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offer crossover opportunities.

Two Las Vegas-based integrators apply what they've learned serving the nightclub and casino postponed transition from film to digital, with one of them introducing near-8K resolution for AV, virtualization and integration for multiple markets, including theme parks that have been

NTA (NATIONAL TECHNOLOGY ASSOCIATES) ROLLS IN

Bob Schiffman founded National Technology Associates, Inc. (NTA, www.ntalex.com), in Las Vegas in late 2012 and the AV integration, design and engineering company sprang right into two high-profile Caesars Entertainment projects on the Strip: the High Roller observation wheel (at 550 feet, the world's tallest) and The LINQ, a walkable retail, dining and entertainment district bookended by the High Roller to the east and Las Vegas Boulevard at Caesars Palace to the west.

For the High Roller and LINQ projects, NTA was contracted to Caesars Entertainment, Bombard Electric and Leitner Poma. NTA's Senior Project Manager was Nevin Edwards, and Kevin Ruud provided design, engineering and programming for the systems. The scope of work was to provide audio, video and security surveillance cameras in the High Roller's 28 cabins, the show control for the AV feed to the cabins, AV throughout the wheel building (including preshow, staging and queuing areas), the outdoor AV throughout the LINQ and the AV in all remodeled areas of the newly branded LINQ hotel.

The contracts had originally been held by Kelley Technologies, which had ceased operations after

(continued on page 48)



Caesars Entertainment's new LINQ retail/entertainment district includes the world's tallest observation wheel, the High Roller.

SMART MONKEYS AND THE SMART AIRPORT TERMINAL

Since opening in Sept 2013 within LAX, the new Tom Bradley International Terminal (TBIT) has received multiple industry awards and is in line for several more. It pulls together a vast array of high-resolution displays and content streams (seven media features, with about 9600 square feet of combined active display area) via an integrated environmental media system (IEMS) to process and deliver information and generate non-aeronautical revenues for the facility while providing a state-of-the-art passenger experience.

The groundbreaking, intelligent control system was designed by Smart Monkeys, Inc. (www.smart-monkeys.com), using its ISAAC (Integrated Scheduler and Automated Controller) platform to build an enterprise solution based on Medialon Manager. It uses a "virtualization cluster" of enterprise servers and a storage area network (SAN). Within that cluster, a network of virtual PCs lives on enterprise-grade Dell servers, programmed and interacting as they would in other PC-based systems but without the shortfalls of actual PCs. GrassValley K2 servers run alongside the ISAAC control cluster to play back pre-produced content.

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Multiple screens form one of the seven high-resolution media features at the new Tom Bradley International Terminal at LAX. A custom, intelligent control system provided by Smart Monkeys manages all the content streams. Executive media producer was Moment Factory.

EVANS & SUTHERLAND: HEADING TOWARD 8K RESOLUTION FOR DOMES

Adoption of 4K resolution is now sweeping multiple display sectors. Meanwhile, a specialized niche—the digital dome—is already headed to 8K.

There are two primary markets for dome theater systems: planetariums, and giant screen cinemas in museums and science centers. Planetariums began converting at an impressive rate in the late 1990s, either discarding or augmenting their opto-mechanical “starball” projectors with multi-projector, digital video systems (“fulldome”).

But it has taken longer to develop systems with sufficient resolution, color saturation and brightness to rival the quality of 1570 film on a giant IMAX film dome. “When it comes down to the finest cinematic platform, you want as many pixels as you can afford, in the tightest concentration you can have,” said Michael Daut, Director of Show Production at Evans & Sutherland (E&S, www.es.com), a leading provider of fulldome systems. Daut sits on the Board of IMERSA (www.imersa.org), an organization that works to spread awareness of the potential of fulldome, and is a

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The Dome at the Science Museum of Virginia features “8K.”

NTA (NATIONAL TECHNOLOGY ASSOCIATES) ROLLS IN

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some 30 years in business serving hotels, casinos and convention centers. Schiffman, who had been VP with Kelley for 20 of those years, retained most of the Kelley team. He then set out to recapture the business, with gratifying results. “We were successful in the first 90 days in securing 100% of the contracts previously sold under Kelley,” he told *Sound & Communications*.

