

Live Broadcast Capability Extends Reach of Worship Message
by Pat Thompson

Worship LIVE

The message may remain the same, but the medium has changed: the growing use of audio and video technologies in the religious realm has fueled the emergence and growth of television ministries and megachurches while also providing churches of all sizes with dynamic tools for reaching out to and building their membership.

Audio/visual (A/V) display systems have become widely accepted as a means of enhancing worship, whether to help all attendees experience praise and teaching messages or to add interest for a younger generation that has come to rely on A/V media as its primary source of information and entertainment. Continued advances in broadcast and production technologies, paired with dropping equipment costs, have enabled many churches to take their use of media a step farther, not only producing sophisticated live services but also delivering high quality programs for broadcast.

Whereas only a handful of large churches and ministries provide true live broadcasts, which are technically challenging and often impractical due to royalty fees and the cost of transmission to the cable headend, an increasing number of churches do produce broadcasts of their services for the purpose of simulcasting to multiple facilities. Many more houses of worship record services, edit them in post, and then deliver the product for broadcast a week after the live service or for distribution on DVD. In all these models, the evolution of production systems has opened up new opportunities for spreading the message.

Live Delivery Across Multiple Sites

The ability to provide a live broadcast of worship services to alternate sites, on campus or in another building or city, has empowered quickly growing churches to continue serving their congregations even as their membership expands beyond the physical limitations of the worship space. Churches have been able to save millions in construction costs by using live broadcasts creatively within their existing facilities or at less-expensive leased or borrowed meeting areas. Delivery of live video to multiple parts of a single facility also has allowed churches to tailor services to different groups within the congregation.

In both cases, the sermon or teaching delivered by the pastor or minister is presented via large-screen display. The praise and worship elements of the service, however, are provided by live bands and worship leaders. One worship area might be targeted to youth and use a hard rock theme, and another might feature a Polynesian look and feel. Live broadcasting enables shared teaching time and consistent messaging while providing flexibility in meeting the needs of church members. In this way, churches are better equipped to serve existing members and attract newcomers.

A/V Production Staff

When addressing live broadcasting, churches need to be prepared to deploy a minimum of three cameras and proper support, or about six or eight production staff members. In addition to this team, the church will need a supervisor to schedule staff, as well as someone to purchase and maintain equipment and train others to use it. Naturally, with the task of managing volunteers also comes additional time spent on human resources.

If a church is considering going into video production and it doesn't have an A/V expert within the congregation, then it's important to build a relationship with an experienced systems integrator. A professional integrator can help with the purchase, installation, training and maintenance aspects of working with a production system, as well as assist with the early planning and design stages to ensure that the church meets its goals while investing in equipment as wisely as possible. A solution built out of bits and pieces from the local electronics store just won't cut it, regardless of what anyone may say. A good integrator understands the needs of the church and what it takes to do the job right.

Cameras

Whether being fed live to another facility or to a cable headend, or sent to post-production prior to delivery, the live production should include both a main shot and an iso record, the latter providing valuable footage for cutaways. In broadcasts being switched live, multicamera recording enables capture of the close-ups, pans and other shots that add critical interest and context to the production.

For broadcasts or DVD versions first edited in post, the availability of cutaway shots help the crew make smooth edits to account for duration or to cut out portions of the service that aren't necessary to the finished product. Using one iso for the main camera—or, ideally, one iso on every camera—offers vital flexibility in creating an engaging and appealing presentation.

The camera configuration must meet both the needs of the production team and the congregation. In other words, where cameras are placed and how they are used must fall within the tolerance levels of the congregation.

Cameras and their operators can be distracting to church members, and there may be a need for some subtlety in incorporating equipment into the worship area.

Audio/visual (A/V) display systems have become widely accepted as a means of enhancing worship, whether to help all attendees experience praise and teaching messages or to add interest for a younger generation that has come to rely on A/V media as its primary source of information and entertainment.

