

STREAMING VIDEO FOR LIVE EVENTS

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The Evolving Video Landscape: better, more affordable tools to take your streaming to the next level

By David Keene

Streaming with a combination of hardware and off-the-shelf software (which allows one to effectively do a live switch for streaming from multiple cameras), or from a dedicated streaming device from a single source, is now more affordable than ever. And the results are better, if you use the right hardware/software tools.



Video production for live events has gone through such rapid technical evolution in recent years that seemingly countless trade shows, magazines, and web sites are devoted to case studies, new gear, and trends. But almost all the evolution centers around a common theme: more advanced and yet lower cost technologies have ushered in what would have traditionally been thought of as unattainable by most video production companies and end users. Live event video production companies are now expected to offer the kind of sophisticated video presentations that were historically the domain of network television production and big-budget concerts or studios. At the same time, consumers—fans at a concert, or church attendees for example—are now used to such high-quality picture and audio at home, at the office, and on the move, that their expectations today are much higher than ever.

The bottom line: on both the supply and the demand side of the equation, there's pressure to bring the best video tools to the task, at a reasonable budget. In this eBook, we look at some new tools that help raise the bar for delivering better video for the attendees at a live event or venue, and beyond. Why "beyond"? Because streaming live video is now on the agenda of forward-looking producers of live events. When you create multi-camera presentations, it's now expected that you can capture ISO feeds from all cameras and stream that live feed to remote viewers, if needed. Everything that you produce or broadcast should be live to stream. And today it's easier to achieve the workflow you need to produce and stream complex events or presentations without a hitch. These advancements are not just intriguing on a technical level, they point to new revenue opportunities for video production companies—and for the increasing number of AV companies that are now adding live video services to their other AV offerings.

Trends in live event video—for the largest outdoor musical festivals to your local church—is the focus of this eBook. We look at how streaming live concerts is becoming a valuable asset for concert producers, staging companies, and artists. And how major video production companies can now bring streaming, recording, and archiving into one small box. And how, for example, on-staff AV personnel at a church can record and playback live while the show is going on, and immediately have a recorded segment to hand off to an artist who may want a copy of their performance for another purpose.

The best way to tell the story? With case studies, from the field—including from our partner and co-sponsor of this publication, AJA, who are ushering in new and better ways to handle video for IMAG, live broadcast, and streaming. ■

The Future of Music Festivals

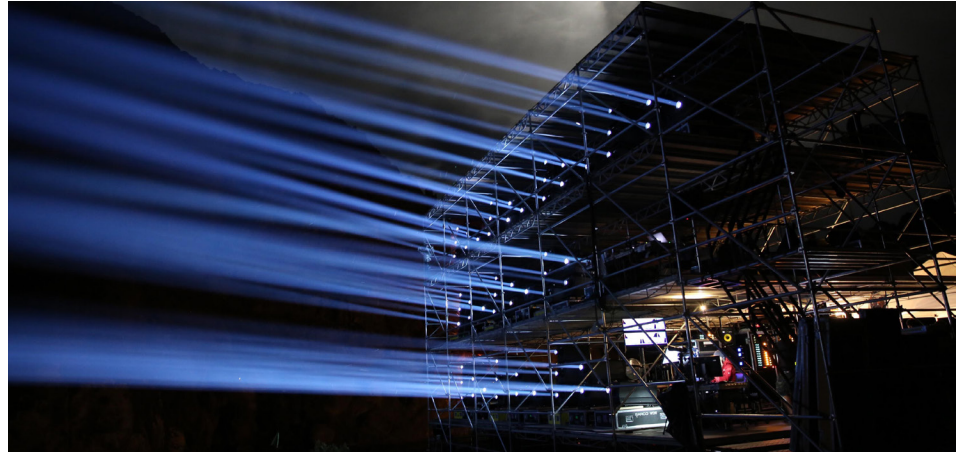
Disparate Trends— Including Streaming and Other New Tech Tools—Power Growth of the Festival Phenomenon

