

DUCKS' BIG INVESTMENT

Courting fans by creating an in-venue broadcast experience at Honda Center

ROOTING FOR THE UNDERDOG

Bojangles' Coliseum competes against larger nearby venues with new audio

HORNED FROGS GET NEW HOME

\$72 million renovation at TCU's Schollmaier Arena

HOUSE OF WORSHIP: TECHNOLOGY

REAL-TIME POPE:

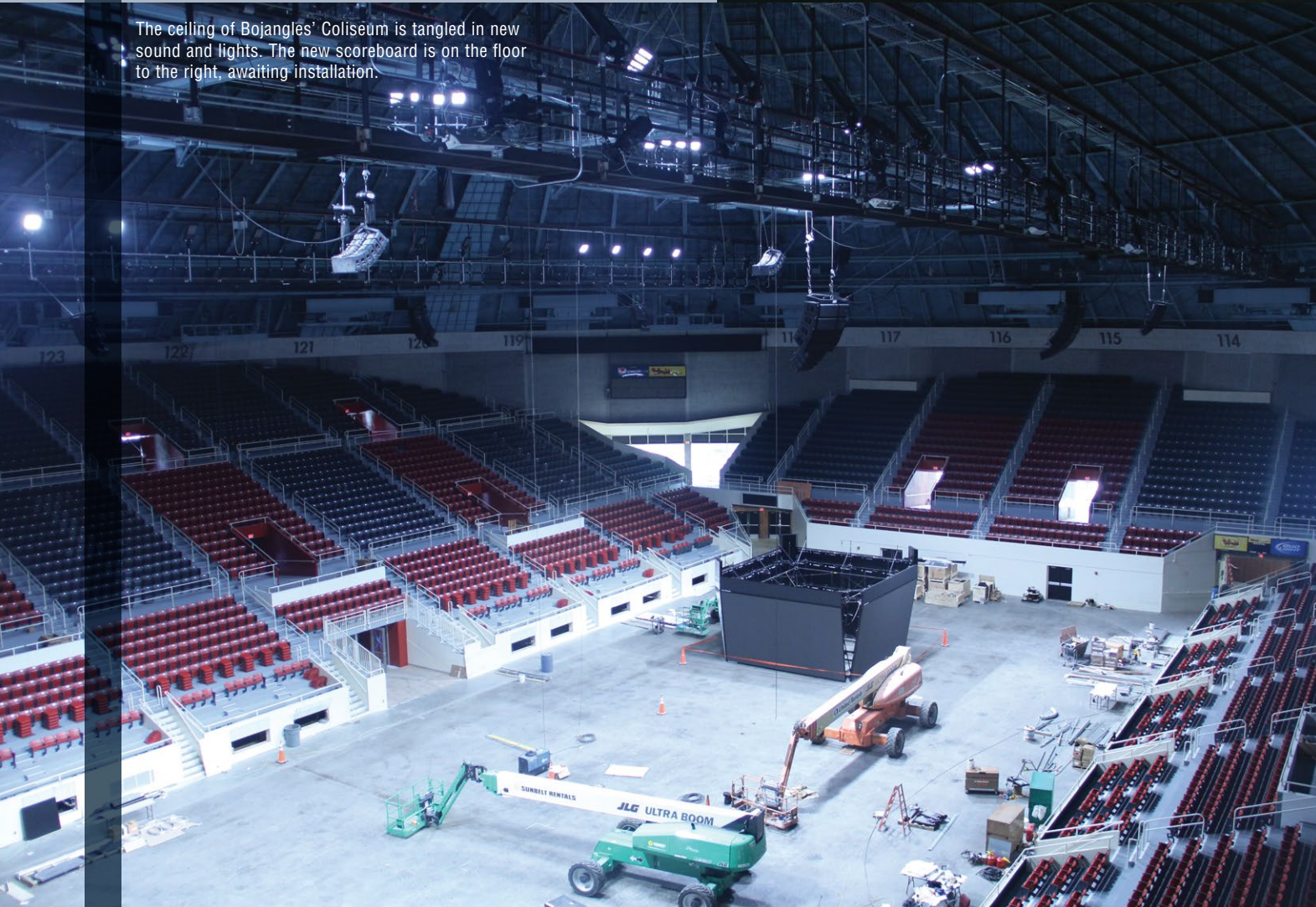
Philadelphia's Cathedral Basilica Receives Audio & Video Upgrades For Pope Francis' Visit

