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Dave Stone

Senior Pastor [@DaveStone920](#)

BRINGING COMMU

SECC NETWORKS TWO CAMPUS LOCATIONS, MORE TO COME.

The faith-based Southeast Christian Church (SECC, www.southeastchristian.org) believes in bringing the church to more communities, based on centralized leadership and teaching from the main Blankenbaker campus in Louisville KY (see sidebar, “Southeast Christian Church”). We will detail the differences and similarities in AVL between two of the church’s five worship center sites (a sixth site is planned).

The two Kentucky campus AV applications under discussion are the previously installed Southwest and Louisville, and the most recent one in La Grange. Design/build was by MGA (Michael Garrison Associates), Fresno CA (mga.us.com). Our integrator interviewee is Daniel Durst, Senior Consultant AV Systems, and Chris Perkins is SECC Support Technical Director on the production arts team. MGA onsite crew leaders include Sal Mora and installer Ryan Wissink.

New Facility

At the time of the Southwest install, it was a new facility in a new building. The worship center seats 1200. “We were brought in as a consultant early on to help facilitate rigging points, structural loads and device locations,” said Durst. “It really helps to be brought in during the early phases of design. It alleviates a lot of those hiccups toward the end of the project. One of the things we found was that the drop-tile ceiling made getting to the beams to put in the rigging a little difficult. But you have to think on your feet, and Ryan Wissink was able to overcome that. Everything went in pretty well as designed.”

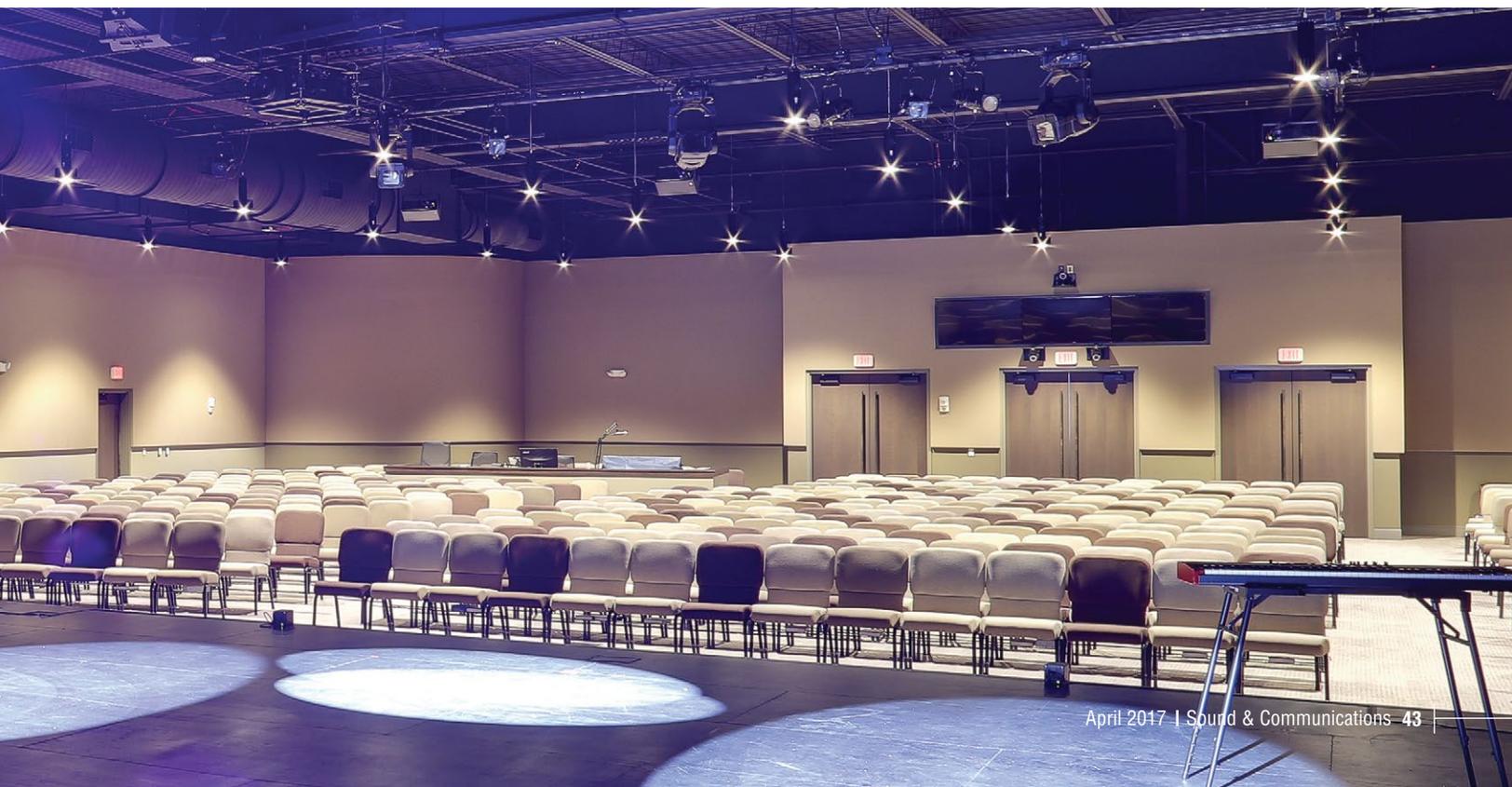
A marked difference between the two sites is that Southwest has a much larger main





NITIES TOGETHER

BY JIM STOKES





speaker system based on high ceiling height and availability of existing speaker boxes. Thus, the site features the Adamson Systems SpekTrix touring series vertical line array comprised of nine elements per side. In addition, there's a left/right pair of SpekTrix W wide-angle elements. Adamson Point Concentric 5 front-fill boxes give clarity to the audience seated in the front rows.