By David Keene

It's been one of the most dramatic changes in the concert landscape in the past 10 years: the spawning of hundreds of new music festivals worldwide. There are of course many reasons for this: the need for musicians to augment shrinking revenues from CD and streaming sales/royalties with live performance fees, the popularity of festivals as a way the fan can see 10–20 bands or more over 2–3 days, and the benefit to promoters from both the scale and quantity of performances. With— according to SXSW— more than 32 million people attending at least one music festival a year in the U.S., they have become “a mainstream pastime of our culture.” (And according to Nielsen reports, most fans travel 903 miles on average to be at a festival— an amazing stat.)

This phenomenon was the subject of a special panel session, *The Future of Music Festivals*, at the last SXSW Music festival and conference in Austin. And it's the subject of much future-planning for industry at large.

Behind the festivals trend as it played out in recent years in the U.S. is the phenomenon that music concerts at many festivals are no longer just “concerts.” They are shows with high production values, demanding big ticket prices. Concert ticket prices are up significantly and there are more outdoor events (because most music festivals are outdoor events). Many are major events with massive video technology that goes beyond IMAG to create elaborate visual experiences for all attendees, even in huge outdoor venues. Big production values are the norm. Stages now hold much more equipment, including massive LED screens (often 40 feet high or more), the latest line array loudspeaker rigs, and of course all the other audio, video, and rigging gear it takes to entertain increasingly jaded fans who now have literally hundreds of festival choices



each season. Prime example: Milwaukee, WI's Summerfest, billed as The World's Largest Music Festival. Hitting its 50th anniversary this year, the event stretches over 11 days, serving up more than 800 acts on 12 stages as it provides more than 1,000 performances, with 900,000 people in attendance. The kinds of acts vary greatly across all genres, but also all levels of success; headliners last year at the Marcos Amphitheater included Paul McCartney, Sting & Peter Dinklage, Luke Bryan, Pitbull, Selena Gomez and Weezer, among others.

But with the explosion in the number and kind of festivals, we have many trends going at once. The big are getting bigger. But there are also other trends. For example: a new festival sub-trend is emerging: The Micro Festival. A prime example is the new *Starry Nites Festival* which debuted March 18-19, 2017 on a 42-acre ranch in Santa Barbara, CA. Intended to attract 3,000-5,000 attendees, the lineup included Alan Parsons, The Kills, Cat Power, The Dandy Warhols, She Wants Revenge, Black Mountain, Teenage Fanclub, Strawberry Alarm Clock and 30 other artists. *Starry Nites* was co-sponsored by Roland, BOSS and V-MODA, and presented by Desert Stars Festival, Starry Records, and Shiny Penny Productions.

As much as we all love big production values and the latest line array and high lumen IMAG technology at the big festivals, what is the future of music festivals? Will the rise of niche festivals take away from the bigger festivals? Not likely. Big production value festivals will continue, but it behooves anyone involved in outdoor concerts and festivals in particular to listen to what's discussed at SXSW— the conference track is known for shining a light on strong new trends the rest of the country doesn't immediately see.

SXSW music festival is a long-established indoor (mainly) event, and while like many festivals they've promoted and encouraged new acts, big names to participate in the event over the years include Snoop Dogg, Lady Gaga, Kendrick Lamar, Bruce Springsteen, Quincy Jones, Pete Townshend, Lou Reed, Smokey Robinson, Johnny Cash, Elvis Costello, David Byrne, Daryl Hall, Mick Jones, Tony James, Neil Young, Seymour Stein, Shawn Fanning, Courtney Love, Sean Parker, Chrissie Hynde, and many more top acts from all corners of the music business.

But as befits SXSW also, they often prompt professional conference attendees to think outside the box. The starting premise for the discussion at the *Future of Music Festivals* panel

STREAMING, VR TAKE LIVE EVENTS BY STORM

According to a major report by EvenBrite, *The Future of Live Music—9 essential trends from industry tastemakers*, for remote fans streaming live shows could become a new national pastime. And for concert producers, staging companies, and artists live concert video streaming is proving to be a valuable asset.