HOUSE OF WORSHIP: TECHNOLOGY

Cathedral's Audio Requirements Presented Challenges



The ceiling of Bojangles' Coliseum is tangled in new sound and lights. The new scoreboard is on the floor to the right, awaiting installation.



ROOTING FOR THE UNDERDOG

Bojangles' Coliseum competes against larger nearby venues with new audio.

BY DAN DALEY

If you like to root for the underdog, then Bojangles' Coliseum warrants your attention. The 9600-seat venue sits in a crowded milieu, surrounded by larger venues, including the 20,000-seat Time Warner Cable Arena and Bank of America Stadium, home of the NFL Carolina Panthers franchise, collateral to the considerable growth that the Charlotte area has experienced in the last several years. And it's a youthful cohort, too: While the Time Warner Cable Arena just finished its first decade and UNC's Halton Arena is nearly twice that, Bojangles' Coliseum celebrated its 60th anniversary in 2015.

But Bojangles' Coliseum's endurance (its naming history, from the Charlotte Coliseum to Independence Arena to Cricket Arena, a kind of cultural timeline) is an accomplishment in and of itself, offering a Carnegie Hall level of allure; no other arena in the state or possibly anywhere else can lay claim to having hosted shows by both the Beatles and Elvis Presley.

It boasts some architectural accolades, as well: When

The main video displays of the new scoreboard are about 12.5 feet high by 22 feet wide, with 10mm line spacing.

