

Live Broadcasting for Worship

*Challenges, trends
and solutions*
by John Shike



The broadcast facility at First Baptist Church of Spartanburg, S.C.

Just ask the countless people all over the world whose lives have been changed by the Billy Graham Crusades: live television production is a powerful medium for religious organizations of all types and sizes. By broadcasting its Sunday services and special events, a church has an important and instantaneous outreach for spreading its message and expanding its flock, raising funds and ensuring that homebound members can continue to participate and feel included. While certainly not a new concept for houses of worship, live TV has taken on even more critical and complex dimensions in our digital, hyper-connected age. Today's congregants tend to be younger and more technology-savvy, and they have much higher expectations for video quality—especially as HDTV and digital broadcasting continue to make their presence known in viewers' homes.

In this article, we'll explore the challenges that today's churches face in building or expanding their facilities for live broadcasting. We'll also include real-world examples of houses of worship that are addressing these challenges with the state of the art in production switching technology, which offers a cost-effective, versatile and easy-to-use solution.

Doing More With Less

Traditionally, churches have entered the live TV arena by broadcasting their Sunday services—but many have expanded their focus to include

talk shows, public affairs programs highlighting missionary work and other activities, and special events such as community weddings and funerals. But whether churches are doing a simple weekly worship broadcast to a local venue such as a church school, or a full schedule of programming with feeds to cable head-ends or even a global satellite network, the challenges typically boil down to two factors: money and personnel.

From a budgeting perspective, it's best to be realistic about the costs and prepare to build a facility that will serve the needs of churches well into the future. Professional high-definition (HD) video and digital audio equipment isn't cheap, but it is reliable and can be counted on to do the job for many years to come (a simple case of "you get what you pay for"). Personnel-wise, any equipment purchases need to take into account the fact that many church broadcasting engineers are volunteers, most of whom are not broadcast professionals. Therefore, ease-of-use is paramount.

One of the most strategic investments a church can make in broadcasting equipment is a high-quality multiformat SD-HD switcher. Although designed for professional, commercial broadcasting environments, this type of switcher is surprisingly cost-effective because its multiformat capabilities enable a smooth transition from SD to HD transmission without requiring an extra capital outlay in expensive conversion equipment (more about this later). The most sophisticated switchers incorporate a rich array of tools, such as moving clips playback, extensive digital video effects (DVE) capabilities, RGB color correction, and external device control. At the same time, these switchers are designed to be easy to learn, program and operate, and to integrate easily with the church's existing broadcast infrastructure.

A Broadcasting Pioneer: First Baptist of Spartanburg

One church that has learned these lessons well is the First Baptist Church of Spartanburg, S.C. A true live broadcasting pioneer, First Baptist Spartanburg has been successfully televising its Sunday morning service live on the local CBS affiliate WSPA for more than 50 years. The church has recently taken on a significant upgrade of its broadcast facility in preparation

for conversion to HD, and as part of a larger capital renovation of its sanctuary. The equipment investment, which includes new digital routing and switching, audio selection and graphics systems, will ensure that First Baptist Spartanburg is well prepared to expand and enhance its broadcasting capabilities well into the future.

The switcher, a Snell & Wilcox Kahuna, integrates a server and seven cameras, to drive separate SD and HD outputs for live broadcast, image magnification (IMAG) to large screens in the sanctuary, and a feed in 16:9 letterbox format to an in-house video distribution system. One important feature to look for in a switcher is the ability to integrate multiple control panels with the mainframe. This enables two operators working on separate control panels to simultaneously run different productions through the switcher. In this manner one operator produces a video mix for the projection screen in the main sanctuary as well as a mix for the contemporary service in the youth center across the street on ME-1. While another operator produces the mix for the live TV broadcast and streaming to the First Baptist Spartanburg Web site (www.fbs.org) on ME-3 and 4.