"We were working from a budget," explained Durst, "and one of the ways for them to keep costs down was to repurpose some SpekTrix cabinets they had on their main campus. We had to do modeling to make sure these speakers were the correct fit for this facility." Six new SpekTrix sub dual 18-inch flown-center array

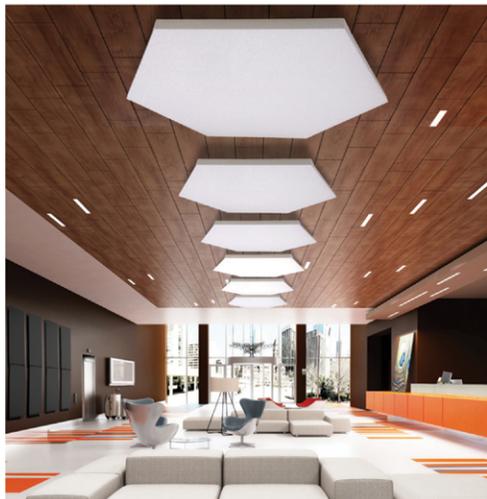
boxes were added later.

Durst noted that the original speaker modeling was done in EASE and then in Adamson's modeling program. "We worked with Brian Fraser from Adamson to make sure the existing boxes would work and were integrated properly," said Durst. Impact Subs are two Danley self-powered dual 12-inch bunker speakers. All amplifiers are Lab.gruppen and all processing is BSS Soundweb London. In contrast, La Grange went with Meyer Sound Labs main speakers. The difference was based on the architecture, with the La Grange site converted from a movie theater with lower ceilings to a worship center. That favored a point-source main speaker

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system. We'll cover the details later. BSS Soundweb is also used at La Grange.

Both locations feature Tannoy periphery speakers driven by Lap.gruppen amplifiers that serve the hallways, rest rooms, the front lobby and café via a mixture of pendants and installed ceiling speakers.

While we're on the subject of peripheral audio, there's a small Soundcraft Si Expression digital console on a rolling rack for Southwest's café for small and midweek services, and other events. The large space located at the back of the facility can accommodate up to 150 seats. "There's a little road-ready rack that allows

them to have local inputs," said Durst. "They plug in and [the signal is] sent to the DSP where there's a preset. From the console, it feeds the room or they go to a different preset that has the main worship center feed. There's also a preset for running just music in that local area." In contrast, La Grange has no additional console, only the fixed FOH and monitor mixing systems. The La Grange site doesn't have the café space for such additional AV.

Southwest's Mixing System

That leads us to Southwest's mixing systems. "Southwest features DiGiCo," said Durst. "This facility has the SD8 for FOH and

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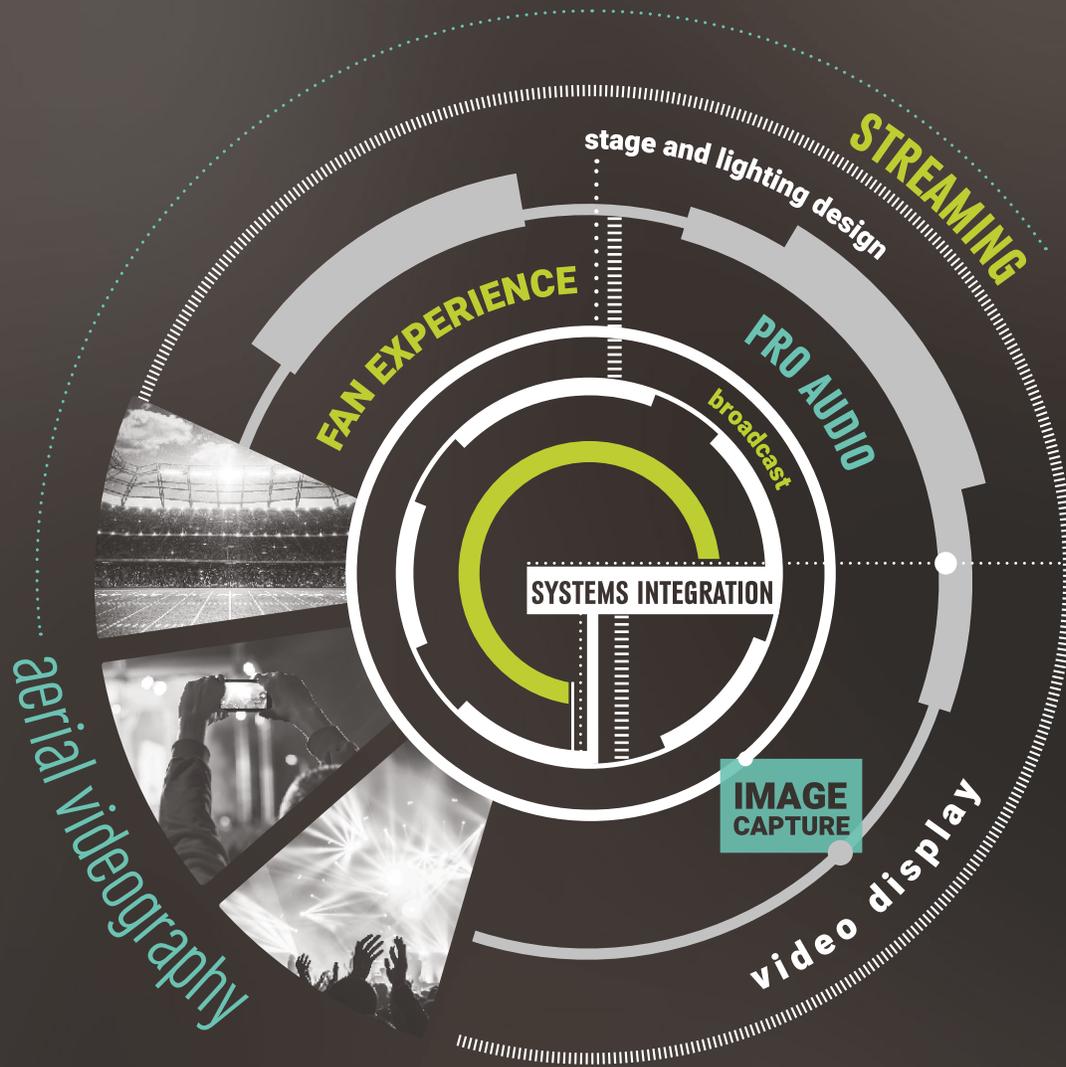
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LET'S THRIVE.