“Today’s audience wants all-access, a direct line into the lives and content of artists they like,” said Marco De La Vega of Mezzanine, a San Francisco venue, in the report. “Several artists have now built their careers using this as a format to monetize and engage... Exclusive branded content, interviews, secret shows, and showcases have become the norm.”

“We’ve seen the demand for festival content skyrocket,” UphoricTV founder Parag Bhandari told Eventbrite. “Festival attendance and revenues are meeting and surpassing some of the largest sporting events in the world. Being able to stream, cover, and bring these amazing experiences to festival fans around the world allows for newfound monetization for festivals, brands, and advertisers alike.”

And an entirely new market is now opening up: live streaming via virtual reality. Oculus Rift, a new virtual reality system owned by Facebook, instantly sold out during its pre-sale despite a \$600 price tag. Leading research firm Gartner estimates that a total of 25 million virtual and augmented reality headsets will be sold to consumers by this year.

So what does this mean for live music? Using “augmented reality to create an activation” could soon be the norm, according to Marc Weinstein of 90sFest. Virtual reality will allow fans to re-watch their favorite sets as if they were onstage, or immerse themselves in the crowd, escaping to an entirely different world for a few minutes.

The bottom line is that video streaming will drive more attendance at live shows — not less. “Coming together in real life will continue to prevail,” said Julia Hartz, Co-Founder and President of Eventbrite in the report. “Now with virtual reality devices like Oculus Rift, virtually anyone (no pun intended) will have the opportunity to participate in a live experience from the comfort of their couch. Virtual experiences actually drive more interest in attending.”

at the 2017 SXSW conference was that despite the advancements in technology, sound engineering, and digital media, large festivals are perceived by some fans and artists as having become generic, boasting similar lineups and experiences.

“So how can we reshape the future of music festivals?” was the question the session explored. The panel assembled some top festival players helping to redefine the music festival experience—cultivating and supporting local music scenes, sourcing unique performances, and creating new economic opportunities for musicians, while fostering new visions for what a music festival can be for fans and artists. With moderator Doug Freeman of the *Austin Chronicle* moderating, the panel consisted of Jeff Vetting of Vulcan Inc, who is launching the new *Upstream* festival in Seattle; Robin McNicol, one of the managers of the huge *Bonnaroo* festival; and Christian Morin, a top festival promoter in Germany.

All of the panelists coalesced around one theme: big festival lineups are more similar than they used to be— one reason being that a few big festival promotion companies are buying up others. But even as the festival models morph, there is through it all, for the past 5-10 years the constant that festivals have been “propping up” the music economy. In other words: yes, the decline of revenue for artists and promoters from recorded or streamed music has everyone on the road and the festival is the most date- and artist-packed platform there is. The panel delved into ways that festival business models are evolving to meet new challenges on both the provider and artist side.

Jeff Vetting—whose new *Upstream* festival in Seattle is an “indoor” festival i.e. with performances scattered around clubs and other indoor venues (similar to SXSW in Austin)— sees a new role for festivals helping artists “make money after they play, to continue to make money... we want to help the emerging artists, not just have them play our stages.”

Christian Morin echoed all the panelists in reminding that “you can’t finance the festival from just the ticket sales, so, you need either public money, or corporate sponsors.” That public money he referred to is an EU, or German, phenomenon. Freeman joked that “we don’t know anything about corporate sponsorship...” referring of course to the fact that at SXSW in Austin corporate sponsorship money is everywhere.

“People tolerate the corporate sponsorship much more now,” said Robin McNicol. And Vetting said that the goal now is to “turn that into a positive experience—the model does not work without it.”

On the technology front, don’t think this was a back-to-basics only discussion. Live video streaming from the festival is one tool that all the panelists— at least all the American ones—said was an increasing trend for festivals. And all agreed that live video streaming does not cannibalize live attendance.