A more practical concern for camera setup is that quality support systems are used. Good pan/tilt heads are expensive but likely worthwhile as they can reduce the bouncy or jerky effect—the source of a seasick feeling among audience members—that can be introduced by less experienced camera operators on a volunteer staff. Also important is the use of tally lights, which tell the speaker, presenter or performer that they are being recorded. In louder environments, such as the praise and worship part of a service, verbal communication may not be sufficiently clear to convey this information.

Selection of the right camera for live production and broadcasting really depends

on how the church plans to use video, now and in the future. Choosing a recording format is no small task. High-definition (HD) cameras are becoming available at price points that fit within even relatively humble budgets, and many are designed with the flexibility to serve as studio or field cameras and to operate in Standard-definition (SD) or HD. Some churches have opted to make the move to full HD capability, whereas others have implemented HD-ready production systems with the exception of cameras—planning to continue work in SD until their budgets or the still-dropping price of HD cameras make the investment feasible.

Format—SD or HD?

The move to HD in the worship-oriented broadcast environment is primarily the result of a widespread demand for HD content across all broadcast genres, which in turn stems the rapid adoption of HDTV sets across the United States. Local stations in virtually every major market now produce and broadcast local news in HD, and almost daily the offering of HD channels available on cable and satellite expands. Viewers have become accustomed to this new standard for video and audio quality, and they expect the same level of quality whether watching live IMAG video during the service, a television broadcast from their favorite church or ministry, or a DVD production of the service. Production values are as important today in the worship environment as in any other area of media communication. The quality of the presentation is no small part of the viewer's experience of the message.

Because most television viewers today still tend to associate widescreen programming with HD content, a church may be able to continue working in SD, but at a 16:9 aspect ratio, and give most people the sense that they are



Crystal Cathedral Sanctuary. Photo courtesy of Brad Olander.

watching HD. In moving to HD, however, the church does achieve better resolution and greater flexibility in how and where it can display video. For the purpose of archiving for later production or repurposing, HD capture also ensures the long-term value of recorded services.

The first consideration in planning for HD is whether to work in 720p or 1080i. When content is being created for broadcast, the best approach is to produce it in the standard being accepted by the cable operator or broadcaster. For churches whose production are not sent out for broadcast, 720p likely is sufficient—and it can be repurposed more easily than interlaced HD content for Web- or DVD-based distribution.

Staging and Presentation

The choice of recording format has a direct impact on the broadcast of live events because elements such as staging and presentation are very different, depending on how video is captured and how it is being distributed. The layout of many worship spaces is complemented by the widescreen format, but camera operators may need to practice and adjust to composing shots for a 16:9 aspect ratio. The wider shot may show parts of the church that were never on-screen before, so the worship area needs to be adapted to suit the recording and/or output format. Whether working in SD or HD, the production team must be aware of how on-stage elements frame the speaker and whether or not a widescreen production may at some point be trimmed for DVD release or conversion for 4:3 SD display.

Switching of the program also will differ according to how video is being broadcast or distributed, with each type of program having a unique function and feel. A service being switched for IMAG likely won't be suitable for broadcast, DVD distribution or even simulcasting. IMAG requires little switching, simulcasting tends to use close-ups with

only a few broader shots for context, and television and DVD programs tend to use a variety of close-up shots—a person opening a bible or taking notes—to provide a more complete picture of the service. This last undertaking is the most complex and requires a strong team effort to be successful.

Lighting

Lighting is challenging in any environment, and those churches working in HD will find that higher-resolution recording can demand more than a church's existing lighting system can provide. Furthermore, the beautiful natural light in so many churches actually makes it more difficult for cameras to capture good images. Use of lighting techniques specific to the recording format and—as much as is possible—the output display helps to ensure that the speaker, stage or set really is shown in its best light.

When live video is being incorporated into live services at alternate sites, it also pays to assess how well the incoming picture meshes with the target environment. It often requires special care in lighting and camera position if the pastor or minister is to have a natural look—the right size, perspective and coloring—on screen.