an SD9 for stage monitors.” That includes the SD racks with assorted cards.

“La Grange is our first Yamaha console campus,” explained Perkins. “So, console to console, campus to campus, we’re trying to maintain standards. If we have volunteers involved at one campus who go to another campus, they can walk up to that console and not have to learn.” At La Grange, the decision was made to install separate Yamaha CL5 32-fader digital audio consoles for FOH and stage monitor mixing with Dante cards. “That decision allowed them to keep everything in the Dante world for not only the main system, but also for coming into the video system,” said Durst.

Let’s summarize here the wide choice of wired and wireless systems available for stage presentations. First, the RF side. For full specifications, see the accompanying equipment list. Stage talent uses 11 Sennheiser EW 300IEMG3 wireless in-ear monitor systems. There are several owner-provided Shure UHF-R handheld transmitters with KSM9 capsules

- 2 Shure UA870 wideband active directional antennas*
- 4 Shure UR1 UHF-R bodypack transmitters*
- 4 Shure UR2/KSM9/BK UHF-R handheld transmitters w/KSM9 capsule*
- 2 Shure UR2/KSM9/BK-frequency L3band UHF-R handheld transmitters w/KSM9 capsule
- 5 Shure UR4D+ dual channel diversity receivers
- Shure UHF-R handheld transmitters w/ KSM9 capsules*
- 12 Westone 78516 UM Pro30 triple driver stereo w/replaceable braided cables
- 20 Whirlwind MK425NP cables

Misc. Audio

- 7 ACE Backstage assorted floor boxes w/custom connector plates, lids
- 4 AVP R96Q 96-Point TT audio patch bays
- 4 Cisco 24-port Cat5 patch bays
- 1 Clear-Com LQ-2W2 2-channel party line interface
- 1 Listen LS-57-0216 RF FM wireless assistive listening system w/10 intelligent DSP receivers
- 2 Middle Atlantic WRK-44-32 equipment racks w/accessories
- 2 RDL ST-RX2 audio routing switchers
- 4 RTS MRT-327 A4F 2-channel intercom stations
- 1 RTS Zeus III LE+ digital matrix wired/wireless production intercom system
- 1 Soundcraft Si Expression digital console (on rolling rack)
- 36 Total Structures assorted 12"x12" box trusses

Video

Virtual Teaching Center Projection Screen

- 1 Digital Projection TITAN PRO 1080P Quad 2000 3-chip DLP projector
- 1 Stewart Filmscreen Luxus Model CB ElectricScreen w/AeroView 100 rear projection screen

IMAG Side Projection Screens

- 2 Da-Lite Cinema Contour DM 220D fixed front projection screens
- 2 Digital Projection E-Vision 1080P 8000 single-chip DLP projectors

Foldback Flatscreen

- 3 Chief FUSION wall mounts (rear wall)
- 3 Samsung 55" Ultra Slim HD LED-Lit LCD flatscreens
- 8 Sharp LC-60LE661U 60" flatscreens

Distributed Flatscreen

- 19 Chief MTT, MTTU, FTR, TS218SU wall mounts
- 19 Samsung and ViewSonic assorted LED-Lit LCD HD flatscreens