“Video streaming is a sponsorship thing,” said McNicol, “and it does not stop people buying tickets.”

Vetting said that he is now putting together streaming deals for the *Upstream* festival. In addition to more live video streaming of festivals, other tech tools that came under discussion were wayfinding (digital signage) for fans on site, RFID ticketing (to combat counterfeiting), and an increase in apps that tell fans on site who’s playing where and when and can even be set up for digital “tip jars” for the artists. ■

Georgia Megachurch Streamlines Live Production Without a Hitch

Victory World Church is a megachurch headquartered in Norcross, GA, with two external campuses, along with a thriving online constituency serving the more than 8,000 members who regularly participate in weekly services either in person or via live feeds. A host of products from AJA Video Systems ensure a reliable workflow is in place to produce the church's highly complex productions without a hitch.



Chris Winnie is the lead video engineer at Victory World Church and oversees the technology infrastructure for the entire organization. "Everything we broadcast is live to stream; there is no produced content," he said. "We use a lot of AJA equipment because it delivers the quality and stability that this level of programming demands."

Victory World Church works closely with AV integrator Clark and each new technical leap at Victory World Church generally involves three to four months of planning and execution. "We've been burned in the past using equipment that wasn't up to par, so when we do builds, we go with top-of-the-line equipment and never cut corners," said Winnie.

A typical Sunday service is captured by four Hitachi cameras—one on a jib and three on tripods with operators—along with three mobile Canon cameras with operators. All of the mobile stage cameras go into the AJA FS4 for frame syncing and format configuration to 1080i at 59.94. Clean feeds from all of the cameras go into a combination of AJA Ki Pro Racks and Ki Pros that are housed both in a server room onsite and offsite at satellite campuses. There is a dedicated fiber connection between all of the campuses, and each Ki Pro lives on the same network for easy file transfers back and forth. Winnie controls

all of the Ki Pro devices via the web interface served from the Ki Pros' built-in web servers, triggering gang recording remotely. AJA FiDO fiber converters are used throughout the facility, mainly to transport signals to the projectors in the main auditorium.

All of the mobile stage cameras go into the AJA FS4 for frame syncing and format configuration to 1080i at 59.94.

Featured onstage, behind the 10-person band, is a 30-foot video wall, along with two 16-foot screens on the left and right side of the sanctuary. The setup is also flanked by four vertical projection pillars, all being fed with real-time content from the Ki Pros via Avolites' AI video mapping software. The screens typically feature a combination of jumpback content, live video, lyric videos, and more. AJA's KUMO 1616 is used to route all of the video to the screen surfaces on and surrounding the stage. KUMO connects to a Hog 4 lighting console to change the video routing and reflect what the AI media server is doing.

AJA ROI region-of-interest scan converters are used to feed three on-stage monitors so presenters can see which content is being played at any given time on screens throughout the sanctuary, communicate with the video director, and also review any related notes during the show. The main video router for the production itself is a Grass Valley Miranda with 512 inputs and 576 outputs that controls all of the audio embedding and de-embedding that goes into the Ki Pros.

A Ross Acuity switcher is used to control video from every source in the main sanctuary and works alongside four computer graphics workstations. The workstations all run Pro Presenter and are directed to display different graphic overlay and lower-thirds content for each of the live streams.

A typical Sunday service at Victory maxes out capacity in the main church that seats 2,200, along with two overflow rooms that seat 900, plus satellite campuses and online viewers. The next project for Winnie is a new control room build-out with the team at Clark, exclusively for the church's online campus to ISO record every camera and destination via Ki Pro Racks.

"An added benefit of the Ki Pro Racks is that we can record and playback live while the show is going on, and immediately have a recorded segment to hand off to an artist who may want a copy of their performance for another purpose," said Winnie. "Our equipment is constantly being updated with the best of what's out there, because at this level of production, there is simply no time for failure." ■



Chris Smith's live streaming setup typically includes multiple cameras fed into a Panasonic board for live switching of signals that are then sent to a laptop running Telestream Wirecast through to HELO, which enables both live streaming online and recording for archival purposes.

