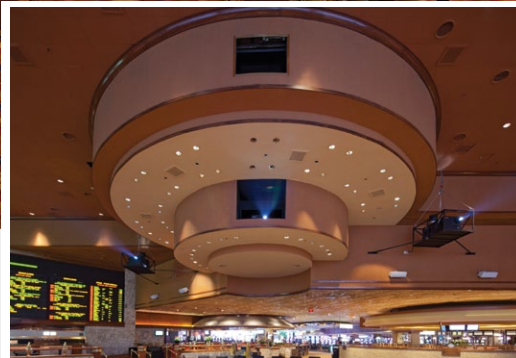


# Digital Demands Of Race & Sports Book

The Mirage Hotel & Casino deploys digital infrastructure.



The recent upgrade to the Race & Sports Book at The Mirage features 4K projection on an 85-foot-wide screen.



Three 21,000-lumen 4K projectors deliver 1080p video on all video sources, and the room also features 30 LCD flatpanels.

**By Chris Kratochwill**

The Race & Sports Book at The Mirage in Las Vegas is back on the cutting edge. The recent upgrade to a digital infrastructure and 4K projection make this 10,000-square-foot room with 30-foot-high ceilings and 200 seats a world-class attraction.

Our enormous 85-foot-wide video screen is probably the only one in the world in a sports book that features a 4K ultra high-definition projection system. Our goal was to create a huge experience for the guests, so we decided to go with 4K to maintain 1080p on all sources. Our new digital video system features three Sony 21,000 lumen 4K projectors, Vista Systems' Spyder X20 video processors, a custom Harkness Screen and a fiberoptic switching matrix based on Crestron DigitalMedia technology.

We typically show our guests sporting events on anywhere from four to 12 very large screens at once, with the odds on an exciting array of spreads, propositions, parlays and other bets. In addition, the room has 30 LCD displays and six separate 12-foot rear-projection video displays for horse racing.

*Chris Kratochwill is Manager, Audio Visual Systems, for MGM Resorts International Guest Technology.*

We did all of the system concepts in-house and hired Technology West Group of Las Vegas as our system designer and integrator. GreenPoint TDI of Chandler AZ was contracted to create all of the user interfaces for the Race & Sports Book operators.

### Building The System

We needed to upgrade our old RS232 control system to network-based controls. We've been using Crestron DigitalMedia at MGM Resorts properties for almost three years, in restaurants, conference rooms, hotel suites and the sports book at the Monte Carlo, so it was not difficult to decide on the infrastructure technology for The Mirage Sports Book.

We used a Crestron PRO3 and an MC3 processor with a 24-inch Crestron VPanel in conjunction with two Vista X20 Spyder wall processors. The Vista Spydere edge-blend the images going to the Sony projectors to form one

continuous 85'x16' image, and they allow us to size and place video windows as we wish on this huge screen. To make that process easier, we devised a number of preset layouts.

On an average day, we'll divide the screen into eight to 12 main windows, each with a different game, plus tables of odds projected in adjacent windows. For the Final 4, we used four very large windows, one for each game and, for next year's Super Bowl, we have already designed a layout featuring one enormous image with supporting odds on each side. We can switch from layout to layout on the fly, and when we do, so we have some impressive animated transitions, with windows flying from area to area across the screen. We have also created graphic backgrounds for each sport.

Managers choose the layout they want and populate the screens, either using the Crestron touchpanel from the control room or an iPad from the

floor, equipped with the same control interface via the Crestron Mobile Pro G app. We're also working on an interactive feature for the videowall.

### Content Over Private VLAN

A few years ago, we started the build-out of a digital head-end at MGM Guest Technology, which supplies sports and racing feeds to properties including The Mirage, MGM Grand Las Vegas, Mandalay Bay, Luxor and Excalibur. Our network is used strictly to host audio, video, control and internet. We also use the VLAN to monitor and manage the content. There are almost 150 unique channels of digital content available today, with more coming online shortly. It's a big challenge to sort out the sporting events we want to show, encode and send them in a stable form to all of our properties. The specific challenge we had at The Mirage was to take these digital feeds and switch them cleanly without any loss of quality



We realize ideas

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Operating the system via the iPad. Complete control including source preview is provided.



Twelve single mode fiber transmitters provide 4K signals to each of the projectors.

into our Sports Book video and sound system.

For now, we're using a Crestron DM32X32 switcher to accept a combination of satellite and IPTV video feeds. Twelve HDMI outputs from the DM32X32 are sent to the Vista Spyder and from there, to the Sony projectors via single mode fiber. We plan on adding an additional DM64X64 switcher to allow us to accept additional sources and output them to the main video screen, the racing videowall and the smaller displays throughout the Race & Sports Book. (We are still

running our older analog switching system to serve those areas.) We are also able to pull program audio from any of the feeds going through the DM switcher, put it into a BSS London BLU-800 digital signal processor and from there play it in 5.1 surround sound using JBL Professional loudspeakers.

HDCP copy protection is becoming an important issue for any facility showing commercial sports broadcasts. That's especially true at MGM Resorts, because we are obligated to transmit our feeds in an encrypted form that must be

## Tips

- » Talk to the people who will operate the system on a daily basis about their needs before designing the system.
- » Plan for permits and inspections in advance.
- » Use support from manufacturers, especially on rush projects.



A mix of old and new control touchpanels.

HDCP-compliant. Fortunately, the upgrade proved to be only a minor challenge because all of the DigitalMedia components are fully compliant with HDCP protocols.

## Interface Design

As AV integrators, we may tend to think we know best what the end user needs. We are confident that we know the technology and may think we've done this before, so why not just create the designs ourselves, especially if we're working on a "rush" project. But the reality is that those who will operate the system know best, even if they are not technically savvy, and often what they say will surprise us. We started the project by asking the operators what they felt was most important.

The operators, which include non-technical persons, needed a way to get any "event" on any display or audio zone easily. The actual equipment or device was irrelevant, but the event or programming content was essential, meaning that a source labeled "Miami Heat vs. San Antonio Spurs" was pertinent to their operation with a station call sign holding secondary relevance. Traditional systems would use "Set Top Box" or a channel number associated with a device label. That nomenclature carried little value to their operations. The operators were consulted through each step of the project's process.

We started working on the user interface soon after we had talked to the users. We have found that, when creating a user interface, most tasks should be accomplished in one or two button presses. The most complicated task must be done in three or four presses. Anything more is too complex and won't be used.

Our strategy worked well. We finished the installation on time, and after about 10 minutes of one-on-one training, each of our operators was able to accomplish the most complex tasks.

## Permits & Inspection

We had to establish very early on exactly where the projectors would be located and how we would mount them. We had only six weeks to design the new system, order the equipment, install and test it. To our



Along with the 4K projection system, guests can tune to their sporting event of choice via smaller LCD monitors.

advantage, all of the products were in stock and we benefitted from onsite support from manufacturers, especially Vista's technicians.

City inspectors do not always share concerns regarding deadlines. Six weeks was a short timeframe to design the structure that would hold the projectors, get the designs approved and the permits issued, install the necessary spanner beams and get them inspected.

The new system was operational just in time for basketball's March Madness and, shortly thereafter, word

of our brighter and larger video displays spread far and wide. We are now attracting some of the largest crowds we've ever seen at The Mirage Sports Book. We even have people coming to the property just to see the how the 4K video looks. You can see them posing for photos with the large video screen in the background, in just the same way they pose by the volcano in front of the hotel.

Upgrading the old system was not an easy task, but it has put The Mirage Race & Sports Book on the map as one of the premier attractions in Las Vegas.



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