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Where Do You Put Your Catalyst?

The industry goes for digital media in all sorts of applications

by Sharon Stancavage

When High End Systems' Catalyst media server was released in 2001, no one knew how the industry would receive it—and for good reason; as a software video tool for lighting designers, it gave them creative options that were previously unimagined.

"Catalyst has empowered the visualists—the lighting designer and the video director—to do much more, much more easily, in real time, on-site. It's a real integration of lighting and video," says Lowell Fowler, chairman of High End Systems.

Four years later, Catalyst is popular among designers in the concert-touring market. However, it can be found in other applications, including, says Fowler, "houses of worship, corporate events, theme parks, television awards shows, sporting events, and other situations where an audience needs to be reached with a method of greatest impact." So what about all those other applications? Where do you put your Catalyst?

Catalyst goes to church

To some people, the words "Southern Baptist" and "media server" don't naturally connect. But at Fellowship Church, near Dallas, they work hand in hand.

Fellowship Church's media-heavy services reach around 18,000 people a weekend. "They have a full in-house media staff," says lighting designer Andrew Dunning of Landru Design, who was hired to upgrade the church's lighting. "They do all their content in-house—everything from sermon notes on the lower third of the screen to backgrounds behind the pastor as he's speaking. They have very high expectations, and have a high production quality."

The church has a good-sized moving light rig, as well as two standard left/right projection screens and a 30'x 20' roll screen

at center. The media staff wanted to use eye candy, so Dunning turned to Catalyst. At first, he thought the church might be apprehensive about the technology. "I thought we'd just put some images up on the wall and leave it at that," he explains. However, he adds, "they provided some



pretty edgy content and the wilder I could get, the happier they were (photo, below)."

One notable effect that Dunning created with Catalyst was a pair of eyes, projected onto a white silk drape hung just upstage of the proscenium (photo, pg. 69, bottom). "The church's media staff came up with the concept and provided me with a left eye and a right eye," he says. "The eyes looked around the room and eventually contained B-

roll footage relating to the new sermon series. The curtain then dropped, revealing a live band. Catalyst allowed me to position, orient, and keystone-correct the eyes."

For a conference held at the church last year, Dunning also used Catalyst for large-scale scenic projection. "We used imagery on the walls; they also had some large three-dimensional scenic elements that we were able to project onto. Because of the keystone correction and masking, it actually made it look like the projections were inside the scenery." One image was a face of Jesus that Dunning sourced himself. "I saw it in the music pastor's office; I asked for a copy and scanned it," he says, adding that importing content into Catalyst isn't difficult: "You put a file in a folder on the server, you rename it with a number, and Catalyst can use it."

Dunning is also a fan of keystone correction. "Folks get caught up in what I call 'feature-itis.' There are media servers out with more layers and more features, but if a user can't do simple things, like keystone correction, you've lost one of the main advantages of this technology," he says.

Catalyst training is often available in Austin or Los Angeles, courtesy of High End Systems, or in London through Projected Image Digital (the latter company also has a Catalyst training video available for a nominal fee). However, Dunning didn't find any of this necessary. "It's very user-friendly," he comments. "Catalyst is just like an intelligent light—you can do some fairly intricate things that take time to learn, but in terms of just getting started with it, you don't need a course." He did provide some quick on-site Catalyst training for visiting lighting designers at a recent country-music event he designed, using a Catalyst server: "Most of the guys said they didn't know how to use Catalyst and therefore didn't



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want to use it. But after about two minutes with them, showing them some very easy things, they all ended up using it in their shows."

Catalyst at the theme park

When the Tower of Terror attraction was slated to open at Disney-MGM Studios in Orlando, Florida, the attraction's producers wanted something spectacular to wow the patrons. "The idea is that, while a group of people are taking a ride in the elevator, it's struck by lightning, and then the elevator goes into the Twilight Zone," explains Brian Gale of NYX Design, who handled the special-event lighting for the attraction. "We came up with some ideas on how to make it look like the front of the building had been hit by lightning, so I designed a pyrotechnics scheme, a projection scheme, and a lighting scheme to create that event."

From a projection standpoint, Gale had two choices: Catalyst or PIGI projections. However, "The costs for both technologies was the same, but you couldn't animate [PIGI] or make it editable in the field," he says.

Gale designed an elaborate system that included a myriad of pyro effects, the architectural lighting of the building (designed by Walt Disney Imagineering lighting designer Lynda Montgomery and featuring color-changing HID units), and a variety of Vari*Lite VL2416 and 3000 units, 70K and 250K Lightning Strikes strobes, and Catalyst. "As the pyro climbs up the building, we use the Catalyst projections on the face of the building," says Gale. To achieve the effect, he used two DLP 28sx Light Engines placed on an adjacent building 250' away. "The projection covered the whole face of the Tower," Gale explains (photo, pg. 68, center).