Video Production

- 2 AJA Ki Pro portable file-based HD/SD recorder/players
- 1 AJA KUMO 16x16 compact SDI router
- 1 AJA KUMO 32x32 SDI router
- 1 Apple Mac desktop computer (PCIe Card/CG2)
- 1 Apple Mac Mini computer (UltraStudio/CG1)
- 1 Apple Mac Pro computer (UltraStudio/CG3/PB1)
- 2 Blackmagic Design UltraStudio 4K Thunderbolt computer-based video capture/playback/edit units
- 2 Chief FUSION wall mounts
- 1 Imagine Communications Harris Nexio Volt video server
- 3 JVC GY-HM890CHU ProHD camcorders
- 3 JVC RM-HP790DU camera control units
- 1 Matrox MicroQuad Quad SDI to HDMI multiviewer
- 1 Panasonic AW-HE2Pj digital PTZ HD camera
- 2 ProPresenter Alpha Keyer Mac modules
- 1 Ross Carbonite+ 2M 2M/E switcher
- 1 Ross openGear frame w/assorted cards
- 2 Samsung 55" Ultra Slim HD LED-Lit LCD HD flatscreens
- 3 ViewSonic 24" LED-Lit LCD computer monitors

Lighting

Dimming, Control, Distribution

- 2 ACE Backstage floor boxes w/custom connector plates, lids
- 1 ETC Sensor3 48-module dimmer rack
- 1 ETC Unison Paradigm architectural control processor
- 1 ETC Unison Paradigm portable touchscreen control station
- 1 ETC Unison Heritage 5-button control station
- 9 ETC Unison Heritage 2-button control stations
- 10 ETC assorted custom plug boxes
- 1 Jands Vista S1 lighting control surface w/Mac Mini computer

Fixtures

- 20 Apollo Design Multibeam color LEDs
- 41 ETC Source Four 26° ellipsoidal fixtures
- 7 ETC Source Four 36° ellipsoidal fixtures
- 7 ETC Source Four Fresnel fixtures
- 6 ETC Source Four Revolution automated fixtures
- 5 Strand Arena 10" Fresnel high-performance fixtures

along with several Shure diversity receivers and antenna systems.

Additional microphones include one Audix Studio Elite 8 eight-piece studio mic package for recording four DPA 4066-F10 headset mics. The Blankenbaker central campus pastor used a DPA headset for his transmitted sermon fed to the campuses.

There are two Point-Source Audio headset condenser mics, two Rode NTG2 condenser shotguns and two Sennheiser e906 pro supercardioid dynamics. Then there are various Shure instrument mics, including Beta 52A and 91A for kick drums, SM57-LC dynamic and SM81-LCs. Of course, the rugged SM57-LC is also a vocal mic. Whirlwind cabling is in place throughout the facility.

“We typically feed an independent stereo intermix to three or four satellite campuses,” said Perkins. “There’s a five-piece band of keyboard, bass, drums and two guitars, although it varies from week to week.”



AVL Electrical Control

Panelboards

- 2 LynTec RPC-342 programmable, network-controlled, web interface, sequencing master electrical panelboards (AV-1, CBND)
- 1 LynTec RPS-342 programmable, network-controlled, web interface, sequencing slave electrical panelboard (AV-2)
- 38 LynTec MBR-20 motorized 20-amp, single-pole breakers
- 6 LynTec MBR-30 motorized 30-amp, single-pole breakers
- 29 LynTec MBR-220 motorized 20-amp, two-pole breakers
- 2 LynTec UBR-15 unmotorized 15-amp, single-pole breakers
- 19 LynTec UBR-20 unmotorized 20-amp, single-pole breakers

LA GRANGE CAMPUS

MAIN WORSHIP SPACE

Audio

Main Speakers (L/R point source + delays + subs, front fills)

- 1 BSS Soundweb London BLU-120 networked I/O expander
- 1 BSS Soundweb London BLU-160 networked signal processor
- 1 BSS Soundweb London BLU-DAN BLU link to Dante bridge
- 3 Meyer Sound 900-LFC subwoofers
- 1 Meyer Sound Galileo 616 digital matrix processor
- 4 Meyer Sound MM-4XP front fill speakers
- 4 Meyer Sound UPJunior 2-way delay speakers
- 2 Meyer Sound UPQ-1P 2-way main speakers

Periphery Speakers

- 1 Lab.gruppen C 20:8 8-channel amp
- 8 Tannoy CVS 6 6" coaxial ceiling speakers
- 15 Tannoy OCV 8 8" coaxial open ceiling pendant speakers

Front of House, Monitor Mixing

- 8 Sennheiser EK 2000 Series wireless in-ear monitor receivers
- 4 Sennheiser SR2050XIEM-Aw dual-channel wireless in-ear monitor transmitters
- 2 Yamaha CL5 32-fader digital audio consoles
- 2 Yamaha RIO 1608-D Dante digital network remote I/O units
- 1 Yamaha RIO 3224-D Dante digital network remote I/O unit
- 1 Yamaha RSio 64-D 64-channel Dante-MY-Card Bridge w/MY8-SDI-ED cards