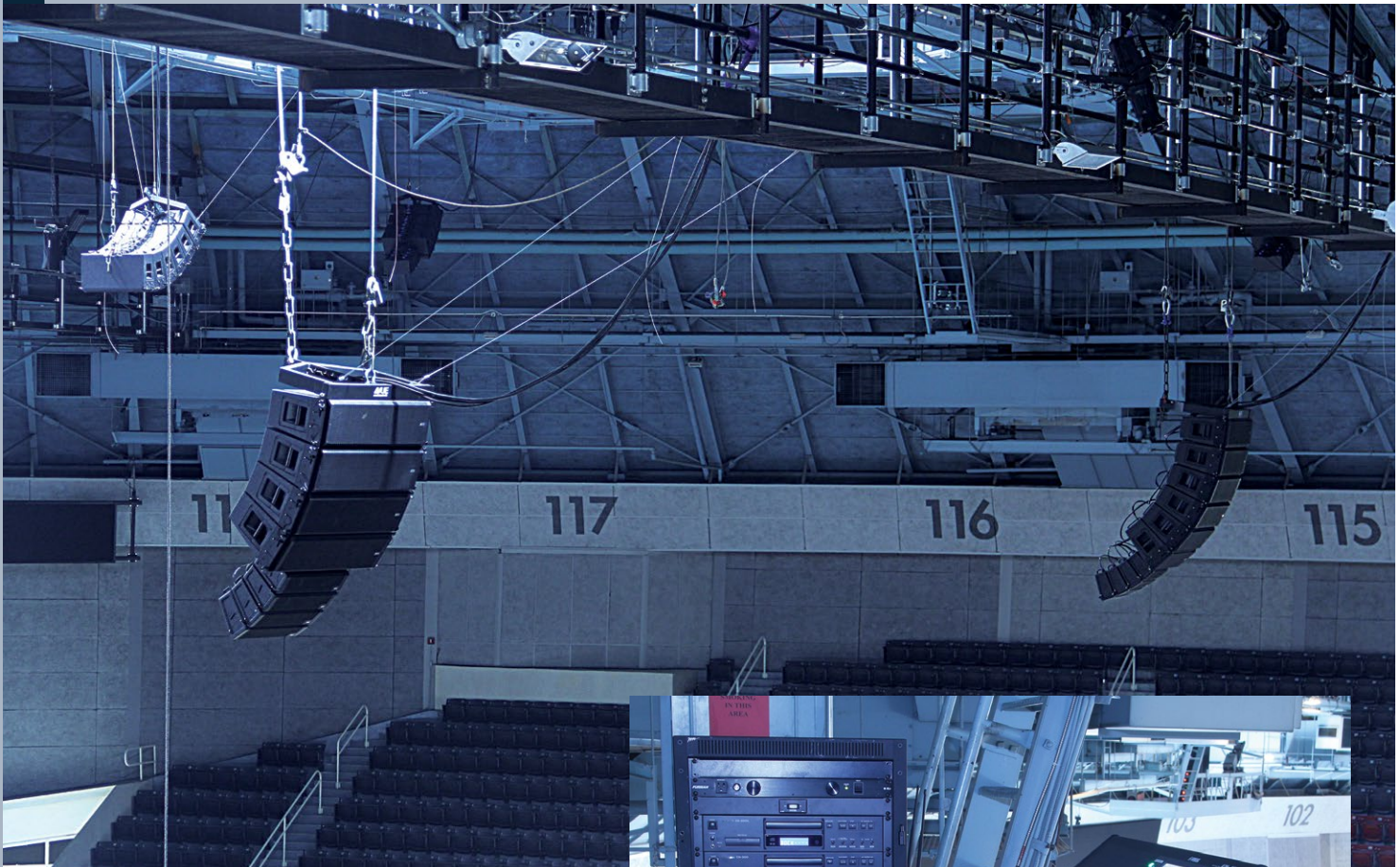


first opened, the building was the largest unsupported steel-dome coliseum in the nation. Now, Bojangles' Coliseum is getting something else it roundly deserves: a makeover, including new video scoreboards from Daktronics and a new VUE Audiotechnik PA system that replaces Altec-Lansing horns that date back to the Elvis Presley era.

The \$16 million renovation, timed for the November 7 faceoff for the AHL Charlotte Checkers hockey team, is also the largest sports-venue installation to date for VUE Audiotechnik (established in 2012, the company is part of a growing group of loudspeaker manufacturers looking for market share in the booming live-event and sports-arena venue market), and the first sports-arena project for Inter Technologies (www.intertech.tv), the Raleigh NC-based AV systems integrator that installed the audio system and has, since its founding in 2000, been focused on the education, government, corporate and theatrical verticals.

"It's quite a leap, going from 1955 to 2015," said Chris White, Western Regional Sales Manager for Inter Technologies, still marveling at how the vintage Altec horns had remained in place so long. The new system, originally designed by Charlotte-based AE Global Media (www.aeglobalmedia.com), will, indeed, pull Bojangles' Coliseum through a time warp. Line array sound systems were essentially theoretical when acoustical pioneer Harry Olson first published his findings on the topic in a 1957 technical paper. Today, the design tends to be the go-to approach from the beginning for anything from a major sports arena to the stage at the local VFW hall.

In this case, the system design called for a dozen line array hangs: eight consisting of four VUE al-8 compact line array enclosures in a block attached above a second block of four VUE al-4 subcompact line array enclosures, hung and aimed to keep their sonic energy on the seating areas and away from the floor and walls. Two additional blocks, consisting of six al-8s and four al-4s, are used to



The most common configuration of the venue's new line array hangs consists of four compact line array enclosures in a block attached above a second block of four subcompact line array enclosures, hung and aimed to keep their sonic energy on the seating areas and away from the floor and walls.