From Reggae on the River to the Enchanted Forest Gathering, live streaming has become a new norm on the music festival circuit, opening up doors for Humboldt, CA based video production company Media Apex Productions whose sweet spot is multi-camera live production. With a full project slate planned for the year spanning music festivals and other events that require live streams and archives, the company recently updated its workflow with an AJA HELO for H.264 streaming and recording. HELO allows users to simultaneously stream video signals to Content Delivery Networks while encoding and recording H.264 files to SD cards, USB storage or network-based storage with the push of a button. Supporting a range of professional workflows, the H.264 streaming, recording and encoding device includes 3G-SDI and HDMI inputs and outputs and the power to handle up to 1080p recording formats among other features.

"Before HELO, I relied on a bunch of different applications, including a dedicated laptop just for archiving. HELO brings streaming, recording and archiving into one small box, which has been unheard of until now," shared Media Apex Director, Chris Smith. "All I have to do is plug it in and I'm in business."

Smith's live streaming setup typically includes multiple cameras fed into a Panasonic board for live switching of signals that are then sent to a laptop running Telestream Wirecast through to HELO, which enables both live streaming online and recording for archival purposes. Smith incorporates Wirecast into his workflow to add title graphics and ad content into the live signal.

While working on a recent event, Smith was able to successfully stream hours of content to Facebook and record for archiving in a single stream using AJA HELO. "I love HELO, and have found a dedicated spot for it in my workflow," Smith said. "The way it works with Wirecast and for archiving, it's a second back up. If I have an artist who wants their recording immediately, all I have to do is plug in a thumb drive, and can hand it to them the second they get off stage; it's that easy."

As live streaming has become more popular on the festival circuit for its ability to extend audience reach and boost interactivity, Smith has found a unique niche for himself and Media Apex. "I believe live streaming is the future; it's a next level feeling for audiences," he said. "And on the sponsor side, there's huge potential. I can easily integrate sponsor graphics and ads through my Wirecast and HELO workflow and stream them out to multiple sites like Periscope, Facebook and YouTube." ■

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Chris Smith
Director,
Media Apex



Church of the Highlands Relies on AJA Video Systems for Mega AV Workflows

Founded in 2001, Church of the Highlands is a thriving mega church with 16 campuses across Alabama. Today the church serves tens of thousands of members both in person and online, leveraging a robust video workflow to broadcast live worship and enhance live presentations at its main broadcast campus (Grants Mill), and to record all services at its other campuses throughout the state. The church's average Sunday attendance is 40,000 in person plus an additional 10,000 tuning in live online. Justin Firesheets, Production Director for Church of the Highlands, relies on a variety of AJA hardware – including Ki Pro, Ki Pro Ultra and Ki Pro Rack digital video recorders, FS1 and FS2 framesyncs and converters, KUMO routers, FiDO fiber converters, Mini-Converters, and ROI scan converters – to keep everything moving with ease and confidence.

"We've always been impressed with the quality, durability, and flexibility of AJA gear, which is why we use so much of it," said Firesheets. "It's easy to use which is crucial for a live environment; everyone from staff to volunteers can manage the AJA gear and we typically don't have to worry about any failure points."

Working with integrator Clark, Firesheets has built a technology infrastructure to manage the live production and broadcast needs of the state's largest congregation. Firesheets manages a mixture of staff and volunteers at each location, including a dedicated team for the Grants Mill broadcast campus. There, a typical weekend service is shot on three Sony HDC-2400 studio cameras on tripods and one more on a jib positioned house left, plus a Canon XF205 camera riding on a 15-foot dolly track positioned house right. A confidence monitor is set up at the front of the stage so the speaker can refer to notes or lyrics, plus there's a 55-inch touchscreen monitor on stage to run presentation content. Each side of the stage also has a 24-foot screen with rear projection, and a 450-panel 3.47millimeter LED wall across the back of the stage provides scenic backgrounds and video playback.