Mics

- 1 Audix Studio Elite 8 mics for recording
- 8 DPA F1066F-10-2 omnidirectional headsets
- 1 Earthworks C30-C-B choir mic, hanging cardioid, 30Hz-30kHz
- 6 Global Truss Narrow Clamp BLC narrow version/pro clamp, black
- 3 Radial J48 active direct boxes for acoustic guitar, bass w/high-pass filter
- 3 Radial ProD2 passive 2-channel direct boxes
- 3 Radial R800 1026 direct boxes
- 3 Radial R800 passive direct boxes
- 2 Radial USB-Pro 4-channel mic selectors
- 2 Rode NTG2 condenser shotgun mics
- 2 Sennheiser AC3/NT active antenna combiners
- 3 Sennheiser e904 cardioid dynamic instrument mics
- 2 Sennheiser e906 supercardioid dynamic mics
- 8 Sennheiser EK2000IEM-Aw single-channel stereo IEM bodypack receivers
- 4 Sennheiser MD421 II cardioid dynamic mics
- 4 Sennheiser SR2050XIEM-Aw dual-channel stereo IEM transmitters
- 1 Shure Beta 52A dynamic kick drum mic
- 6 Shure Beta 58A supercardioid dynamic mics
- 1 Shure Beta 91A half-cardioid condenser mic
- 2 Shure HA8089 helical antennas*
- 10 Shure SE425-CL Sound Isolating earphones
- 6 Shure SM57-LC dynamic cardioid instrument mics
- 4 Shure SM81-LC cardioid condenser mics
- 2 Shure UA864US wall-mounted wideband antennas (470-698MHz)
- 8 Shure ULXD1 belt packs for ULXD
- 8 Shure ULXD2/SM58 handheld transmitters for ULXD
- 2 Shure ULXD4Q ULXD 4-channel receivers
- 20 TecNec 112563 BNC coaxial connectors
- 1 TecNec PAL-1365 Paladin coaxial crimp tool
- 10 Whirlwind MK410 10' 3-pin XLR mic cables
- 43 Whirlwind MK425 25' 3-pin XLR mic cables
- 4 Whirlwind MK450 50' 3-pin XLR mic cables
- 3 Whirlwind PW-1 high-powered stereo headphone drivers

Video Systems

SECC campuses use the Virtual Teaching Center projection screen system. “The term ‘Virtual Teaching’ applies because it’s like having the pastor come downstage,” said Perkins. The pastor’s sermon comes from the central Blankenbaker campus via an Imagine Communications Harris Nexio Volt video server, which feeds the satellite campuses.

Three IMAG projection screens fired upon by 1080p projectors are used during the service. For center imaging, a Digital

Projection TITAN Quad 2000 three-chip DLP fires on a Stewart Filmscreen Luxus Model CB motorized rear projection screen. Then on either side of the proscenium, there are two more IMAG screens using two Digital Projection E-Vision 8000 single-chip DLPs firing on Da-Lite Cinema Contour DM 220D fixed front-projection screens.

Accordingly, the center screen features a full shot of the pastor, including the background of the originating Blankenbaker campus. The two side screens allow the

receiving campus to do their own cutaways, such as headshots, graphics or song lyrics. The lower third of the screens can also show scripture. So, there’s a lot of production flexibility with a mix of image and signage magnification.

Foldback Flatscreens

The three rear-wall foldback flatscreens, comprised of Samsung 55-inch LCDs with Chief FUSION wall mounts, are used as confidence monitors for the worship team. “The Samsungs have an internal capability for paneling themselves together,” explained Durst, “so you just tell them what quadrants you want and that allows them to see the signal. Then you can pick what area of the signal you want, and the lower third on-screen lyrics are sent from ProPresenter. That would be on a black background with white text, allowing the worship team to see song lyrics as they come up, in case they don’t have them memorized. There’s also a countdown clock and a block for messages [or reminders] for the worship leader: ‘Sing for another five minutes. We had a transmission error.’ Something like that.”

Related, the Harris video server can accommodate multiple sites that may not be ready for the pastor feed from Blankenbaker, so there’s a 15-minute delayed buffer time for those pickups. Elsewhere throughout the facility are 19 assorted Samsung and ViewSonic LED and LCD HD TVs with Chief wall mounts, which variously display digital signage and worship service content.

Video Production

At Southwest, three JVC GY ProHD series cameras with dedicated remote control units and a Ross Carbonite switcher are main components for stage service productions. A Panasonic AW series digital PTZ HD camera is used as a skycam-like auditorium view for viewing in the production room. According to Durst, a full production crew would include a director and switcher operator as mainstays. Other personnel would include a shade position, which does the coloring of the camera, and an assistant director, who typically is running CGI. There are two Apple computers. One is for ProPresenter graphics. The other controls video playback/recording. ProPresenter provides the text and other images for the worship service. Other pro-



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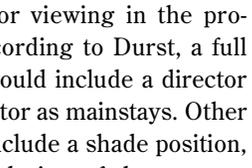
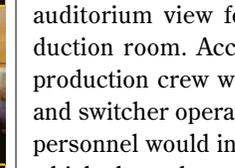


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duction tools include two Blackmagic Design UltraStudio 4K computer-based video capture/playback/edit units.

The mixing booth layout is similar for both campuses. Specifically for Southwest, the audio mix booth and the lighting operator console are in the house seating area. The video control room is down front at stage left and adjacent to the rack room, where audio, video and lighting components are Middle Atlantic racked. Adjacent to that is the green room for stage personnel, which facilitates communication back and forth.

