Part of the pageantry of the church's holiday celebration is the spectacle of two 45'-tall Christmas trees decorated with 300 singing "ornaments." The trees, with over 250,000 lights, are in sync with music from the 300-voice choir and 50-piece orchestra.

New Ways of Communication

By: Louis M. Brill

Orlando's First Baptist Church moves into the 21st century

"While the Church's gospel message will never change," says Chris Hinkle, production services director of engineering of the First Baptist Church in Orlando, Florida, "the means of communicating that message is constantly evolving, as media technology has advanced in allowing the church in building an expanding audience drawn to its worship center. As important as was the church's emphasis on its forthcoming high-tech renovations, it was equally interested in creating a more intimate connection between its parishioners and their ongoing communication with their church community. This was accomplished in tandem by physically altering its auditorium space, and updating its audio, video IMAG, and lighting capabilities.

"How the church communicates with its audience has become more expansive, not only for itself with bet-

ter, more professional, AVL equipment, but as well for its audience, which has become more media-sophisticated than ever before," Hinkle continues. "For the church to keep in touch with its congregation, Sunday services are not only captured for IMAG, but also archived for delayed broadcast, for parishioners to tune in later or for those living too far away to attend in person. In a further effort to communicate with off-site congregation, the church utilizes a variety of Internet connections including social media, YouTube, and live streaming."

Video

The First Baptist Church's media roots reach back to broadcast television as a major tool for sharing its message with its surrounding community. In the early 1960s, it partnered with Orlando's ABC station to produce live broadcasts of weekly Sunday services.

Then, Hinkle says, "The church decided in 1991 to incorporate its affiliate video coverage into an in-house media infrastructure. It acquired its video gear and built its own video facility. We had good video gear, including Sony video cameras, Sony Beta SP recorders (back in the day), and Grass Valley switchers. It wasn't top-of-the-line, but it served our purposes. That video gear had a ten-year lifespan, but, for us, it lasted 25 years. Eventually, in 2012, it became apparent that we had to upgrade; our original video cameras were starting to come apart and we couldn't get replacement parts. Our video standard wasn't even SDI, as we were still dealing with Plumbicon tubes—talk about memory lane.

"Equally, our worship facility, which was over 30 years old, was as well-worn. The pews were falling apart and the auditorium was oversized for its congregation; all in all, it was time to update our physical presence. We decided that not only our video system, but the entire facility was due for a major upgrade. But it wasn't just about the technical systems: The church wanted to create a more welcoming, inclusive environment within the sanctuary. The auditorium was way too large, and it was easy for parishioners entering the sanctuary to feel very disconnected from the rest of the church."

What followed was a complete renovation of the auditorium and its audio, video, and lighting infrastructure, accomplished in partnership with its consultant of record, Addison, Texas-based Idibri, a multi-discipline consultancy that deals with audio, video, acoustics, theatre design, and lighting operations for public gathering spaces. The Orlando, Florida office of Stage Equipment and Lighting provides the new lighting rig; the new audio system was installed by the Orlando office AVI-SPL. The new video infrastructure was installed by Diversified. Overall, Hinkle says, "The church underwent a second-generation improvement of its video system and a third-generation improvement of its audio and lighting systems."

Idibri project manager David Stephens says the auditorium was stripped to its concrete foundation, its seating reduced from 6,000 to 4,500. "We began by eliminating the under-balcony area. It did away with the audience separation between the over- and under-balcony seating areas. At the same time, it increased the space available for the lobby, allowing it to become a more welcoming gathering space. The seating was changed from pews to theatre-style, and sightlines were improved by creating a terraced seating area on the main floor behind the original cross aisle." The fan-shaped auditorium is approximately the size of two football fields. Its stage area measures out at 125' across and 100' deep. Directly behind the platform is a 250-person choir loft; above that is a beautiful stained-glass window backlit with LED lighting.

"The original ceiling was painted white, emphasizing the vastness of that previous auditorium space," Stephens says. "To increase the room's intimacy, the ceiling was paint-

During renovations, the auditorium was stripped to its concrete foundation. Above: The Vanguard LED screen has been assembled and is undergoing testing prior to being hung in its final position.