Equipment

- 1 Apple iPad 16GB white iPad w/case
- 2 AVP RPTW-B punch blocks, Type B w/full cable-management capabilities
- 1 BSS Audio London BLU-160 Soundweb London 12x8 signal processor w/BLU link
- 3 BSS BLU-BOB2 8-channel analog break-out boxes w/BLU link
- 1 Dell laptop w/Windows 8.1, 64-bit processor, Quad Core 2.5GHz or better, 8GB RAM, 300GB drive
- 1 Furman F1000-UPS power conditioner
- 1 Furman M-8Lx 15A 8-outlet rackmount power conditioner w/dual slide-out lights
- 3 Furman M-8x2 power distribution/surge protection
- 8 Liberty AV 12-4C-BLK 12/4 CL3R conductor cables
- 32 Liberty AV NL8FC Neutrik Speakon 8P cables, female
- 1 Middle Atlantic ERK-2725 27SP/25D standalone rack w/accessories
- 2 Middle Atlantic ERK-4428 44SP/28D racks w/accessories
- 84 Neutrik NL4FC Speakon 4P cable connectors, female
- 84 Neutrik NL8FC Speakon 8P 8-pole cable connectors
- 2 Packedge S8Hav 8-PoE ports managed switches, 24Gbps switching capacity
- 3 Packedge SE-18 16-port gigabit Ethernet switches w/simultaneous Ethernet, fiberoptic connectivity
- 1 Packedge W7 dual-band concurrent wireless access point
- 1 TASCAM CD-200 rackmount player



The console is in place, near the processing rack, ready to mix the venue's live sound.

- 1 TASCAM CD-200il pro single CD player
- 40 VUE al-4 2-way acoustic line array elements
- 56 VUE al-8 3-way acoustic line array elements
- 12 VUE al-8FB flybars, hold up to 16 al-8 acoustic elements
- 10 VUE al-8UFB transition flybars to hang al-4s as part of array under al-8s
- 5 VUE V4i System Engines, DSP/amp, 2-in, 4-out/amps
- 14 VUE V6i Systems Engines, DSP/amp, 2-in, 6-out/amps
- 1 Yamaha QL5 32-in/16-out, 16 mix/8 matrix mixing console
- 1 Yamaha RIO1608-D stage box, digital, 16-in/8-out

List is edited from information supplied by Inter Technologies.

VERSA-6.5

ADVANCED PENDANT/PROJECTION SPEAKER SYSTEM



- ▶ Includes pendant hanging hardware and surface mount bracket
- ▶ 125 watt 6.5" two way driver system
- ▶ High quality audiophile crossover
- ▶ Includes 30watt 25/70V transformer with 8ohm bypass
- ▶ Weather resistant cabinet for indoor or outdoor applications
- ▶ Aluminum non-rusting grille
- ▶ Available in black or white



- Includes 15' aircraft cable, hanging hardware and wall/ceiling mounting bracket



CALL TOLL FREE 1-855-204-1388

FACTOR

— ELECTRONICS —

www.factorelectronics.com



cover center-ice seating areas, while two more hangs of six al-8s each are used to cover the floor, when necessary, such as for trade events or conventions.

Each block or pair of blocks is driven by either a V4 or V6 networked amplifier engine, which also has integrated DSP for time delays and phase adjustments. (A second stage for the audio system, planned for 2016, will see 24 al-8SB subwoofers added by Inter Technologies.)

The scale of the Coliseum pushed the envelope of the copper cabling, some with runs of close to 300 feet. "We just barely made it," said Miller. "Otherwise, we would have had to go with fiber."

New Wire Trays

And much of that cabling was placed into new wire trays that tested any acrophobic tendencies the installers might have had. The trays were installed eight feet above the arena's catwalks, themselves 65 feet above the venue floor, to keep them out of the way of grips and gaffers working the building's heights during events. The cabling had to be placed that high because the system's designers had determined that the best location in which to group all of the amplifiers was a platform previously used for a spotlight operator. "The only other option would have been to use small racks of amplifiers in several different locations," said Miller. "This was the most efficient solution."

White said that they and VUE Audiotechnik North American Sales Manager Jeff Taylor analyzed the room collaboratively using EASE Focus acoustic modeling software to set the basic angles of the hangs, then Inter Technologies staffers tweaked those positions manually after installation. "The goal was intelligibility and coverage, two things the venue never had before," White said. "We had to change some of the array frames to get exactly the coverages we wanted, but prediction software has gotten to the point where you can get it almost completely right before the first screw goes in."