Firesheets utilizes between 30 and 35 Ki Pro Racks and Ki Pro Ultra recorders system-wide as the primary devices for recording all services, giving each campus the option to playback a pre-recorded service if necessary. The main broadcast campus has two Ki Pro Ultras to capture the program feed, and ISO capture different camera shots and graphics are recorded to six Ki Pro Rack 1RU rack mounted recorders.

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In addition, Firesheets has two FS1s and one FS2 to embed multiple channels of audio from the broadcast campus; multiple KUMO SDI routers to route feeds from different venues to broadcast online and to other campuses; FiDO fiber converters for long cable runs; ROI region-of-interest scan converts to scale output from computers into its graphics system; and dozens of Mini-Converters to handle signal conversion from SDI to HDMI and vice versa.

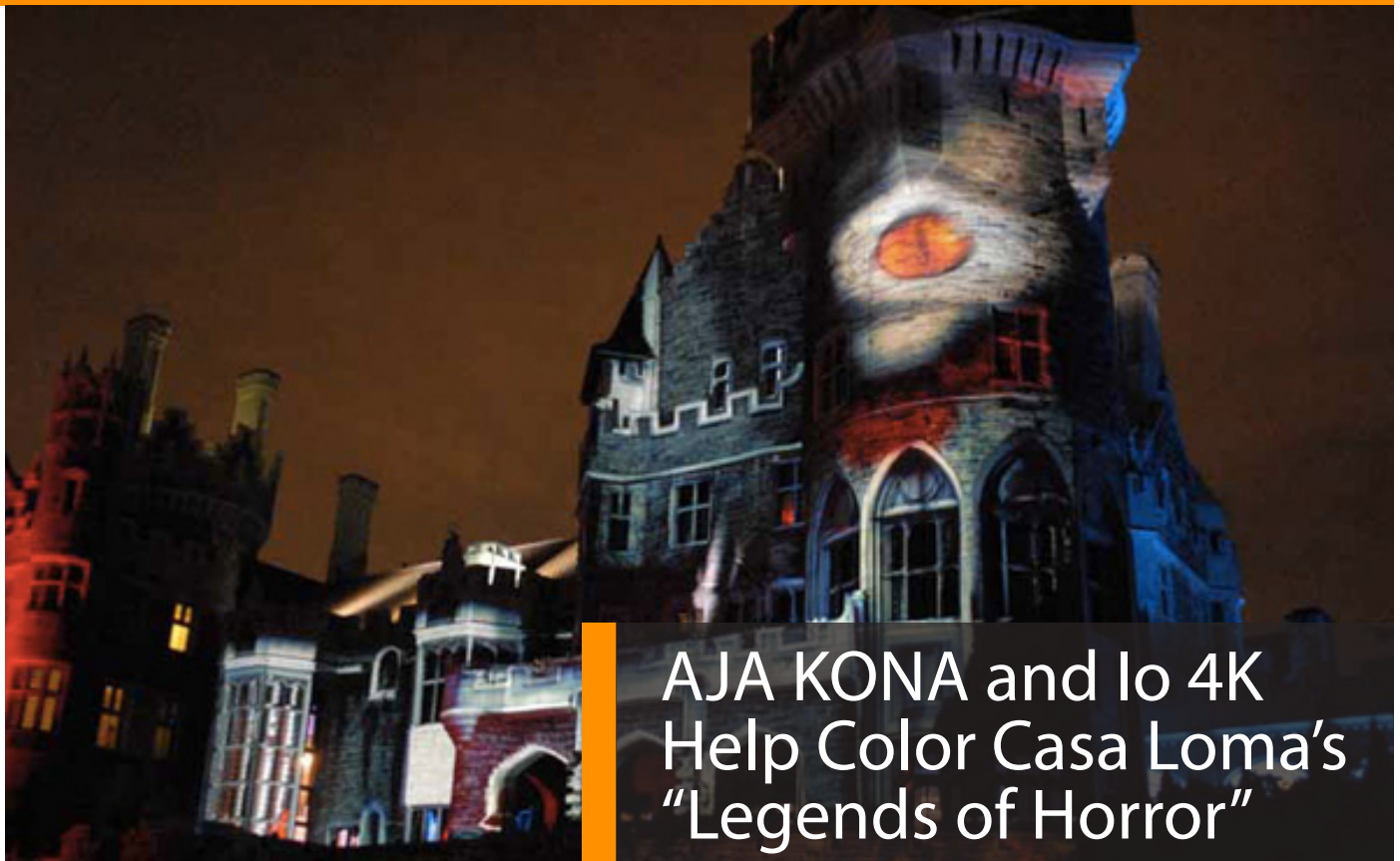
"At the main campus we have five services every Sunday plus smaller events throughout the week, and all of those are captured on some combination of Ki Pro Rack/Ultra units," shared Firesheets. "The FS products are really great for handling signal conversion when we have to manipulate frame rate or format—or really any unexpected needs in production, we rely really heavily on the Mini-Converters for a variety of things, and we feed the KUMO router into our main broadcast router to push content externally."

