

Zarkana's Audio Magic

BY CLIVE YOUNG

Since its founding by a group of street performers in 1984, Cirque du Soleil has grown to become an entertainment powerhouse, with tours and theatrical productions around the globe. Its latest creation is *Zarkana*, a \$50 million “acrobatic rock opera” that follows a magician’s efforts to regain his magical powers and the love of his life. The epic show debuted in late July at New York’s Radio City Music Hall, where it is in residence through October 8.

Sound design for the production was tackled by Steve Dubuc, who has worked with Cirque du Soleil in various capacities on shows such as *Quidam*, *Viva Elvis*, *Zaia* and *Zumanity*. James Edmonson is *Zarkana*’s head of audio/FOH engineer, while Jean Michel Caron is the assistant sound designer.

Cirque du Soleil’s theatrical productions typically undergo pre-staging rehearsals in Montreal with a small PA on hand, followed by extensive onsite rehearsals in the theaters they’ll call home. That wasn’t an option with a busy venue like Ra-

dio City, however, said Dubuc: “We brought in a full sound system minus the PA—front-of-house desk, monitor desk, all the monitoring system for the band, who worked in a small studio first before we brought them on stage [to be part of the show]. Eventually, we had to do a complete full-size rehearsal with the trapeze, and there aren’t theaters as big as Radio City anywhere else in North America, so we went to the Amway Arena in Orlando for two months before they tore it down, got things together and then went into Radio City for five weeks before we opened.”

Located in the center of Manhattan, Radio City Music Hall has its own house system based around QSC-powered JBL VerTec line arrays, which it typically encourages visiting productions—most noticeably concert tours—to use, since the system is configured and optimized for the room. While *Zarkana* has an extended residency, it’s still a touring production (next up: Spain and Russia) so Dubuc and his team brought in their own system based around Meyer Sound loudspeakers, LCS consoles and CueStation software used



Developing *Zarkana*’s audio was an ongoing process throughout the show’s two-year development. On hand for the final rehearsal before opening for previews were (l-r): Jean Michel Caron, assistant sound designer; Steve Dubuc, sound designer; and James Edmonson, head of audio/FOH engineer.

at FOH and monitor positions, and Meyer D-Mitri network modules that are racked within the onstage band’s two rolling risers.

While most theatrical productions roll like clockwork, thus allowing even the most infinitesimal cues to be set as scenes and recalled, working with a circus-style show is different. The LCS software stores many scenes, but there’s still plenty of manual mixing involved. All the music is played

live, but if a segment runs long—say it takes a few tries for an acrobat to make a grand leap—the 10-piece live band and the engineers have to compensate. “This is more rock ‘n’ roll mixed with theatrics,” said Caron. “You need to be on your toes and make sure you’re ready for anything that can happen.”

There’s a lot to keep track of as a result, with 240 inputs looked after
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Plant Tour Retains Thunder

LIVONIA, MI—Rock legend Robert Plant recently toured the U.S. with his Band of Joy, performing American roots music through a system supplied by Livonia, MI-based Thunder Audio.

Roy Williams, the veteran FOH engineer at the helm of Plant’s live mix, aimed to provide a propulsive and dense, yet occasionally delicate, sound: “There are some softer numbers—particularly duets with Pat-

ty Griffin like ‘Monkey’ and ‘Silver Rider’—with a breathy quality that demands absolute transparency,” he observes. “But on others, we push it up to send a message to the Zep fraternity that, when we want to, we can still do it.”

As befits the rootsy music, the system front end was hard-wired and analog, with Shure SM58 vocal mics (except a Neumann KMS 105 for Griffin), feeding a Midas Heritage 3000 console. According to Williams, “There’s a warmth generated in this music that we want to come through, and the system seems to be accomplishing that quite well.”

The tour’s complete Meyer Sound PA was comprised of a dozen Mica cabinets per side, buttressed by dual 700-HP subwoofers per side, and was further extended by side hangs of five each M’elodie line-array loudspeakers and five M1D line-array loudspeakers for

front fill. Available for onstage fold-back were side-fill stacks of two 600-HP subwoofers topped by dual Mica cabinets, plus eight MJF-212A high-power stage monitors.

Riding herd on the technology was Thunder Audio systems technician Keith Jex, who used the MAPP Online Pro acoustical prediction program and SIM 3 audio analyzer to tailor the system to the room, then monitored show time performance on the RMS remote monitoring system. Jex noted, “We’re playing a lot of theaters, and compared to the Milos we had on the Raising Sand tour, we can put more cabinets on the same hang points, which allows more angle selections for better coverage.”

Thunder Audio was also the system supplier for Plant’s earlier Raising Sand tour with Alison Krauss, and received the 2009 TEC Award for Tour Sound Production.

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Content Creation

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projects. Over 50 percent of content creators surveyed by Coughlin in 2010 reported recording four to 12 hours for every one hour of completed work. By 2016, he predicted, the M&E community would have 62 exabytes of new storage capacity, representing a 1.7-time increase in revenue, from \$3.8 billion to \$6.4 billion, for storage manufacturers.

The Q&A session at the end of the first session focused on the relative cost and efficiency of storage media. “Hard drives are more efficient” than in the past, noted Pete Schlatter of Hitachi GST. In terms of cost of ownership, tape is “still an order of magnitude less than spinning discs,” noted Tom Inglefield of Oracle. “Tape is more reliable than disc,” he added. As Coughlin had earlier noted, tape and HDDs are roughly at parity in their respective shares of the archival market.