Audio

Though the spoken message is delivered through audio, houses of worship rarely give audio the attention it deserves. Audio is best addressed in early planning stages, when the aid of acoustical engineers can determine ideal fixture placement, sound baffling, types of surfaces used and the shapes and location of walls. Churches must put in enough equipment to support a good audio mix. While a PA system requires only the voice of the pastor, audio for a broadcast must include at the least the pastor's voice and the response of the audience. To work with a good recording feed, the production team needs a console that can handle all the usual PA inputs, as well as additional inputs that round out the service.

Effective communications among staff members during live production generally requires a solid multichannel communications system. The audio, video and lighting staff must be able to communicate without their words getting intertwined. Good communications simplify weekly production and provide important functionality during special events. A robust system will provide enough capacity for a main path and all other conversations simultaneously.

Broadcast Infrastructure

The best time to plan for a broadcast installation is long before the first shovel hits the ground. Production operations require not only space for the entire team to work comfortably with their equipment, but also the cabling, HVAC and power systems that allow equipment to function properly. With both short- and long-term goals in view, a church can invest once and put in place a production infrastructure that will last and support future growth. It's far more costly to tear up concrete after the initial install in order to add conduit than it is to put in extra conduit during the planning phase. Once again, professional advice from a systems integrator can help a church identify the best solution for meeting its budgetary needs and broadcast goals.

The choice of recording format has a direct impact on the broadcast of live events because elements such as staging and presentation are very different, depending on how video is captured and how it is being distributed.

Conclusion

With any type of broadcast installation, the quality of the planning and design stages has a direct impact on the quality and suitability of the end product for the user's goals. For houses of worship, the process also involves educating the pastor and congregation, seeking out their input, and finding a way to filter and use that information in making intelligent decisions about the purchase of broadcast and production systems. A professional consultant should be equipped to ask the right questions in building a system, provide expertise in product selection and integration, and communicate freely throughout the installation to ensure that the goals identified at the front end of the project will be realized at its completion. The time and money saved are well worth the investment, because a successful installation should be done once and done right. ❖

Pat Thompson is the senior vice president of engineering for TV Magic, a full service broadcast and A/V company specializing in Engineering Design, Integration, Equipment Sales, Service and Support for a host of applications from broadcast to production to presentation systems and beyond. For more information, visit www.tvmagic.tv.

Cottonwood Church

Cottonwood Church has installed an HD-ready production system at its new 32-acre facility in Cypress, Calif., to support live production and recording of services. As a result, the church's media department now can provide an enhanced experience for the congregation on Sundays and also create higher quality masters of the service for post-production and distribution for SD and, in the future, HD broadcasts.

Over the past 25 years, Cottonwood has grown from 50 members to more than 6,000 members attending weekly worship services, and its new worship center, children's ministry, and student ministries/school of ministry allow church members to gather together in the same space, at the same time, for worship services. In creating this space, the church chose to build a production infrastructure that could support its ongoing A/V and SD production operations while providing for an easy, cost-effective transition to HD when the time is right.

Systems integrator TV Magic designed the new facility's HD-ready production system to support five to eight cameras on a switched feed and multiple ISOs recorded to video tape machines or servers. The system incorporates a Grass Valley™ Kayak switcher, Miranda multiviewer, Pixel Power CG, Avocent KVM switch, and custom consoles and racks. In addition to installing a production booth for control of the video production system and A/V display, TV Magic integrated the control system with the new facility's audio and video projection system to support the house mix.

The HD-capable production system today supports the Cottonwood television ministry and its signature program, "Answers with Bayless Conley," which is broadcast across the United States on TBN and regional channels and distributed globally on CNBC in Europe, North Africa and the Middle East, and on PCTV in Mexico.



This photo is of a live service at Cottonwood Church in Cypress, Calif., and is courtesy of Mary Lundin.