That leads us to production intercom systems. Southwest and the other SECC campuses other than La Grange use an RTS Zeus digital matrix/wired system. "There's an RTS digital matrix with key panels for the main stations," explained Perkins. "Each of those other campuses has a Radio Active Designs (RAD) wireless intercom as well, which the technical director and the stage hands use."

Perkins added, "The La Grange system has our first non-matrix intercom going

Southeast Christian Church

Southeast Christian Church (SECC) is a single church with multiple locations or campuses. The mission of SECC is to connect people to Jesus and one another. Accordingly, the organization has grown to a unified multisite community located in the Greater Louisville KY/Southern Indiana region. Multiple campuses serve the specific needs of the area in which they are located, while receiving centralized leadership and teaching from the main campus on Blankenbaker Parkway in Louisville. The three current satellite campuses in Kentucky include Crestwood, Southwest and La Grange. There's also a Clarkston campus in Indiana. In addition, plans are underway for a new Elizabethtown KY campus.

back to the two-wire solution because the site has a smaller format and smaller staff; there's no video crew. At the heart of that system is the RAD wireless. From that, we've looped out to some RTS two-wire base stations. The Clear-Com interface is to connect back to our central campus at Blankenbaker." In summary, La Grange has a Clear-Com/RAD/RTS combination production intercom system with IP connectivity.

Tied Together

"Because it's a multisite campus, all campuses are tied together via the intercom system," added Durst. "That way, they can have communication back and forth from the tech directors and production managers, so the staff or the AV teams know when things are being transmitted. Thus, there's no guessing what's going to happen. The producer has to be able to communicate to the other campus producers. It's an interesting way of communicating, but it works really well."

Previously, the La Grange campus' 650-

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Misc. Audio

- 8 ACE Backstage assorted floor boxes w/custom connector plates, lids
- 4 AVP R96Q 96-Point Type TT audio patch bays
- 5 Cisco SG300-28PP-K9-NA 24-port Cat5 patch bays
- 1 Clear-Com LQ-2W2 2-channel party line interface
- 4 RTS MRT-327 A4F 2-channel intercom stations
- 1 Listen LS-57-0216 RF FM wireless assistive listening system w/10 intelligent DSP receivers
- 2 RDL ST-RX2 audio routing switchers
- 2 Middle Atlantic WRK-44-32 equipment racks w/accessories

Video

Virtual Teaching Center Projection

- 1 Digital Projection TITAN PRO 1080P Quad 2000 3-chip DLP projector
- 1 Stewart Filmscreen Luxus Model GB Electriscreen w/AeroView 100 rear-projection screen

IMAG Side Projection

- 2 Da-Lite Cinema Contour DM 220D fixed front projection screens
- 2 Digital Projection HIGHlite Laser WUXGA 3D laser projectors

Foldback Flatscreens

- 3 Chief FUSION wall mounts (rear wall)
- 1 Chief MFQUB rolling stand (stage)
- 4 Samsung DM55E 55" Ultra Slim HD LED-Lit LCD flatscreens

Distributed Flatscreens

Chief LTMU, MTM1U wall mounts

- 19 Samsung DC32E-M 32" direct-lit LED flatscreens
- 6 Vizio D-Series 70" full-array LED flatscreens

Video Production

- 2 AJA Ki Pro portable file-based HD/SD recorder/players
- 1 AJA Kumo 16x16 compact SDI Router
- 1 AJA Kumo 32x32 SDI router
- 1 Apple Mac Mini computer (UltraStudio/CG1)
- 2 Apple Mac Pro computers (UltraStudio/CG2, UltraStudio/CG3/PB1)
- 3 Blackmagic Design UltraStudio 4K Thunderbolt computer-based video capture/playback/edit units
- 2 Chief FUSION wall mounts
- 1 Imagine Communications Harris Nexio Volt video server
- 3 Marshall CV620 broadcast PTZ conference cameras
- 1 Marshall VS-PTC-200 camera controller
- 1 Matrox Microquad Quad SDI to HDMI multiviewer
- 2 NEC W12290R-UM 22" touchscreen monitors
- 2 ProPresenter Alpha Keyer Mac modules w/5-site license
- 1 Ross Carbonite Black 2 ME+ 2M/E switcher panel, rack
- 1 Ross NK-3G16 16x16 router
- 1 Ross NK-3G34 34x34 router
- 1 Ross openGear frame w/assorted cards
- 1 Ross RCP ME remote-control panel
- 2 Samsung 55" Ultra Slim HD LED-lit LCD flatscreens
- 3 ViewSonic 24" LED-Lit LCD Monitors for Computers

