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SOUND & COMMUNICATIONS

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UNIVERSAL STUDIOS HOLLYWOOD CREATES WORLD'S LARGEST 3D ATTRACTION.

EXPLORERS WANTED

NASA'S EXPLORATION SPACE IS A MODEL OF MODULARITY AND NONVERBAL PRESENTATION.

WORSHIP CENTER AV SURVEY

The entrance to Exploration Space: Explorers Wanted at NASA's Kennedy Space Center Visitor Complex.

EXPLORERS WANTED

NASA's Exploration Space is a model of modularity and nonverbal presentation.

BY JUDITH RUBIN

All photos courtesy BRC Imagination Arts ©2011

"MEN WANTED: FOR HAZARDOUS JOURNEY. Small wages, bitter cold, long months of complete darkness, constant danger, safe return doubtful. Honour and recognition in case of success."

—SIR ERNEST SHACKLETON

NASA aptly borrowed the lines of the famous recruitment notice—placed by Shackleton in a London newspaper seeking recruits for his 1914 Imperial Trans-Antarctic Expedition—to set the tone for Exploration Space: Explorers Wanted. This is a new exhibit created, designed and produced by BRC Imagination Arts in collaboration with NASA's Kennedy Space Center Visitor Complex (KSCVC) and Delaware North Companies Parks & Resorts at KSC, Inc., in a 10,000-square-foot, repurposed building at the KSC visitor complex in Cape Canaveral FL.

Post-Shuttle Era

KSCVC's first exhibit to address the future of space exploration in the post-shuttle era (www.kennedyspacecenter.com/exploration-space.aspx), Exploration Space invites visitors to "step into the center of space travel and become part of the future." Seeking to stimulate visitors' imaginations about the possibilities to come, the exhibit combines live theater, interactive exhibits and projected media. Relying heavily on nonverbal communication, top-quality projected imagery and interactivity, the presentation is mostly automated and can be operator-modified on the fly. The main show, "Explorers Wanted," runs twice an hour with a live presenter (called the Communicator) within the common space with other exhibits and interactive kiosks. Audio, acoustics and lighting support the simultaneous experiences.

Introductory screens with images of space-travel destinations usher visitors into the experience. "Your Destination" provides a portal into the universe. Visitors peer through a giant 12'x8' window to a 14'x18.6' rear-projection screen; a Christie DS+6K-M projector displays enormous images of the moon, Mars and Nebulas, giving the impression of viewing these destinations from deep space. Alongside the window is a Samsung 46-inch LCD monitor that details possible missions during the voyage. The portal video content is sourced from an Extron MPEG2 HD video player and the monitor video content is sourced from a Dataton WATCHOUT computer.

Visitors move on to browse additional displays. "On The Shoulders of

Judith Rubin (www.judithrubin.blogspot.com) is a freelance writer and editor specializing in themed attractions and entertainment technology.

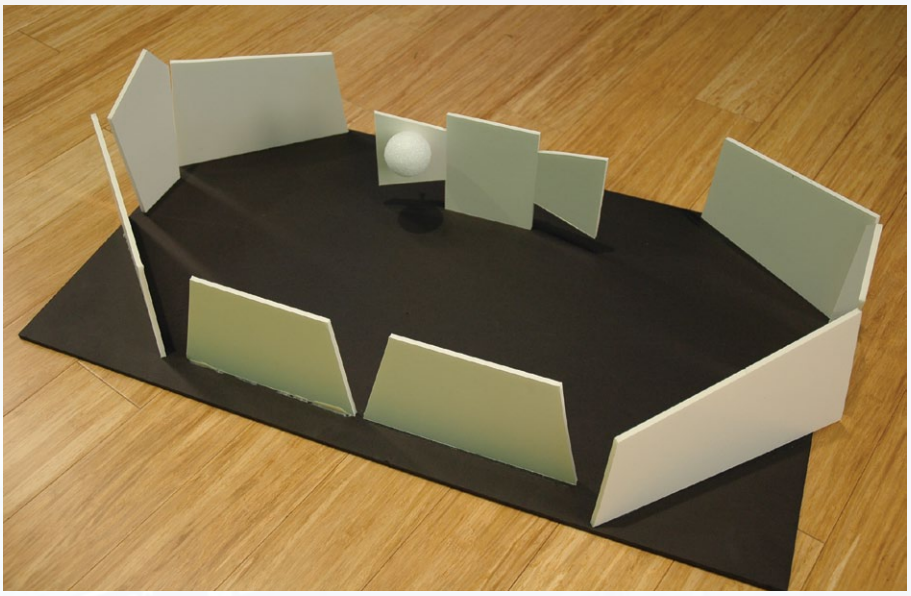
Giants" shows how the next generation of spacecraft will improve upon previous generations' work. The mostly animated content is displayed on an NEC 65-inch LCD monitor. Sound effects and video are sourced from an Extron MPEG2 HD video player. Kiosks with Dell game stations, joysticks, throttles and shifters let visitors simulate docking a vehicle at the International Space Station, or landing a capsule on the moon.