McKelvey notes that the IMAG screen provides an important focal point for the congregation, providing a sense of intimacy with the pastor and other speakers.

ed black, taking it out of play. A further change was the addition of two catwalks, hung below the ceiling to accommodate the lighting angles needed for broadcast coverage. It was decided to hide everything in plain sight, with the darkened ceiling, which, perceptually, helping to shrink the auditorium space."

Diversified revised all aspects of the church's video infrastructure, from upgrading to a HD format to installing a fiber optic network that provides ease of routing video signals from a central location to any part of the building. The new gear includes five Sony HDC-2400L cameras, and five Fujinon HD zoom lenses: two DigiPower lenses (XA55X9.5), two Premier series lenses (HA23x7.6), and one Premier series lens (HA14x5). Vinten camera support includes two Vector 75 heads and tripods and two Vision 100 heads and tripods, six Clear-Com FreeSpeak II digital wireless intercom systems with ten antennas located throughout the facility and ten belt packs (FSII-BP19-X4), and a Vanguard 18' x 31' LED 4.1mm display screen. The digital monitor package included eight Sony 55 FWD55W950B HD displays, twenty-one Sony 48" FWD48W600B LED displays, and one CamMate crane.

The reconfiguration of the video control center included Forecast technical furniture (desks), complete with an Evertz terminal gear solution, including VIP multiviewers; Xenon 96-by-96 video router with Magnum control system and control panels, sync/test generator, audio and video DAs and audio embedders; an assortment of AJA production gear, including six Ki Pro Rack HDD recorders, FiDO fiber transmit, and receiver pairs, FS1-X frame sync, and Hi5 SDI-to-HDMI/DVI converters; twenty-seven Apantac SDI-to-HDMI converters (DA-SDI-HDTV-II); one Renewed Vision ProPresenter; two Blackmagic audio monitors (BMD-HDL-AUDMON1RU); from Boldon: two 55" HXL55 monitors and five 24" PVB24 monitors; and an Avocent Digital Matrix KVM MXT5120 transmitter with three MXR5110 receivers.

In describing the changes within the FBC auditorium, Idibri senior consultant Jason McKelvey notes how various aspects of the church's video operation were taken into account. "In the previous incarnation of its auditorium, the older video camera platforms were very tall and tucked into either side of the center aisle, extensively blocking the stage view of parishioners sitting behind the cameras. To minimize that obstruction, the camera tripod positions were lowered and moved further back, in front of the control booth, opening up that seating area to a better view of the stage space.

"The AVL control booth is now located in the lower center of the auditorium at the rear of the terraced seating. Directly in front of the booth, there are two video cameras known as 'the broadcast twins.' This includes one camera focused on a 'tight follow,' and

the other camera set for a 'head-to-toe' or medium shots. The other two cameras are located at house left and house right corner aisles, facing the stage. There is also a 24" jib for motion shots that can be placed anywhere in the space. For versatility and special events, we included additional camera boxes around the auditorium allowing the church video team to move or add other video cameras as needed. Overall, within the new auditorium there are nine camera locations, allowing for a greater flexibility in offering church service coverage. Marshall POV cameras are also set up around the drums or keyboard for close-up pickup shots. Four manned studio cameras are used to cover each service, with a director calling the shots for each line cut, broadcast, and IMAG presentation."

The church offers five weekend services (one on Saturday and four on Sunday). Hinkle says he has a video staff of 15 people, of which four are paid. Video is edited slightly differently for each service: "Sunday morning 8:30am is a traditional service, with choir, pipe organ accompaniment, and the pastor delivering the sermon. The other four presentations are more contemporary, with a band and more visually upbeat music graphics. For the on-screen lyrics found at the screen bottom, Renewed Vision's Pro Presenter is the primary graphics engine used. Most of the music graphics are done in-house and are used as backdrops for the various bands that perform."