Producer Larry Jordan addressed the storage impact of Apple’s release of Final Cut Pro X. Noting that the

pro user base was approximately two million, he pointed to the larger market of high-end amateurs. Their adoption of the software “will drive storage needs through the roof,” he predicted.

Jordan reported that James Cameron’s *Avatar* required 4 petabytes of storage. In a session on “The Storage Challenges of Video Editing,” Alex Grossman of Active Storage reported on a feature film being shot in 4k stereographic that required 7 petabytes of storage.

Intel’s Komal Pal promoted solid-state drive technology with a case study of a music composition and streaming company. Hard drives gave them inconsistent streaming and glitches, she said. They replaced the HDDs with SSDs and “there were zero dropped notes.” Operations that previously took three to five minutes now complete in less than 20 seconds, she added.

A panel on “Storage for Content Delivery” considered the delivery of content on the user’s time scale. “There is a chasm between data and access,” admitted David Sallak, EMC

Isilon. “Creation is vastly outpacing the ability to move it.” But, he observed, “There will always be tape and disc as alternate ways to move it through FedEx.”

On the issue of speed, Patrick Yew, *TV Guide*, on a later panel noted that tapeless workflows have sped up editing and review. But, he commented, “As you deliver more, faster, they want it faster than that—and all for the same price.” Plus, burning and delivering a DVD for review is no longer fast enough: “Now they don’t want to wait. They want it in a few minutes.” His storage needs have increased because, he reported, “Files stay live longer.”

“There is a role, particularly for LTO tape with LTFS, as a component in content delivery storage,” suggested David Trumbo, Media Technology Market Partners. LTFS file management, introduced last year, allows LTO5 to behave more like a disc, he said, providing faster access to content. Plus, he added, if you have to transfer large amounts of data infrequently, shipping LTO tape might be more effective than transmission.

The “Content Archiving and Asset Management” session also came down generally in favor of tape in order to avoid WORN (Write Once, Read Never). Responding to a question regarding the ideal technology to assure archival access beyond 20 years from now, Janet Lefleur of software company Atempo said, “Choose what you think is best for now but count on having to change it.”

Tom Goldberg, Cache-A, took exception to that argument: “LTO has a roadmap that goes out through eight generations.” LTO drive mechanisms have 28-year lives, he said, although users do have to archive hardware to assure being able to read the tapes. Whether one would still have the software to read the content on the tapes is another issue, he added.

There is a cheap and dirty way to avoid constant migration of archives from one technology to another, or the need to restore in the case of a failure that has worked for many, noted Erik de la Iglesia, GridIron. “All data reliability problems can be solved by keeping three copies and crossing your fingers.”

Zarkana

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ter at every show, ranging from the nearly 100 inputs from the band itself, to 24 wireless mics, to playback and more. Gear at the FOH position includes an Eventide H8000 Ultra-Harmonizer, TC Electronic-Helicon units for pitch-shifting and modulation, and an SSL XLogic that is inserted across all four primary vocalists. “They’re very musical compressors; I was quite surprised at how good they sound actually,” said Dubuc. “They’re not crazy expensive either which is good, plus they’re recallable.”

Despite the two-dozen wireless microphones and 20 channels of wireless personal monitors on hand, the production hasn’t experienced any hits on the microphones, even though Radio City is in the center of Manhattan and across the street



In Zarkana, performers hear Meyer Sound UPQs used as monitors and sidefills.

quency coordination that we did has been quite stable, but we also benefit from the architecture of the building. Above all of the coves in the ceiling is basically a latticework of iron struts and supports that seem to act as an oversized Faraday Cage.”

array boxes and a half-dozen 700-HP subs per side, along with another eight Micas in a center fill position. Additional clusters hung on the sides of the house include nine Mina compact line-array boxes a side. On the floor, bolstering audio to the first few rows of the orchestra are four JM-1Ps and two 700-HPs per side. On stage, Meyer UPQ boxes are used as monitors and sidefills for the trapeze artists, hung three per side above the stage.

Miking the production is an endeavor to itself, as most of the performers don’t speak or sing but require microphones for entirely different reasons—such as body percussion. “We tried a few tests on the body percussionist,” said Edmonson,

“and we ended up with two wireless transmitters—one gets two DPA SMK4060s off of a Y-split to his feet and then there’s a single 4060 that lives in a wristband near his hands.”

As for the 10-piece band performing on stage, it’s heard via a variety of mics. Dubuc noted, “I tried a new mic I really like that Sennheiser makes, the MKH8040, which is a cardioid, and it’s actually a brilliant mic. It’s not cheap, but I love the sound of it.” Other mics gracing the two bandstands include Neumann vocal mics, as well as Audio-Technica 4040s and 4050s on African drums. Sennheiser MKH 8000 condensers capture shakers, while e904 cardioids are used on toms, an e902 resides on the kick and e906s grab the guitars.

All that gear on hand gets put to good use, as the troupe performs 11 shows a week, making the heart-stopping acrobatics truly all in a day’s work. Between the split-second timing of the performers and the responsive sound effects and music mixing at the FOH position, *Zarkana* unquestionably has an air of magic around it.

Zarkana
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“This is rock ‘n’ roll mixed with theatrics. You need to be on your toes and make sure you’re ready for anything that can happen.”

—Jean Michel Caron

from NBC’s New York TV studios. Edmondson’s theory? “So far we’ve been very fortunate in that the fre-

Hanging from the ceiling is a sizable Meyer Sound system based around two hangs of 16 Mica line-