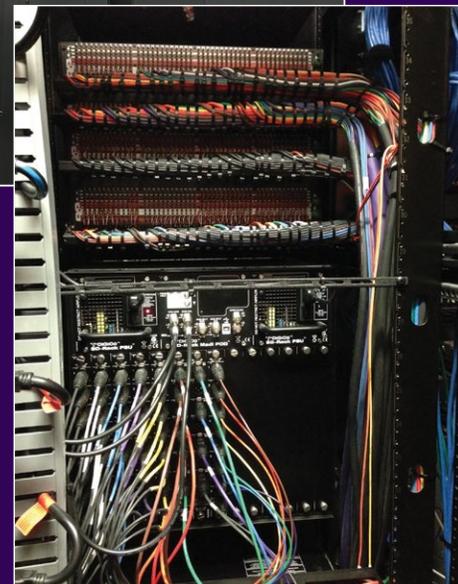
Misc. Video

- 3 ACE Backstage floor boxes w/custom connector plates, lids
- 2 AVP R96Q 96-Point TT audio patch bays
- 5 Middle Atlantic WRK-44-32 equipment racks w/accessories

Lighting

Dimming, Control, Distribution

- 2 ACE Backstage floor boxes w/custom connector plates, lids
- 19 ETC custom plug boxes
- 1 ETC DRd6-12-120 modular dimmer rack
- 1 ETC PSP-200 PowerSafe 200A Company Switch
- 5 ETC Unison Heritage 2-button control stations
- 3 ETC Unison Heritage 5-button control stations
- 1 ETC Unison Paradigm architectural control processor
- 1 ETC Unison Paradigm portable touchscreen control station



- 1 Jands Vista S1 lighting control surface w/Microsoft Surface computer

Fixtures

- 12 Chauvet COLORado Batten 72 Tour zoom RGBW LEDs
- 20 Elation SIXBAR 1000 LED color bars
- 4 ETC Source 4 Revolution ellipsoidals, automated
- 2 ETC Source Four 19° ellipsoidals
- 8 ETC Source Four 26° ellipsoidals
- 4 ETC Source Four 36° ellipsoidals
- 12 Martin Lighting MAC Aura RGBW LED automated lights
- 6 Martin Lighting MAC Quantum Profile LED spots
- 18 Martin Lighting Rush Par 2 RGBW LEDs

AVL Electrical Control

Panelboards

- 1 LynTec RPC-341 programable, network-controlled, web interface, sequencing master electrical panelboard (AV-1)
 - 1 LynTec RPS-342 programable, network-controlled, web interface, sequencing slave electrical panelboard (AV-2)
 - 2 LynTec LCP 341-40 lighting control panelboards w/DMX Control (LTG-1, LTG-2)
 - 2 LynTec LCP 341-10 lighting control panelboards w/DMX Control (LTG-3)
 - 62 LynTec MBR-20 motorized 20 amp, 1-pole breakers
 - 3 LynTec MBR-220 motorized 20 amp, 2-pole breakers
 - 14 LynTec UBR-20 unmotorized 20 amp, 1-pole breakers
 - 62 LynTec BMB-20 bolt-on motorized 20 amp, 1-pole breakers
 - 3 LynTec BMB-20 bolt-on unmotorized 20 amp, 1-pole breakers
 - 18 LynTec BMB-220 bolt-on motorized 20 amp, 2-pole breakers
 - 22 LynTec BUMB-220 clip-on unmotorized 20 amp, 2-pole breakers
- * = owner-provided equipment

List is edited from information supplied by Michael Garrison Associates.

seat worship center was a grocery store and then a movie theater that was vacant for several years. "La Grange was a renovation that was gutted down to the walls," Perkins pointed out. "The theater's sloped floors didn't line up. As a result, the back part of the stage, the video control room and the main control room were all newly constructed in the back of that renovated space."

On the video side, Virtual Teaching Center large center-screen viewing of the pastor is identical to Southwest, using the Digital Projection TITAN DLP and Stewart Filmscreen Luxus rear-screen projection combination. The feed from the central campus also comes in via the Harris video server. According to Perkins, there is no IMAG production support at this facility. Therefore, the proscenium left/right side screens are used for graphic support instead. Digital Projection HIGHlite Laser 3D laser projectors fire on Da-Lite Cinema Contour front-projection screens.

However, local staging still takes place with a band and performers for the ministry program, along with needed audio and lighting and graphic display, such as song lyrics, on monitors. Thus, the show goes on. "We have three Marshall CV620 PTZ cameras that SECC bought for general viewing in the control room," he said. "Otherwise, we are just doing graphics on the side projection screens. The three rear screens are also used for song lyrics as confidence monitors."

Signage and church services throughout the rest of the facility are displayed on 19 various Samsung and Vizio TVs. The audio, video and lighting booths have room locations similar to Southwest. There's a video switcher operator but no video crew. The Ross Carbonite Black switcher and ProPresenter graphics devices are in operation.

The decision was made to install a Meyer Sound Labs main speaker system based on the low ceiling height where point-source technology would be used effectively. "We had a Meyer point-source system at our Crestwood campus and another Meyer system at our Indiana campus," said Perkins. "It made sense to apply a Meyer solution here. We were trying to implement what we did before and have a standard. So we did."

Took The Lead

"Ryan Wissink actually took the lead on the audio system design [for MGA], and he used Meyer modeling," said Durst. Meyer's UPQ two-way speakers with some UPJunior boxes for delays were chosen because of the way the speaker delays had to fit in. Front fills had to be used to give the front rows a little more high-frequency coverage.