Most remarkably, all of these advanced capabilities are easily handled by First Baptist Spartanburg's mostly volunteer A/V staff thanks to the switcher's ease of use and seamless integration. One factor that eased the transition to the new system was the work provided by systems integrator Technical Innovations, Inc. -Blue Hat Design Group, who provided a comprehensive plan for the work required. In addition, Snell & Wilcox made a commitment to provide the necessary training based on the church's particular requirements and large percentage of volunteers. "We had very few errors in learning the new system, and being able to drive the server from the Kahuna's easy control surface and GUI made a big difference in our getting ramped up quickly," said Britt Dillard, minister of media for First Baptist Church of Spartanburg.

Making the HD Leap

The transition to HD production is another factor that is keeping many church technology directors up at night, and for good reason; the issues are complex, and the costs involved can be daunting. For most churches involved in live television production, the move to HD is not a question of if, but when—especially as churchgoers and home viewers demand more sophistication, higher quality and greater fulfillment from their worship experience. At the same time, these churches have a significant investment in SD production equipment and a deep archive of SD content that they want to continue incorporating into worship services. Since a complete equipment change-out is far outside the budget for a typical church, the challenge then focuses on how to leverage the existing investment in infrastructure and content to support HD conversion.

Therefore, as a church begins the task of upgrading its current facility to HD production, the most cost-effective approach is a phased one that slowly integrates HD cameras and other equipment as the budget allows. Realistically, the church may need to rely for some time on SD equipment such as character generators, VTR systems and cameras mounted in hard-to-reach areas such as the rafters. The trick is to take these SD sources and convert them so that they can be easily integrated into the HD production without compromising the high picture quality that viewers expect.

The most expensive and least practical option is to purchase HD con-



Snell & Wilcox Kahuna multiformat switcher.

version equipment that can handle the upconversion from SD sources. This approach requires an upconverter for each device, and potential cross-converters to handle a mixture of 1080i and 720p sources. In addition, conversion equipment adds video delay which might create audio/video synch issues—and, since SD sources typically have a 4:3 aspect ratio and HD is formatted for 16:9 widescreen, conversion might create issues with the appearance of the final program image.

This is where the multiformat aspects of a production switcher like the Kahuna come into play. These switchers allow church production crews to mix any combination of HD and SD material, such as camera feeds or archived content, into their worship presentations seamlessly and easily. There's no loss in video quality, and no need to purchase expensive conversion equipment or adopt a more complex system design. With a multiformat switcher, it's even possible to produce and simulcast multiple SD and HD feeds at the same time for a richer, more visually compelling viewer experience.

First Baptist Spartanburg faced all of these issues with its broadcast facility upgrade. The church was committed to being a good steward of its members' tithes by putting into place an infrastructure that would last for at least 20 years, while also purchasing equipment that could leverage SD sources for some time into the future. Choosing a switcher with multiformat capabilities, along with the ability to easily accept software upgrades going forward, helped Spartanburg Baptist meet its HD goals in record time. As a

result, the church has reached a new milestone as one of only a handful of houses of worship that are currently doing live broadcasts in HD. "Within the first 24 hours of our first HD broadcast, we received many e-mails from people who noticed the significant jump in picture quality," said Dillard. "The video output from the switcher is remarkably clean and mirrors the actual video from the cameras."

Raising the Bar at Mars Hill

Another congregation that is making the most of a multiformat switcher for live production is Mars Hill Church, one of Seattle's largest and most dynamic houses of worship. Mars Hill Church has a vibrant community-based ministry serving more than 2,000 members, with at least 7,500 worshippers in attendance every Sunday at its seven campuses in the greater Seattle-Puget Sound area. The church needed to find more effective ways to deliver an impactful, consistent message to each of its geographically distributed congregations, while at the same time allowing each to preserve its own sense of identity. While it viewed HD as the solution for appealing to younger worshippers with high expectations for enhanced picture quality, Mars Hill also needed to preserve its existing investment in an SD infrastructure.