The future looks promising for NTA, which now has 18 full-time people and a pool of consultants. Schiffman and business partner H Waldman are looking forward to continued growth. He alluded to possible future big wheel projects (the High Roller was their first) and of a venture into lighting control systems, with Crestron. “We are always looking for new business. The company is progressing and we’re excited because things are picking up here in Las Vegas and throughout the country.”

Current NTA projects include a series of analog-to-digital, hi-def video upgrades for Red Rock Resort and other Station Casinos facilities, a new Downtown Las Vegas Event Center, and providing the distributed AV systems to the new SLS Resort & Casino set to open in September.

SMART MONKEYS AND THE SMART AIRPORT TERMINAL

(continued from page 46)

The client was Los Angeles World Airports (LAWA). In addition to Smart Monkeys (system designer and technical consultant), the project team included MRA International (project director, www.mrainternational.com), Sardi Design (design director/creative producer, www.sardidesign.com), Fentress Architects (www.fentressarchitects.com), Moment Factory (executive content producer, www.momentfactory.com), Digital Kitchen (content producer, thisisdsk.com), Electrosonic (systems engineering and integration, www.electrosonic.com) and Daktronics (display technology, www.daktronics.com).

The TBIT has much in common with a visitor attraction or theme park in the scope and quality of media-based experiences, in that it accommodates high throughput and has to run reliably all day, every day, year round. Smart Monkey’s Stephan Villet wants to see this overarching approach to control more widely adopted in the theme park sector, which has been slow to embrace it, but could reap the benefits of centralization that have long been available to other industries. “We love show control so much, we work hard to get on very big projects to show the potential and capability of show control,” said Villet.

Show control has been a niche specialty for the themed entertainment sector, which stays competitive by creating unique, one-off projects that interface gear in customized

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High Roller/LINQ Equipment

HIGH ROLLER CABINS

- 27 Alcorn McBride AM4 digital audio players
- 27 Alcorn McBride 4-channel AV binloop HDs
- 27 Alcorn McBride V16Pro show controllers
Belden wire, cable
- 27 BSS BLU100 12 analog mic/line input, 8 analog output, networked signal
- 27 Crown CT8150 8-channel power amps
- 28 Honeywell HRG45 DVRs, 4 CH 120IP 500 GB
- 28 HP J9559A 8G 2GB switches
- 1 HP JD313B#ABA 3100-24-POE V2 EI switch
HP Pro Curve
- 6 ICO RALLY XPNF-3/4 ICO-FLEX 3/4" expandable sleeving
- 28 ICO RALLY XPNF-3/8 ICO-FLEX 3/8" expandable sleeving
- ICO RALLY XPNF-1/8 ICO-FLEX 1/8" expandable sleeving
- 27 Innovox SB-208-ES1 subwoofers
- 29 Kramer RK-1 rackmounts
- 29 Kramer VA-50P power supplies
- 108 Kramer VM-2C 1x2 component DA
- 5 L-Com 4-40-D-Sub Hardware Jack Screw Kits
- 168 Leon Speakers PR-400 custom speakers
- 4 Liberty-AV RGB3C-25-CM 1000' coax cable
- Liberty-AV connectors, accessories
- Middle Atlantic accessories
- 220 Norcomp metal D-Sub backshells
- 200 Pan Pacific DH-9HS female DB9 connectors
- 3 Pan Pacific DH-Pin/F-MCH female pins (100 per bag)
- 18 Parts Express 002-10K flameproof resistors
- 80 Samsung 320MP-3 32" LCD displays
- 150 Samsung BN39-01154c 3.5mm to component adapter cables
- 171 Samsung ED32C displays
- SnapAV Ethernet cables
- 27 Supercircuits PC221 wide-angle security cameras
- 2 BTX IN-XS34BK-250 250' black tech flex expandable sleeving
- 27 TOA N-8640DS outdoor IP door stations
- 27 Whirlwind CO2a output module CobraNet in, 2 analog line level outputs
- Whirlwind custom plates
- 33 Xicon 015-8 8ohm 5W resistors

HIGH ROLLER BUILDING

- 2 Alcorn McBride Show Touch 10" touchscreen interfaces for V16Pro
- 1 Alcorn McBride V16Pro show controller
- 1 Alcorn McBride LightCue Pro Advanced real-time time DMX recorder
- 2 Alcorn McBride 8-channel AV binloop HDs
- Alcorn McBride MediaFlow Encoding Software
- 3 APC SMT2200RM2U APC Smart-UPS 2200 LCDs
- 5 Atlas Sound MVXA-2016, 16-channel monitor panels

