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BROADCAST INSTALL

CNN 360°

CHALLENGE: Create a 360° broadcast set that can accommodate three of CNN's most popular shows.

SOLUTION: Work with the manufacturer to create a custom curved screen that can be viewed from any camera angle and use the latest video processing for top-notch effects.

McCann Systems' custom aspect ratio curved screen serves as a commanding video backdrop for the high-profile broadcasts of "American Morning," "Paula Zahn NOW," and "Anderson Cooper 360°" from the new CNN Communication Center in New York.

At the CNN Communications Center in New York's Time Warner Center, set designers work closely with the AV systems integrator to build a multipurpose broadcast studio.



THE TIME WARNER CENTER in New York was the first commercial construction project completed after the Sept. 11 attacks. Built at a cost of \$1.7 billion, the building was constructed at the site of the former New York Coliseum. The high-tech Time Warner Center opened in February 2003, boasting several high-profile tenants, including the New York outpost of 24-hour cable news organization, CNN.

CNN broadcast its first show from New York in May 2004. Larry King specially hosted his show in what would later become the CNN Communication Center. "The challenge from CNN was that they wanted to get back to basics as a news organization, and create a communication center at the Time Warner Center," says Erik

Ulfers, principal of Clickspring Design, a design firm specializing in marketing and broadcast applications in New York. "CNN wanted to offer dynamic ways to tell a story. To do so, we needed an immersive projection surface so the talent and the viewer can get immersed in the story. CNN wanted the viewer to get involved in the story again."

Clickspring Design worked with McCann Systems, an AV design and integration firm in Edison, N.J., on a design concept that would work with the broadcast studio set. CNN wanted to introduce two large video screens to serve as the focal point for their broadcasts of popular programs such as "American Morning," "Paula Zahn NOW," and "Anderson Cooper 360°."

by Linda Seid Frembes

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"In this case, they knew they wanted the big screens, so we designed the set around that, and then did the AV problem-solving," says Ulfers.

McCann Systems had been working with Clickspring Design for a few years, and the team has completed other broadcast set projects. "The set designer has a concept for the set, so the key is finding the right communication and technology formula that works for the project," says Jonathan Schor, director of technology for McCann Systems. "CNN wanted the look of digital signage and the ability to change different graphics. Sometimes, they will throw up a video on the big screens to enhance the story."

To get the most projection surface in the smallest amount of studio space, McCann designed two projection areas: a larger screen for the main camera shots, and a smaller area for use by CNN anchor Anderson Cooper during his show. CNN specified that the larger screen must be a single, seamless, curved structure. To fulfill the specification, McCann worked with Stewart Filmscreen to create a custom curved acrylic screen measuring 79' high by 24' wide. The low-gain, low-contrast rear-projection screen is semi-rigid, so that the massive screen can be rolled and stood up on one end for easy transport to the fifth floor studio set.

Once on set, the nearly 8' tall screen was installed into custom-built housing, where it sits approximately two feet off the ground. The designers could not use a high-contrast screen because of the necessary image quality. "Once you do the image blend, a high-contrast screen will look bad off-axis due to light drop off," says Schor, who has also collaborated with Stewart Filmscreen for many years.

The second, smaller area has another Stewart Filmscreen projection screen measuring 7.5' high x 10' wide. Both screens maintain a 4x3 aspect ratio and have similar AV functionality using Christie Digital projectors. "It can be tricky when there are multiple technologies in one room," says Ulfers, who was very involved in the AV process. "You have to make sure that the projector looks as sharp as a plasma. The challenge is the lumens balance between the screen and the plasma. For CNN, the balance was achieved during the testing

and R&D process."

McCann used three Christie Digital DS+12K 12,000 lumen, 3-chip DLP projectors for the larger screen. "We needed to get a certain quality projector to get the high-end projection image. Since broadcast needs a low color temperature to look good on camera, you lose a lot of brightness. If you saw the set in person, the whites look pink," says Schor. "We needed a projector with headroom, so we chose the DS+12K rather than the DS+8K. If you look at the 12K settings, the color temperature is down to 3200 Kelvin and lamp power to 60 percent to 70 percent. The 8K would have been maxed out."

As with most real estate in New York, space on the set is a premium. "It was a challenge of throw distance. You need floor space for cameras versus space behind the screen. We are often negotiating for inches," says Ulfers.

Depth is 111" to the back of the screen with a throw distance of 161" with the custom engineered Large Screen Display mirror sled. Each projector was outfitted with a Christie 1.25:1 short focal fixed lens. However, what made the Christie projectors top on the list was its Christie TWIST image warping and blending software. "These projectors have a great warp engine," says Schor.

The warp engine enabled McCann to manipulate independent pixels to accommodate for the curvature of the screen. This is an important feature, because where the image gets larger on a curved screen, the pixels need to be compressed in order to look normal to the eye. "At the same time, you have to line the image up to the neighboring projectors so they match. The blend has to be perfect, otherwise there is ghosting or double-image. Warp is key to be able to blend on a curved screen and make it look natural," says Schor.

A Vista Systems' Spyder image processor enables CNN to switch from full screen to a mix of 11 simultaneous layers across the screen at one time. The Vista processor also can open picture-in-picture windows on top of the video backdrop, using any of CNN's 11 SDI feeds.

Schor notes: "We demoed several vendors, but the Spyder is a stable platform with good quality scalars. The Vista allows CNN to create multiple effects and can run off client

software."

The Vista processor also has proven its reliability in live environments by other high-profile installs, such as the LED wall on "The NFL on CBS," and on the set of "CBS Evening News with Katie Couric." To ensure the set is future-proofed, McCann tested the AV system in both standard and high definition with satisfactory results.

The processors themselves are off the set in order to control temperature variations, dust contamination and inconsistent power supply. Equipment racks are located two floors away in the seventh-floor machine room. McCann tapped into the building's fiber network and patched feeds off the building router. The machine room already had a raised floor, so it was easy to run any cable.

Since edge blending needs the best signal possible to the projector, McCann used a Thinklogical VIS-000003 DVI over fiber transmitter and receiver for signal transmission. DVI eliminates the need for tweaking the horizontal lines, which results in a more stable image to the projector. For ease of use, additional breakout boxes with access to the fiber infrastructure are located throughout the building.

"The set is essentially a 360-degree space. CNN wanted several different shots and backgrounds in one place. There is no dead zone for cameras in this room," says Ulfers. Clickspring Design used several tricks of the trade to differentiate the set for different programs.

For example, the lighting for "American Morning" is brighter and the graphics are warmer than the evening programs broadcast from there. Ulfers adds: "Video naturally shoots bigger than it is, so we used some tricks like reflective surfaces on the floor to make the set seem even larger."

Because of their success on the New York set, McCann and Clickspring applied their design and technology formula to the sets of CNN International in London and at the CNN Weather Center and CNN Headline News sets in Atlanta.

"We're all looking for the latest technology to differentiate ourselves. The question is: how do you create context for the technology? The design has to be intensely collaborative."