To create the illusion of electricity moving up the hotel, Gale had a variety of ideas in mind. "We wanted really animated effects—we wanted it to look like an aurora borealis on the front of the building," he says. Then, he learned, "you can't get free clips of the aurora borealis—you have to pay tons of money to get them." At any rate, genuine aurora images wouldn't work, because their largely horizontal configurations wouldn't sufficiently cover the vertical building. So, he says, "we created our own version [in Catalyst] using arcing plasma, as well as an oil-and-water kaleidoscope gag."

Next, Gale says, "We took a film clip from Artbeats [a source of royalty-free video imagery] of a Jacob's-ladder arc of electricity that

jumps across the screen from side to side, and some standard arc-type clips, overlaid them on top of each other, flipped them, and manipulated multiple layers until we got something really interesting and cool." Movement was important: "We used mostly electrical sparks and electrical arcs all over the front of the building for the actual reveal." Catalyst enabled Gale to transform his clips and stills to create the effect of lightning bolts and electricity running over the surface of the building.

The ability to create content is essential to Gale. "With any media server, it is critical in making the show look right," he says. "With Catalyst, you can take the same media files that other people have used, but, by processing them, changing the speed, scaling them, and changing the colors, you can create new material out of it that doesn't look like the standard imagery," he states.

Catalyst has a distinct advantage over other media servers, Gale says. "I use it for scenic and effects projection, and consequently, keystone control is critical." Catalyst also features audio, which Gale supports: You can play audio from the media server, so you don't have to sync outside; this is a great feature."

Catalyst in Vegas

An invitation-only, high-roller New Year's Eve bash at the Bellagio Hotel and Casino in Vegas should include several very basic elements: Well-dressed men and women sipping expensive champagne while listening to the best live talent, along with some spectacular extras. For last year's New Years Eve celebration, J. J. Wulf of Wulf Designs combined lighting and projection systems to enliven the scenic design. "I wanted to incorporate video to create a living and ever-changing atmosphere, instead of the basic flash and trash," he says

Wulf used two Catalyst version 3.3 media servers in conjunction with three Christie 10K projectors, five 5K Sanyo projectors, and ten High End DL.1s (the latter is High End's combination moving light/digital projection unit). The Catalysts interfaced with a Folsom 1604 video switcher, allowing Wulf to send four separate signals to any group of fixtures or projectors. This flexibility was important, he says: "Even though we designed plots and made video signal-flow diagrams, we really weren't sure what we were going to do until we got there [photos, above left and top of pg. 68]."

The stage featured a silver metal-beaded screen. "Because it was silver, we weren't sure if it was going to take color like a white bead would," says Wulf, "so we illuminated it from the side with the DL.1s, and it took the light quite well."

Next, Wulf says, "We had many spandex screens that arched away from the walls. They ranged in height from 13-20'." Spandex isn't necessarily an inexpensive design solution, but, he adds, "You can't really make customized sizes with standard screens, and, in Catalyst, it's easy to fit images to non-standard screens with digital shuttering. It's like a Leko, where you can shutter light and images in, but better."

For the walls, Wulf used a total of eight projectors and six DL.1s, all linked together through Catalyst. "Originally, the plan was that each section of wall would look the same; however, after we set up our first couple of projectors, it bothered me that everything ran the same way. We inverted the image at the projector so it was a mirror image. In other words, instead of having the same image repeated,



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there was a reverse image on the screen next to it, creating a more interesting visual effect," the designer comments.

Wulf also made use of two 33' x 17' Soft-LED curtains from Main Light Industries and Element Labs VersaTubes, which are also LED-based units. "We placed the VersaTubes in the truss and wrapped them in diffusion, so, instead of having the truss turn one color, we could zone it out and do chases from top to bottom, inside to outside, so every single truss had its own identity. We sent a separate output of Catalyst to the VersaTubes, which made the truss look like there were many LED units inside, even though it was only two tubes," he concludes. Consequently, using Catalyst to control the LEDs gave the trusses a limitless variety of looks.

The Soft-LED curtains in general were a bit of a challenge for Wulf from a content standpoint. "Real video doesn't really work well on them because they're so low-res. However, flash files—content that's more simply animated—looked to be the best choice. So we isolated imagery in that style for the LED curtains."

Wulf had a similar situation with the VersaTube content. "A normal movie that you play in Catalyst [has a resolution of] 720 x 480; we were using a height of only 32 pixels; you couldn't play a normal movie and see any real effects." To solve the problem, he brought in Justin Vaden, a freelance video-content creator, to create smaller movie files that played well in the VersaTubes.