A further critical visual component of the auditorium was its LED video screen. The screen positioned at center stage rear is a Vanguard Plutonium Series P4.81 LED product (18' x 31'), ceiling-mounted over the choir balcony and suspended from chain hoists attached to the screen's frame. It has become a major part of the church's presentation, as, during the service, most of the audience is watching the IMAG. "If there is a person's face up on the screen," McKelvey says, "people are drawn to that as they're always drawn to any type of television screen. More important, there's no other way to get that kind of intimacy with the pastor or a speaker, other than seeing a close-up of their face and facial expressions. In turn, you're going to have most of the congregation looking at that screen for most of the time. With the audience watching the IMAG, you want all your coverage, especially all your close-up shots, to look good, which means having broadcast-angle lighting to accommodate that quality.

"The First Baptist Church has always been a broadcast television ministry and has always been accustomed to providing two simultaneous line cuts," McKelvey notes. "They produce their live, in-house Sunday service IMAG coverage, which is mainly made up of tight shots, as wide shots don't do you any good in an IMAG environment. The second show is produced for television and includes a lot more variety of camera shots from different angles and different focal lengths." Hinkle adds, "Because of limited broadcast availability, that program only presents the spoken-word segment from each service, while live streaming offers the entire service with the sermon, choir, and music as a complete presentation."

Sound

"The church's previous high-fidelity audio system was a very sophisticated design with a certain amount of complexity that, over time and with a lack of maintenance, fell into disarray and easily warranted refurbishing," Hinkle says. "With the church being physically rebuilt, it was decided that rather than fix the old audio system, to simply start over with something new that would take the church further down the road."

The new audio system was designed by Idibri senior audio consultant Casey Sherred, who notes that, in college in the late 1990s, he did audio mixes at FBC. He says that one of the major auditorium renovations involved the redesign of the stage, which was moved forward, rendering current speaker locations no longer valid.

"Every outside group that came in had to fly their own PA, because the church's house PA just really couldn't keep up," he adds. The new audio system has the dual purpose of supporting the church's service needs and satisfying the audio needs of incoming special event programs.

Recalling the audio gear selection process, Hinkle says, "We had several demos of different systems and were looking for line arrays that would give us really good horizontal and vertical pattern control. Of the various presentations, d&b audiotechnik was chosen by the music team as the preferred audio system."

Sherred adds that the d&b V-Series line arrays, consisting of twenty-two Vi8 and twenty-six Vi12 cabinets, distribute good audio coverage throughout the worship center. The V-series loudspeakers function as three-way passive line array systems, respectively providing 80° and 120° horizontal dispersion, maintained down to 250Hz. "Once the V-series were selected," Sherred says, "we acquired four line arrays, with two main arrays facing the auditorium and the other two used as outfill arrays, primarily covering the house-left and house-right ramp seating areas. We then deployed six d&b J-SUBs and six d&b Ti10L front fills. A ring of d&b Y-Series delay point source loudspeakers—ten Yi7Ps and two Yi10Ps—minimize the impact of the sound energy on the auditorium's rear wall, by hitting the back wall at a higher angle. The back of house has four DiGiCo stage racks, each with 24 analog channels per box, and two outside boxes with 12 channels of AES capability."

In the front-of-house audio booth, a full suite of sound boards includes the Yamaha PM1D, a BSS London BLU-

The addition of Chroma-Q Inspire and Inspire Mini color-changing houselights turns the entire auditorium into a stage for video broadcasts of church services.

800 signal processor, a DiGiCo SD5 and two SD9 mixing consoles, including one for mixing the choir and one for mixing the orchestra. Sherred adds, "We also had a Lab.gruppen C16:4 four-channel amplifier for powering the 70V speaker system, and d&b D80 four-channel amplifiers for the d&b line arrays. Additionally, we also incorporate a DiGiCo X-WAVES-E2 effects package and a DiGiCo SGPB-BP effects package. We also had a RME MADI router; the entire audio system was connected via an Optocore network based on providing 1,008 channels of audio flexibility."

Lighting

"Church lighting is used to create a visual harmony, so our congregation can engage in worship," Hinkle says. "Essentially, all our lighting compositions are content-driven from the church service activity at the moment. So a song might constitute one type of lighting scheme, and with the pastor's sermon, another type to change the look or the ambiance of that part of the service." The lighting inventory, he notes, "is about 75% incandescent, 5% HID, and the remaining 20% LED-based. Houselights are 100% LED. The majority of our lighting is ETC Source Four ellipsoidals and PARs. We like ETC very much. They have a long bulb life, their optics are great, and with their 750W lamps you can get about 8,000 lumens per fixture.

