBL usually gave us the best sound and also had the broadest product line, which allowed us to do this integration into facades and canopies. And with the aggressive project schedule, we preferred to source all casino speakers from a single reliable supplier."

As installed, the Aladdin BMG system uses over 900 JBL loudspeakers for the casino and public space interiors. The primary ceiling speaker type (over 700 installed) is the JBL Control 26CT 2-way unit, augmented in some casino and buffet zones by Control 19CST ceiling mounted subwoofers. "Ease of installation was a key factor in this decision," Corbell said. "The Control ceiling speakers come as an integrated package which can be installed after most construction is complete, something which really helps on a fast track schedule like the Aladdin."

To cover much of the open casino space, a series of JBL Marquis Series MS26 and MS28 speakers were recessed behind cloth and carefully integrated into the decorative millwork designs. For the pit canopies, a total of 78 Control 18T, 25T and 28T—all painted white—were tucked away inconspicuously in the billowing tentwork.

Supporting the Enchanted Garden Wall light show is a dedicated performance grade system comprising a total of 24 JBL Sound Power SP215 and SP222 cabinets. The Sinbad Lounge system also employs three of the SP215 speakers, along with six CSP18 two-way delay speakers fabricated by the JBL Custom Shop.

"We couldn't use subwoofers in the lounge because we were concerned about annoying bass-bleed into the reserved high-limit gaming area directly underneath," Corbell recalled. "So we asked An-

drew Rutkin at the JBL Custom Shop to come up with a small, inconspicuous speaker that could still carry appreciable low mid content to fill in at the back. It has an 8-inch woofer and a 1-inch tweeter on a concentric horn. We placed them about 35 feet back from the stage, and they do the job amazingly well."

All amplifiers for the main casino system are new Crown CL and CH Series, 47 in all. Ceiling and canopy speakers all operate on 70V lines, but the lounge, Enchanted Garden and in-wall Marquis Series speakers operate in 8 or 16-ohm mode for optimum sound quality.

The system employs three separate approaches for level setting. First is the programmed preset in Media Matrix for the three operating modes mentioned earlier: default BGM, Enchanted Garden program and lounge active. The system also employs 17 Crown PZM microphones placed throughout the casino and buffet areas which track ambient noise levels for automatic adjustments via the GAP level sensing component of Media Matrix software. Several different microphones are averaged together, so that a sudden jump in noise (slot payoff and subsequent jubilation) in one area won't raise levels throughout the casino. Finally, system operators and key managers can access zone level settings in Media Matrix from their computer terminals using the RAMM (Remote Access to Media Matrix) client software and the hotel's computer network.

"The RAMM software uses IP addressing on the existing network, so there's no need for separate control interfaces or wiring," Corbell noted. "That gives the staff audio technicians the ability to monitor and control systems from any terminal on the network, and it also allows us to do remote troubleshooting of the system over the Internet without leaving our office."

The RAMM feature also proved a lifesaver when Corbell and his crew faced the inevitable commissioning crunch. But armed with twin laptop computers, he was able to squeeze the entire casino system

alignment into two very busy nights.

"The hotel was testing all the fire and safety systems when we finished up, so we were tied up for nearly a month trying to work into their schedule and the remaining construction noise," Corbell recalled. "When I finally found two quiet nights, I went in with one laptop running SMAART and the other the RAMP client software via a wireless LAN connection that the hotel had put in for on-the-spot account tracking of player's club members. So I was able to sit on the floor in the middle of the casino, take SMAART measurements, and then make immediate adjustments to the EQ and delays right on the spot."

Thanks to this boost from innovative technology, Corbell and the PRG/SPL crew finished their systems comfortably in advance of the looming August 17 deadline, when the doors were slated to open at 7 p.m.

Which they didn't. Much to the consternation of both Aladdin management and the throng of thousands gathered outside, some glitches in fire and life safety testing held up final approval from



'Patch Central' in the Aladdin Conference Center A/V room provides effective access to over 1500 tielines.



SPL showcases the Crown Contractor series amplifiers in the amplifier's debut installation in the Aladdin BGM system.

Clark County officials. The energetic DMX music program played to an empty house, the Enchanted Garden blossomed into the void, and the 1980s cover band cooled its heels in the lounge dressing room. Finally, 16 hours later, the doors were opened and the Aladdin took its place—at least for the time being—at the forefront of Las Vegas mega-resort systems technology.

"Right now the Aladdin is unique," Corbell summarized. "It's really the first of its kind in Vegas. It has the flexibility of Media Matrix remote control and CobraNet, and it's also one of the most aesthetically integrated audio systems I've seen in any casino. It's very innovative in its placement of speakers, the way the speakers are used, the location and orientation of the lounge, and the way the lounge and garden wall sub-systems are integrated into the overall design. It sounds great, too. It's going to be a hard act to follow."