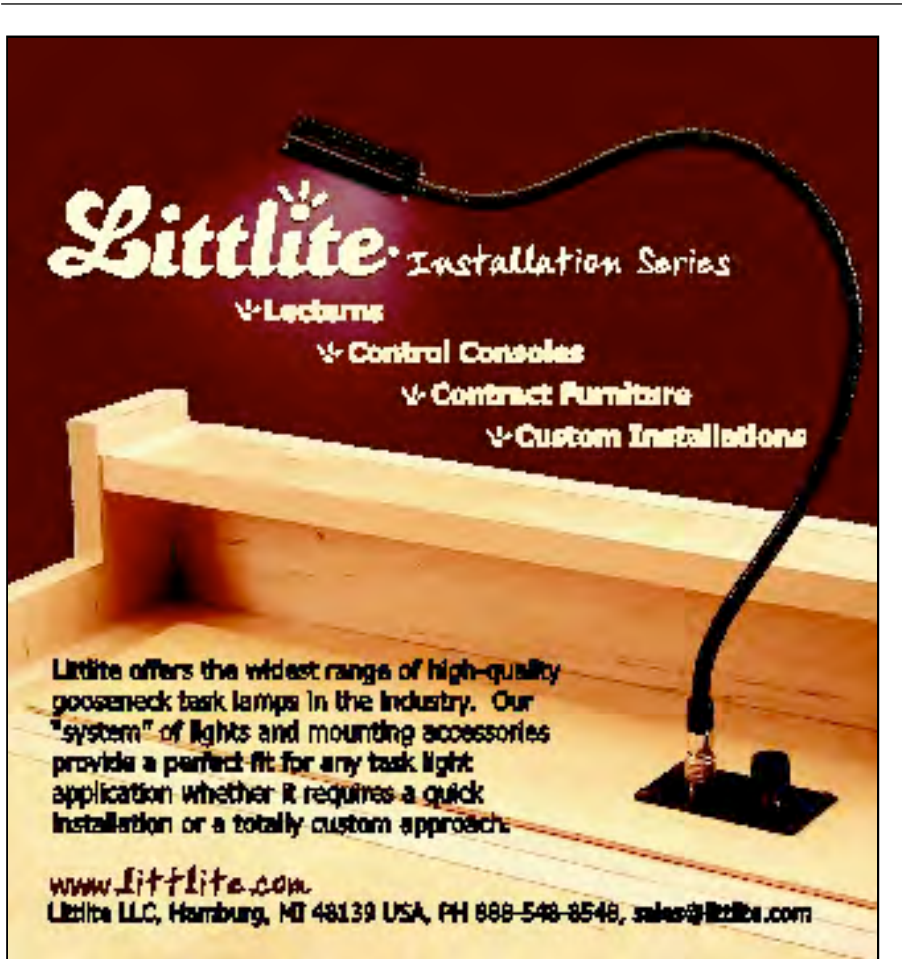
Chosen to anchor the church's transition to HD production, the Kahuna switcher is used to enhance Sunday worship services and to streamline delivery

of a live HD presentation of the pastor's message to the six other congregations. For the main Sunday service, which is shot in high definition, Mars Hill's production engineers use the switcher to mix in additional feeds from SD sources such as cameras, character generators, and presentation software that includes talking points for the pastor displayed on a 60-inch LCD screen. The result is streamed to the other six campuses with a 15-minute delay to enable congregations to incorporate the sermon into their individual services. Like Spartanburg Baptist, Mars Hill plans on extending the switcher with an auxiliary panel that can be operated by a second engineer, which will enable the church to switch content for other elements of the worship service such as visual and lighting effects.

"We view HD production as an important tool for keeping people engaged in the message and excited about worshipping with us. At the same time, a great deal of our content still exists in SD format, and the cost of conversion gear was not within our budget," said Jeff VanderGiessen, Mars Hill's production technology director. "The Kahuna has enabled us to automatically mix SD content into our HD production without requiring upconversion, enabling us to deliver a first-rate HD production without a significant cash outlay."

Conclusion

As First Baptist Spartanburg and Mars Hill Church have shown, live production has become a critical means of expanding scope and enhancing the worship experience for congregants both inside and beyond church walls. With multiformat switching capabilities providing a cost-effective and practical route to HD, the time has never been better for churches to make the leap to HD productions that offer unprecedented picture quality for today's demanding viewers. ❖



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