



Photo courtesy of The Mirage

Digital Demands of Race and Sports Book

The Mirage Hotel & Casino deploys digital infrastructure

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.

The enormous 85' wide video screen is probably the only one in the world in a sports book that features a 4K ultra high-definition projection system. The Mirage's goal was to create a huge experience for the guests, so they decided to go with 4K to maintain 1080p on all sources. The new digital video system features three Sony® 21,000-lumen 4K projectors, Vista Systems' Spyder X20 video processors, a custom Harkness Screen, and a fiber optic switching matrix based on Crestron DigitalMedia™ technology. The race and sports book typically shows 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 separate 12-foot rear projection video displays for horse racing.

The Mirage handled all of the system concepts in-house and hired Technology West Group of Las Vegas as the system designer and integrator. GreenPoint TDI of Chandler, Arizona was contracted to create all of the user interfaces for the Race and Sports Book operators.

Building the System

The Mirage needed to upgrade their old RS-232 control system to network-based controls. They'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.

The team used a Crestron PRO3 and an MC3 processor with a 24" Crestron V-Panel™ 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' x 16' image, and they allowed the team to size and place video windows as the hotel wished on this huge screen. To make that process easier, they devised a number of preset layouts.

On an average day, the race and sports book will 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® they used four very large windows, one for each game, and for next year's Super Bowl® they've already designed a layout featuring one enormous image with supporting odds on each side. Management can switch from layout to layout on the fly, and when they do so they have some very impressive animated transitions, with windows flying from area to area across the screen. The team also created graphic backgrounds for each sport.

Managers choose the layout they want and populate the screens either using the Crestron touch panel from the control room or an iPad® from the floor, equipped with the same control interface via the Crestron app. They're also working on an interactive feature for the video wall.

Content Over Private VLAN

A few years ago, The Mirage built 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®. The network is used strictly to host audio, video, control, and internet. The Mirage also uses 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 the hotel wants to show, encode and send them in a stable form to all of the MGM Resorts properties. The specific challenge encountered at The Mirage was to take these digital feeds and switch them cleanly without any loss of quality into our Sports Book video and sound system.

For now, they're using a Crestron DM® 32X32 switcher to accept a combination of satellite and IPTV video feeds. Twelve HDMI® outputs from the Crestron DM32X32 are sent to the Vista Spyder and from there, to the Sony projectors via single mode fiber. The Mirage plans on adding a DM 64X64 switcher to allow the facility to accept additional sources and output them to the main video screen, the racing video wall and the smaller displays throughout the Race and Sports Book. (The Mirage is still running an older analog switching system to serve those areas.) The hotel is 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 its properties are obligated to transmit their feeds in an encrypted form that must be HDCP compliant. Fortunately, the upgrade proved to be only a minor challenge, since all of the DigitalMedia components are fully compliant with HDCP protocols.

Interface Design

The Mirage started the project by asking the operators what they felt was most important.

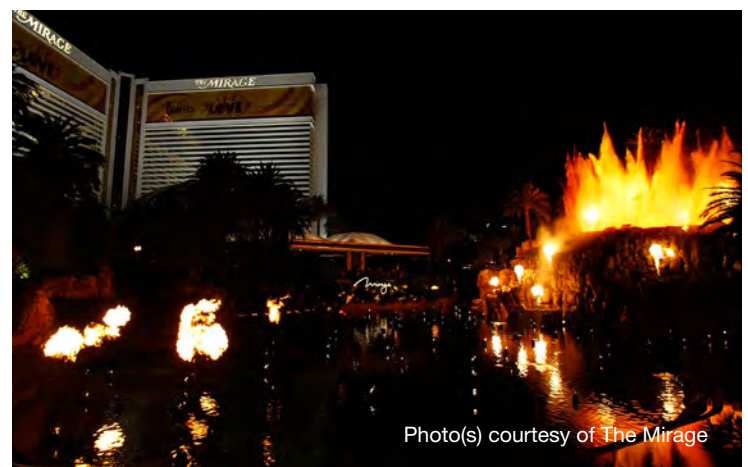
The operators, which include non-technical persons, needed a way to get any “event” on any display or audio zone easily. The actual equipment or device was irrelevant but the event or programming content was essential. Meaning a source labeled “Miami Heat® vs. San Antonio Spurs®” was pertinent to their 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. Through each step of the project’s process the operators were consulted.

The team started working on the user interface soon after they spoke with the users. They 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.

The strategy worked well. The team finished the installation on time and after about ten minutes of one-on-one training each of the operators was able to accomplish the most complex tasks.

The new system was operational just in time for March Madness®, and, shortly thereafter, word of the brighter and larger video displays spread far and wide. The Mirage is now attracting some of the largest crowds they’ve ever seen at the Sports Book. They even have people coming to the property just to see the how the 4K video looks. Guests can be seen 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 and Sports Book on the map as one of the premier attractions in Las Vegas.



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