- 1 Audio-Technica AEW5415A wireless mic
- 2 Behringer TRUTH B2030A active monitor speakers
- 5 BSS 9012US volume selector wall plates
- 8 BSS BLU-10 controllers
- 3 BSS BLU-160 (8x8) networked signal processors (no CobraNet)
- 1 BSS BLU-800 (8X8) networked signal processor
- 6 BSS BLU-BIB 8-channel analog break-in boxes
- 4 BSS BLUCARD-IN 4 analog input mic/line cards
- 4 BSS BLUCARD-OUT 4 analog output cards
- 4 BSS BLU DIGITAL IN 4 digital input cards
- 4 BSS BLU DIGITAL OUT 4 digital output cards
- 7 Christie Digital WU7K-M 7000 lumen projectors w/accessories
- 7 Corning CCH-01U closet connector houses, 1RU
- 10 Corning CCH-CP06-A9 single-mode adapters
- 2 Corning CCH-CP12-A9 SM LC couplers
- 1 Corning CCH-CP06-A9 singlemode adapter
- 2 CobraNet cards w/HD binloops
- 5 Crown I-T5000HD amps
- 2 Crown CTS-2000 Blu amps
- 1 Crown CTS-3000 Blu amp
- 7 Crown DCi8 300 DriveCore 8-channel amps
- 2 Dell E6540 laptop computers
- 1 Delta Infinity I-L-6-2700-G-AES hex head w/2.7TB SSD rail, channel AES
- 1 Delta Nano-480-2 480GB 2-channel unbalanced audio
- 7 Extron DVI receivers
- 1 Extron 9 1/2" deep universal rack shelf kit
- 1 Extron DA 8V/4V Dual EQ composite video distribution
- 15 Extron MTP-RL-15HD-RS-SEQ, Cat5 receivers
- 3 Extron power cage enclosures
- 1 Extron EDID emulator w/EDID Minder for DVI
- Extron CFG cables
- 20 Extron MTP transmitters for VGA
- 7 Extron DVI transmitters
- 9 Gefen EXT-RS232 line extenders
- 1 Horita BSG-50 RM rackmount multi output signal generator
- HP ProCurve switches
- 1 IO Gear GUH287 USB card reader
- 16 JBL 29AV-WH-1 speakers
- 20 JBL C67P/T-WH pendant speakers
- 50 JBL PRO Control 328CT 8" ceiling speakers
- 6 JBL AC28/95-WH surface-mount speakers
- 6 JBL AM7212-95-WH surface-mount speakers
- 14 JBL Control 19CST speakers w/transformer
- 8 JBL Control 23T-W 3 1/2" 2 way transformers
- 2 JBL C67P/T-WH pendant speakers
- 2 JBL ASB-7118 18" subwoofers
- 4 JBL Control 19CST speakers w/ transformer
- 54 JBL PRO MTC-300BB8 1 cubic foot back boxes for 8" models
- 126 JBL PRO Control 26CT speakers w/transformer 70.7V or 100V distributed