The project also made strong use of IMAG. "One reason that I used Catalyst was because of the multiple outputs and live video inputs. I can take the camera feeds, manipulate them, and then send them back out to different projectors or to all of them. It allows us to create many other effects involving live video. This way, it doesn't look like the same IMAG all night," Wulf remarks.

Wulf is a longtime Catalyst user who feels that the technology is ready for corporate, touring, and other show uses. "It doesn't cost any more than having a few moving lights," he notes. He is also a huge fan of Catalyst's keystone-correction: "You can move images across an area with a DL1 and keep its aspect straight and correct." As for content creation, a worry for many new users, he has an answer: "It's very easy to change and manipulate the stock footage so it looks like you've never seen it before."

Catalyst in prime time

In live television, awards shows can make for the biggest production nightmares. They're complex, they have many moving parts and visuals from a variety of sources, and, in some cases, and there isn't much time for rehearsals. This past fall, the Radio Music Awards, held at the Aladdin Amphitheatre in Las Vegas, featured large-scale projections created by Catalyst (photo, opposite page, top).

"The video system consisted of five screen elements—two oddly shaped main rear-projection screens from American High Definition, LED arrays from Screenworks video, and two eyebrow elements, which were long, 20mm LED strips above the set," explains lighting designer Christian Choi, who was handed the Catalyst responsibilities for the production. "This year, the video system was smaller than in the past, so I had seven Mac G5s under the table that were spec'd to have one four-drive zero-striped 10K WD Raptor 74GB raid array each and outputted eight channels of broadcast quality-digital playback," he explains.

Along with handling Catalyst live during the broadcast, Choi was also in charge of content creation. "This year, everyone wanted to go with the less-is-more approach and the underlying theme of the show was supposed to be static fractals," remarks Choi. "They didn't want much, if any, movement. However, there's nothing that says you can't create something that would fit more appropriately and see if you can sell it to them," he adds. His idea: "I tried to stay within the theme of 'less is more' and 'fractals' as much as possible, but I had some backup imagery for the more energetic numbers, which I ended up using."

Working with Catalyst, Choi says he's not restricted to imagery on videotape: "If it turns out the talent doesn't like the tape, you've got to re-edit it overnight. That takes a lot more time and resources than just calling up another piece of your 5000+ video library and building a new cue."

In addition, he says, the flexibility of Catalyst is still a novelty in television. "Apart from the gargantuan number of utilities and effects that Catalyst gives you to change the appearance of a single piece of video, the video industry is still surprised at the notion that you can easily re-aspect, move, or rotate a video to fit within a different-



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sized screen, or that you can turn down the screen's intensity, all without any extra equipment," Choi comments. "You cannot do this as easily with standard video equipment without incurring extra and sometimes massive costs, especially on a show of this scale," he concludes.

For the RMAs, the onstage video elements proved to be a challenge. "The two main rear-projection screens were different sizes and different aspect ratios as well as skewed rectangle shapes. I had to create special masks, based on the scenic drawings to create most of my rear-projection video to fit within these odd shapes," he notes.

Also providing challenges were the LED eyebrow elements. "They needed two Catalyst inputs each—in other words, four feeds for two brows," Choi explains. To facilitate the video looks, critical adjustments of the position, scale, and color attributes of the LED eyebrows were done by the LED operator. Once that was completed, the Catalyst units were used to create a seamless image. "When you have two Catalyst sources that need to be perceived as one image, you need to run half of the image off the first screen and the other half on the second screen and calibrate the position, scale, and aspect so that they both meet seamlessly in the center, where the two mediums meet. To do this with Catalyst, you just position and scale the first half of the image so that the left edge meets the left edge of the LED strip, then you position and scale the second source so that it firstly continues on from the first source seamlessly and secondly meets the edge of the right side."

Choi also had the chance to prove Catalyst's worth as a live input device. "The director wanted the ability to pipe video to me and play it in the side-screen clusters," he says. This sounds easy enough, but usually it would be handled by the show's technical director. "I used my router to switch in the close-ups of the winner's speeches on the screens behind [the podium]. Sometimes there would be a whole band on-stage and, each time one of them spoke, I'd grab hold of my input layer and slowly pan it left or right and scale it to proportionally fit the speech givers," he says. Also, "RMA director Ron De Moraes wanted the image to



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look solarized, which basically maxes out the levels and inverts the colors, as well as maxing them out, too. I was easily able to do by switching Catalyst's color mode to solarize," he explains.

As of now, Catalyst hasn't been embraced by the television industry. "Like all new technologies," says Choi, "it's just a matter of time until the benefits are so evident that it just becomes a standard. The same questionable, doubt-filled revolts came about when moving lights came on the scene. Within a few years, they were all the rage. Hopefully the same will occur with this technology." ☺