Digital Audio Networking

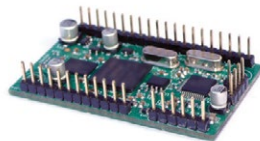
Bojangles' Coliseum is also getting the benefit of another technology that hadn't been invented when its first sound system went in: digital audio networking. This was an element of the system design that Inter Technologies changed after the original design had been finalized. Initially, that plan had called for using the analog output of the new Yamaha QL-5 console to be converted to digital before the input stage of the BSS BLU-100 12x8 signal processor, which would handle the system's delay and equalization processing, then convert it back to analog for distribution to the V6 and V4

BARIX

WE MOVE AUDIO!

Imagine the power of IP
without the complexity.

Board-level audio module provides a flexible foundation
for Audio over IP product design.



Got a message to get through? Visit
www.barix.com

amplifier/processors. The A-D-A conversion processes would have introduced latency and qualitative degradation into the signal chain. Instead, offered White, the decision was made onsite to switch the processor to a BLU-160, which has digital I/O and, using the AES3 digital outputs of the QL-5, send a digital signal all the way through to the amplifiers.

The Dante networking compatibility of both the Yamaha console and VUE Audio-technik's DSP devices (the speaker manufacturer announced the integration of the Dante Ultimo chip in its V-series products at this year's InfoComm Show) allows the system to extend inputs to other areas of the arena, via Pakedge network switches and Yamaha RIO 1608 stage boxes. "That provides additional microphone inputs that will be useful for the stage shows and graduation ceremonies that the arena is used for," said White.

Although a lot of new equipment was going into the coliseum, not all of the old technology was leaving it. Miller recalled that 24 existing microphone jacks located

around the venue were connected to the new sound system via patch panels that led back to the mix position. Tracing each lead back to each mic jack in the massive hall was among the grittier tasks of the project. "These had been there since the place was built, so they were pretty old," said Miller. "But most of them still worked."

Video Is In The Picture


Bojangles' Coliseum also has a new video scoreboard. Daktronics systems comprise a center-hung display configuration consisting of four main video displays, four auxiliary displays and a ring display. The main video displays measure about 12.5 feet high by 22 feet wide and feature 10mm line spacing. The ring display included in the center-hung configuration measures about two feet high by 62 feet in diameter, and the four auxiliary displays, fitted above the main displays, are two feet high and 22 feet wide. These displays feature 20mm line spacing.

The installation also includes four ribbon displays, one in each corner of the

arena, measuring about four feet high by 59 feet wide. These displays feature 20mm line spacing and provide supplemental content to the main displays, as well as highlighting sponsors throughout events.

A Win-Win

In an era when venue construction has mushroomed, propelled by the growth of sports franchises and live-music industry giants Live Nation and AEG Live, conglomerates whose real-estate interests rival their concert productions, Bojangles' Coliseum now offers both a sense of history and a state-of-the-art venue in terms of AV. With the new seating that was also part of the renovation, its competitiveness has been significantly enhanced in a challenging market.

It's also a mile marker for the companies involved: Chris White acknowledges the venue as an inflection point for Inter Technologies' long-range growth strategy. "When you stand back and look at what this arena can do now," he said, "it's quite a transformation." 

Primacoustic Clouds – looking great, sounding better!



Primacoustic's clever SlipNot™, Helix™ and Corkscrew™ hardware mounting devices make installation and levelling a snap!

Primacoustic Paintables™ can be painted to match any decor! Ideal for restaurants, exhibition centers, boardrooms, lecture halls, lobbys or a thousand other spaces where great acoustics and dramatic style can complement one other.

Easy and quick to put up, Primacoustic Paintables™ acoustic clouds can turn an uncomfortably reverberant room into a great sounding intimate space in no time at all. A variety of shapes and sizes give your installs an air of architectural sophistication and fun!



PRIMACOUSTIC®

www.primacoustic.com

A division of Radial Engineering Ltd. 1588 Keblet Way, Port Coquitlam BC V3C 5M5