"Color is a very important part of how we illuminate each service," Hinkle continues. "As a sermon reaches an inspirational peak, you're not going to use dull or depressing colors. When the pastor begins speaking, we use a bright palette. In introspective moments, we'll use more of a pastel look. Overall, because of our TV cameras, we try to stay within the 4,400 Kelvin range."

"Originally," McKelvey says, "the overhead lighting in the auditorium was incandescent and all you could do was to set it at bright or dim. With the new overhead LED lighting, including [208] Chroma-Q Inspire 32° and 42° fixtures as well as [83] Chroma-Q Inspire Mini fixtures, the lighting director can balance the houselights against the ongoing stage activity, which you couldn't do before."

"As an example," he says, "we correct the incandescent light to 6,500K, using Lee 201. This brings all the light sources to a similar color temperature. As a result, the LED wall, LED houselights, LED backlights, and moving heads all have high native color temperatures (5,500K – 6,500K). The result is an environment that provides the

cameras with accurate color rendition on all lights. So if the lighting is magenta to the human eye, it shows up magenta on the LED screen as well. This approach avoids the scenario where the audience sees magenta on stage, but glowing blue on the IMAG screen."

Lighting the auditorium is as important as lighting the stage, McKelvey says: "One potential side effect of using one-color, dimming-only incandescent overhead audience lighting is that during the worship service, the audience lighting is dimmed, creating high-contrast issues for broadcast. When you go for a wide shot for broadcast, you see a brightly lit stage with all kinds of color and moving lights and a sea of black nothingness where the audience is sitting. Since the camera is irised for the stage, you see no audience.

"The solution, however, with full color-changing houselights is that you can simulate darkness by using color instead of dimming. In an older video / lighting mindset, all the color and the lighting are on the stage. With full color-changing house lights, the auditorium is part of the set design and the entire sanctuary space becomes one big stage. It's not a separation between a brightly lit stage and a darkened audience area. Although the entire space is illuminated, you still have subdued lighting in the audience area, but, in your audience-wide shots, you can still see audience members."

The theatrical lighting rig is deployed throughout the sanctuary. Stephens says, "The front-of-house lighting for the platform and choir loft consists of [232] ETC Source Fours, gelled with Lee 201. Top- and backlighting of the platform and choir loft areas is done with [48] ETC Source Four PARs with narrow lenses, hung from multiple trusses rigged over these areas. We also included [12] Philips Vari-Lite VL4000 Spots and [12] VL4000 BeamWashes. Architectural lighting fixtures include [24] Philips Color Kinetics ColorGraze MX Powercore 30° by 60° 1' and 4' linears, which were placed along the back of the choir loft to uplight the organ pipes. We also put LED linear units as downlighting to wash the walls in front of and behind the choir loft. With all the flexibility and varied background lighting washes, we can now set the look behind the pastor for the camera shots, which greatly increases his on-screen visual presence." Lighting is controlled by two MA Lighting grandMA2 consoles, a main and a backup.

"Generally during a traditional service, we keep the auditorium fully lit, along with the choir loft lit up as well," Hinkle notes. "The contemporary service is more intimate and you're able to create a different atmosphere by changing the room's color, with more focus on lighting the praise team and rhythm section on the stage. When the pastor appears, we'll tone down the stage lighting, bring up the house lights to white, and fill in the backstage alcoves with mild accent lighting."

Each Sunday sermon is archived for later viewing. As Hinkle notes, "Our audience has equal access to DVDs and CD coverage and through the Internet, with either live or on-demand video versions. The FBC offers a multilingual service, as the Orlando area has large Brazilian and Spanish populations. We have live translators providing the sermon in each of those languages [Spanish and Portuguese], which we live-stream.

"Because our audience see us on television and online, we get a lot of feedback," Hinkle says. "Does our video coverage impact our audience? We have found that, from our broadcast and streaming coverage, several of our viewers have been inspired to become members and join our attending congregation. Recently, during one of our baptism services, a lady was watching online and she was so affected she got in her car and drove directly to the church to get baptized."