As the largest congregation in Alabama, and one of the largest in the country, Firesheets is always on the lookout for new technology trends and workflow improvements that will help him stay at the cutting edge. He concluded:

"A church doesn't always have the same budget flexibility as a corporation, so we make our purchases very carefully – we may only have one shot to get it right for the next few years. We're always confident that AJA gear will outlast problems and time." ■

"We've always been impressed with the quality, durability, and flexibility of AJA gear, which is why we use so much of it,"

Justin Firesheets
Production Director,
Church of the Highlands



AJA KONA and Io 4K Help Color Casa Loma's "Legends of Horror"

Built in 1911, Toronto's sprawling Casa Loma is rumored to be haunted, making it the perfect setting for the haunted house experience "Legends of Horror." The promenade theatre featured dressed sets augmented by fog, sound effects and animatronics, bringing the venue alive for this year's Halloween celebration; more than 70 actors representing iconic horror characters like Dracula and Frankenstein and 3D and laser projections took the experience to a whole new level. Production designer, independent VFX supervisor, colorist and editor Clark Graff lent his services to the project, including the creation of intricate 3D projections such as a plague ridden tunnel overrun by rats and dead bodies, a hellish fire, a demon possessed tree and more. AJA KONA 3G and Io 4K and were key in the creation of each projection.

The AJA KONA family of capture, display and mastering solutions for SD, HD, 3G, Dual Link HD, 2K and 4K on a Mac or PC offers maximum connectivity like 3G/HD/SD-SDI, component, and HDMI, along with the flexibility of AJA's superior conversion capability. From KONA IP to KONA 4, AJA's KONA cards provide unparalleled performance and reliability, and support a broad range of creative software.

"I've used AJA products almost exclusively for more than five years because they're reliable, and this project was no exception; it's that simple," Graff shared. "Reliability is worth more to me than anything. If gear breaks on a project like this, especially when it's live and time sensitive, you're up a creek without a paddle. With KONA 3G and Io 4K, I knew I'd be set."

Io 4K is the next evolution of capture and output hardware offering a full set of professional video and audio connectivity with support for the latest 4K and UltraHD devices and High Frame Rate workflows. The power of Thunderbolt with Thunderbolt 3 compatability enables Io 4K to handle a wide range of formats from SD to HD, Ultra HD and full 4K over both SDI and HDMI and support 4K frame rates up to 50p/60p.

From the start of the project, Graff realized that access to electricity would be limited throughout the grounds. He first walked the castle and surrounding gardens with Liberty Entertainment Creative Director Nadia DiDonato, script in hand to determine where each part of the story would take place, breaking it out into 20 different zones. Graff then built a power map to assess the required resources to service all the lighting and 3D projections for each zone, and set out to select, create and refine the projections.