"This facility uses smaller, compact, point-source, self-powered boxes. And the ceiling is really shallow," Durst offered. "Those factors went into making the decision for coverage patterns and doing speaker layouts." Those are the differences between this system and the Adamson line array system using Lab.gruppen amplifiers at Southwest.

Specifically, there are left/right Meyer UPQ-1P mains with four UPJunior delays. Front fills are four MM-4XPs. There are three 900-LFC subs center-mounted and arranged in a cardioid pattern. Meyer Galileo 616 digital matrix processing is employed. BSS Soundweb is used primarily because of the digital flow over

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HOUSE OF WORSHIP: BUSINESS: DEFUSING WORSHIP WARS

(continued from page 18)

• **Third:** Finding enough staff and musicians to conduct these multiple worship styles is a significant challenge for HOW leaders. Often, the result is that the musicians and music leaders specialize in one music style, but when they try to appeal to another group of people, the results have not been so good.

For example, if the traditional worship leader plays piano or organ and leads the service, the result may be acceptable for elderly or older attendees. However, this approach would probably not be appreciated by younger congregants. Conversely,

if the worship leader for the millennial service leads the elderly service wearing torn blue jeans, a flannel shirt, messy hair and plays acoustic guitar while leading the service, the older congregants may not like it.

• **Fourth:** A significant contribution of time and resources is required from the staff and volunteers to create multiple worship services. Over time, the strain becomes intense for everyone, including the pastors and leaders who have to lead these services. In many cases, this leads to burnout, which intensely impacts the

worship experiences overall.

• **Fifth:** The single worship style and fewer services often leads to worship spaces that are full and, most importantly, worship experiences that lead to a greater sense of community.

I believe that understanding this shift in worship dynamics is important as we consult with leaders who are still creating multiple worship services and for us to also be able to serve leaders who are transitioning back to single worship styles. That is what I believe. Please tell me what you believe. 

SOUND ADVICE: WHERE'S THE POINT?

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for about 400ms and then begins what we would consider to be the traditional decay. This has a decay rate of about 1dB/120ms, being equivalent RT of 7.2 seconds.

An automated measurement system would ignore the first 5dB of the decay and then start counting, probably re-

sulting in a computed RT of about 4.6 seconds. Although perhaps technically correct, this is a meaningless number and highlights the need to understand why we are measuring the RT in the first place, and what we are going to do with this magic number when we have it! However, without being able to see the decay curve,

you wouldn't know that you have made an erroneous measurement. As I frequently say, "There's a lot more to acoustics than numbers." The numbers, of course, help us do our jobs, but you have to know that you have the right number, just as with so many other things in life. 

INDUSTRY POV: CHANGING APPLICATIONS OF TECHNOLOGY

(continued from page 35)

sual forms. Electronic media can project colors, images and videos that can move congregations to a deep worship experience, and it allows for a greater sense of community without the demand for proximity.

There are some wonderful benefits of technology that further enable the mission of the church outside the sanctuary. Display technology can be used to enable communication, community and disciple-

ship. We have seen kiosks used to inform about scheduling and upcoming events.

"LED panels have also been a HOW trend that we are shifting to, versus standard projection applications, due to minimal maintenance costs and versatility of the products," explained Cummings "They eliminate rear-projection rooms that require large square footage or highly technical mirror systems, as well as the need for a technician to use a lift to change

a projector lamp. As a result, the trend toward LED has been emerging slowly."

In addition, lighting and audio enhance prayers by adding sensory content that can produce an emotional reaction. Any type of audio, live or recorded, can help mask other background voices to keep everyone focused. And, proper lighting can change the environment completely, providing church members more of a holy ambience. 

SOUND, SPEECH & AESTHETICS: ST. FINBAR CATHOLIC CHURCH DOES IT ALL IN A HISTORIC BUILDING

(continued from page 71)

during all levels of attendance.

The small support speakers are now capable of locally enhancing the low-frequency response of the sound system for singing, musical instruments and prerecorded music, without compromising the intelligibility of voice lift microphones that are individually programmed for limited participation in the expanded low-frequency enhancement of the sound system through the virtual matrix mixer.

A chronic problem inherent to providing local monitor speakers in specific areas of the worship space, such as the sanctuary and choir areas, involves the interaction of the "local microphones" in close proxim-

ity to the "local speaker." Independently powered and digitally managed custom-painted monitor speakers in the sanctuary and choir loft, with an "independent mix" through a virtual matrix mixer, provide optimal performance without feedback.

The ability to digitally program multiple speaker zones through a virtual matrix mixer with specific equalization and signal processing contributes significantly to speech intelligibility, as well as accurate replication of liturgical singing and music throughout the church. It is equally important to enjoy the aesthetic beauty of a worship space while simultaneously enjoying the intelligibility and acoustical quality of

the spoken word, as well as liturgical singing and music that enhance the celebration of liturgies, concerts and special events for all in attendance.

The desire to hide speakers in houses of worship with challenging acoustics usually yield results that bring to mind the colloquialism, "If you can't see them, you probably can't hear them!" Significant developments in DSP processing, compact multichannel amplifiers and advanced speaker management design techniques allow for installation of smaller multiple subwoofers in multiple locations that are not visible to the congregation...and the good news is, "What you see is not only what you get!" 