- | | | |
|---|---|--|
| 6 JBL PRO Control 312CS 12" in-ceiling subwoofer 400W, 30Hz 4.5kHz | 3 Traco Power TMS 25112C 12V 2A power supplies | 1 Extron power cage enclosure |
| 6 JBL PRO MTC-300BB12 speaker back cans | 1 Traco Power TXL-060-05S 5V 12A power supply | 3 Extron MTP transmitters for VGA |
| 1 JL Cooper MCS-3800 controller | 1 Tripp Lite N052-024 24-port Cat5e patch panel | 2 HP J9019B#ABA ProCurve 2510-24 managed Ethernet switch 2 x SFP (mini-GBIC) |
| 1 Listen Technologies LS-04 advanced FM system, 72MHz | 1 Whirlwind AV801-D/1-1RU 0.090" flanged aluminum, custom | 1 HP J9559A 8G switch |
| 7 Middle Atlantic WRK4432 44-space rack w/accessories | 2 Whirlwind AV801-D/5, 3Gang 0.125" aluminum, custom | 1 HP J9777A 8-port switch |
| 2 Middle Atlantic MDV-R12 wing desks | 1 Whirlwind AV801-D/6, 4Gang 0.125" aluminum, custom | 26 JBL Control 28T-60-WH 8" 2-way speakers |
| 1 Middle Atlantic DV-DSK straight desk | 1 Whirlwind AV801-D/7 0.125 aluminum, custom | 1 Middle Atlantic WRK4432 44-space rack, 32" deep w/accessories |
| 1 Motu HD Express video capture device, laptop | 6 Whirlwind AV801-D/8-3Gang 0.125" aluminum, custom | 1 New Tech UFE-B-06LC-C 12 fiber LCSM adapter panel |
| 1 Moxa Nport 5650-16 16-port serial | 5 Whirlwind AV801, 2Gang .0125" aluminum custom | 1 New Tech WFE2S-B 2-panel wallmount optical fiber enclosures |
| 8 Neutrik NC5MRX right angle 5-pin XLRs | | 1 Shure 503GB close-talk mic |
| 2 New Tech 550-103-12LC fiber patch bays | | 1 Shure 514 paging mic |
| 2 New Tech 550-103-12LCSM 12-port surface-mount fiber panels | | 1 Shure A13HDB mic base |
| 5 Peerless-AV PLCM-UNL-CP ceiling mounts | | 1 Shure G12B 12" gooseneck |
| 3 Peerless-AV SF650 universal mounts | | 1 TASCAM CD-200i professional single CD player |
| 5 Peerless-AV ST-640 wallmounts | | 2 TII 530-6-L lightning arrestors |
| 2 Peerless-AV SF632 SmartMount universal flat mounts | | 1 TII 321-2M lightning arrestor |
| 1 RDL PS-24AS switching power supply | | 11 TII 505E4-65 lightning arrestors |
| 1 RDL RU-MLD4 mic/line distribution amp | | 1 TII 525SS2-40 lightning arrestor |
| 1 Samsung MD32C 32" display | | 5 TII 530-6-M lightning arrestors |
| 6 Samsung MD40C 40" displays | | 1 TOA N-8000AF intercom control interface |
| 8 Samsung MD55C 55" displays | | 1 TOA N-8000MI intercom audio interface |
| 1 Seagate STCA1000100 1TB external hard drive | | 6 TOA N-8031MS intercom master stations |
| 6 Shure 514 paging mics | | 4 TOA RS-191 intercom handsets |
| 20 StarTech HD15CPNTMM3 3' RCA MM component RCA breakout cable adapters | | 5 TOA YC-251 back boxes for N-8031MS |
| 1 TASCAM DV-D01U DVD player | | 3 Traco Power TMS 25112C 12V 2A power supplies |
| 1 TASCAM CD-200i pro single CD player | | 1 Wiegmann N41214TTHKL locking handle |
| 3 TecNec 32x45 patchbays | | 1 Wiegmann N412201606WC junction box |
| 1 TecNec 16x45 16-port RJ45 patch panel | | 1 Wiegmann N412MFK locking handle |
| 5 TOA N-8010MS master intercom stations | | 1 Wiegmann NP2016C insert plate |

HIGH ROLLER PLATFORM

- | |
|---|
| 1 Alcorn McBride V16Pro show controller |
| 1 Alcorn McBride LightCue Pro Advanced real-time DMX recorder |
| 4 Alcorn McBride ShowTouch 10 10" touch screen interfaces for V16Pro |
| 1 Alcorn McBride 8-TraxxE MP3 audio repeater |
| 1 APC Smart-UPS SMT2200RM2U UPS system |
| 7 Atlas Sound APXBK-N 1-gang mounting bases |
| 7 Atlas Sound AP-30T horn type speakers |
| 1 Behringer Truth b3030a monitor speakers |
| 1 BSS BLU10-BLK programmable touchscreen controller |
| 1 BSS BLU-800 (12x4) networked signal processor |
| 1 BSS BLU-BIB 8-channel analog break-in box |
| 3 BSS BLUCARD-IN input cards |
| 1 BSS BLUCARD-OUT 4 analog output card for SoundWeb London BLU-80, BLU-32, BL |
| 4 Crown CTS600BLU amps w/Blu-Link |
| 3 Extron MTP-RL-15HD-RS-SEQ, Cat5 receivers |

List is edited from information supplied by National Technology Associates, Inc.



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