The imagery was processed on a desktop system outfitted with AJA's KONA 3G, running Premiere and SCRATCH for greater stability and color fidelity while monitoring.

Graff collected footage that served the story, mostly stock, in addition to projection mappings from Big Digital. Once approved, he previsualized each projection and colored it to fit a range of traditional and nontraditional surfaces – from plasma screens to mosquito netting, a tunnel, tree and more. AJA KONA 3G capture and playback cards were integral to the previsualization process, with two systems running Adobe Premiere and ASSIMILATE SCRATCH. Using AJA's mobile Io 4K capture and output device via Thunderbolt 2, Graff was also able to preview 3D projections in UltraHD. The imagery was processed on a desktop system outfitted with AJA's KONA 3G, running Premiere and SCRATCH for greater stability and color fidelity while monitoring.

Once finalized, projections were fed through a range of projectors located throughout the castle and surrounding gardens – including the Barco HDX-W20 Flex (4), Casio XJ-UT10WN (8), Casio XJ-2600 (4), AAXA LED Android (24), AAXA M4 Mobile LED Projector (1), and OPTOMA ML750ST (5) – to eight plasma screens and other surfaces. Antari fog machines, 116 speakers, more than 300 lighting fixtures, actors and wicked costumes rounded out the experience. ■

AJA ROVOCAM CAMERA SYSTEM SIMPLIFIES CASA LOMA EVENT AV

Year-round, Casa Loma has indoor and outdoor spaces suited for private and corporate events, and the facility houses a modern AV infrastructure connected via CAT 6 cabling. Each summer, the castle opens up its glass pavilion for a series of live concerts. Ticketholders watch performances live from the pavilion, or view them on an LED video wall located outside. To improve the quality of the on-screen content, LEG turned to ESG Show Services Owner Wes Thuro and 4NR Tech Production Designer and Manager Clark Graff to design a new workflow centered on image magnification (IMAG).

Graff brought in AJA RovoCam cameras and RovoRx-HDMI receivers to replace existing HD PTZ cameras, which had become increasingly problematic as rotating AV crewmembers would plug in the wrong RJ45 connection and blow out the cameras.

RovoCam is AJA's first compact block camera for industrial, corporate, security, ProAV and broadcast applications. RovoCam's HDBaseT interface supports control of 4K/UltraHD video, power, stereo audio and RS-232 over a single Cat 5e/6 cable. AJA RovoRx-HDMI is a complementary UltraHD/HD HDBaseT receiver with integrated HDMI video and audio outputs specifically designed to receive RovoCam's output.

"A certain degree of operator error is expected when working with transient crews, but RovoCam is foolproof; it's intuitive to set up and use," explains



Graff. "Its HDBaseT interface makes it easy to get it right the first time; there's simply one cable, so you plug in and you're ready to go."

Three RovoCams mounted to remote pan and tilt heads located on the left, right and center of a support beam inside the pavilion capture performances. Using an AJA RovoRx-HDMI receiver and RovoControl software, the AV team controls the units from the front of the house (FOH), where the mixing control and lighting console reside. Although each camera shoots UltraHD, the output is HD, with RovoControl's ePTZ functionality enabling IMAG. A region of interest (ROI) frame is selected from the UltraHD raster and output through a Roland switcher to a 20-foot by 9-foot LED video wall outside in 1080p, giving attendees a close-up of the performers.

"The image quality that the RovoCams capture is fantastic, especially compared to other cameras on the market that can cost three times as much and only offer an HD image. I also know they will work, and that's what matters most, because you don't get second chances in a live setting like this," shares Graff. "I appreciate that the RovoCams are point and shoot, and the convenience of HDBaseT and a single cable is great; the camera is unlike anything out there."

AJA Tools for Streaming

Standalone Streaming and Recording



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Multi-Stream Ingest over Thunderbolt 2 and 3



Io 4k Plus

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