Kiosks

The display and interactive systems were integrated into kiosks fabricated by Lexington (www.lex-usa.com) working closely with Electrosonic and BRC. (Lexington also was responsible for fabricating other exhibits in the space that don't involve AV.) Five 15-foot-high acoustically transparent trapezoidal screens custom fabricated by The Nassal Company display dynamic exhibit content about the future of the space program. The "Space Dangers" interactives are displayed as inset windows on two of these screens demonstrating a variety of challenging conditions that will be faced by tomorrow's interplanetary explorers.

At some point, visitors' attention is called to the recurring main show, which takes place in a small open theater with bench seating for about 60. Audio, video and lighting transform the room to gather the audience for the story, which usually is run by a live presenter but can also run unmanned. Under contract to exhibit designer BRC Imagination Arts (www.brcweb.com), Electrosonic designed, integrated, programmed and installed the exhibit's entire AV system, including projection, audio, video and show control. BRC brought in SH Acoustics (www.shacoustics.com) to evaluate the acoustic environment and audio delivery, and to work alongside Electrosonic to achieve a full system design.

"One of the most important things was that the dynamic range is huge," said Steve Haas of SH Acoustics. "There are very quiet, breathtaking moments, and sudden, loud, forceful explosions and sounds of rocket liftoff. To get a quiet, less reverberant space, we were able to rebuild some of the partitions to isolate mechanical noise, as well as properly attenuate noise of ductwork. We used simple, encapsulated insulated panels throughout the upper roof deck—an economical solution because the space was to be dark most of the time, and we didn't have to worry about aesthetics."



Exploration Space preliminary concept model.

Haas continued, "In the areas around the main stage where visitors' attention is very focused, we had to use some fairly decorative treatments. There were also big, flat wall surfaces for each of the surrounding projection screens. For acoustical purposes, they couldn't just be all flat surfaces."

Each of the surrounding projection screens had to be angled down to minimize cross reflectance. Haas specified sintered aluminum panels on the curved wall of the main stage screens, of a product called Almute. "It looks smooth and solid but actually absorbs sound," he said. Damping materials such as Quiet Rock were used in the dividing walls to help isolate the exhibit space proper from mechanical equipment rooms and other noise sources.

Custom Mounting

Much of the audio, video and lighting gear is custom-mounted on an overhead ceiling truss. Guy Fronte, Electrosonic Project Manager, said, "We filled that ceiling space with Tannoy loudspeakers, a Tannoy subwoofer and one gigantic Bag End subwoofer. The Bag End has four 18-inch cones and the Tannoy has two 18-inch cones, and they work together to envelop that space with bottom-end sound. The Tannoy sub is directly overhead—on a vibration-isolated custom mount that could hold up a pickup truck if it had to—and the Bag End is on the floor directly behind guests, built into a cavity in the wall," he said.

They weigh about 220 pounds each; the custom mount was engineered to support 10x the weight, and basically became a fixture of the I-beam in the ceiling. The mount is cradled in another mount together with sound-absorptive giant metal sprint coils, to prevent the vibrations from working loose any of the hardware. "The mount was designed to our specs by Eric Berard of Metal Masters of Florida Inc. (metal mastersflorida.com), which commissioned a structural engineer to ensure its safety," according to Fronte.

Digital signal processing is via a Peavey MediaMatrix Nion N6 processor. Audio amps are QSC. "It's not your typical surround sound 5.1 program," Haas said. "We added quite a few channels with the front stage. We did a lot of matrixing of signals at different percentages throughout the various sound areas to provide an equivalent experience to all visitors."

He continued, "We couldn't perfectly design coverage to hit at a fixed body of seats because they won't all be seated. We had to be a little clever in the way we used DSP to blend this, so everyone got a piece of every mixed channel for the experience. The positive result is that the overall show feels louder than it actually is." In addition to the Tannoys, JBL speakers were used in ceiling cans at the entrance and exit areas.

"Ideally, you'd place speakers right in the screen area, flanking and behind, but there was no way we could do that with this show," noted Haas. "The front wall is very aesthetically oriented and the screen being rear projection is not acoustically transparent. So we put everything about 12 feet up, right above the top of the 'screen wall' in left-center-right configuration and implemented an appropriate time delay to make it feel localized. The matrixing, distribution and high speaker placement were all in our favor for minimizing the chance of feedback into the live presenter's microphone."

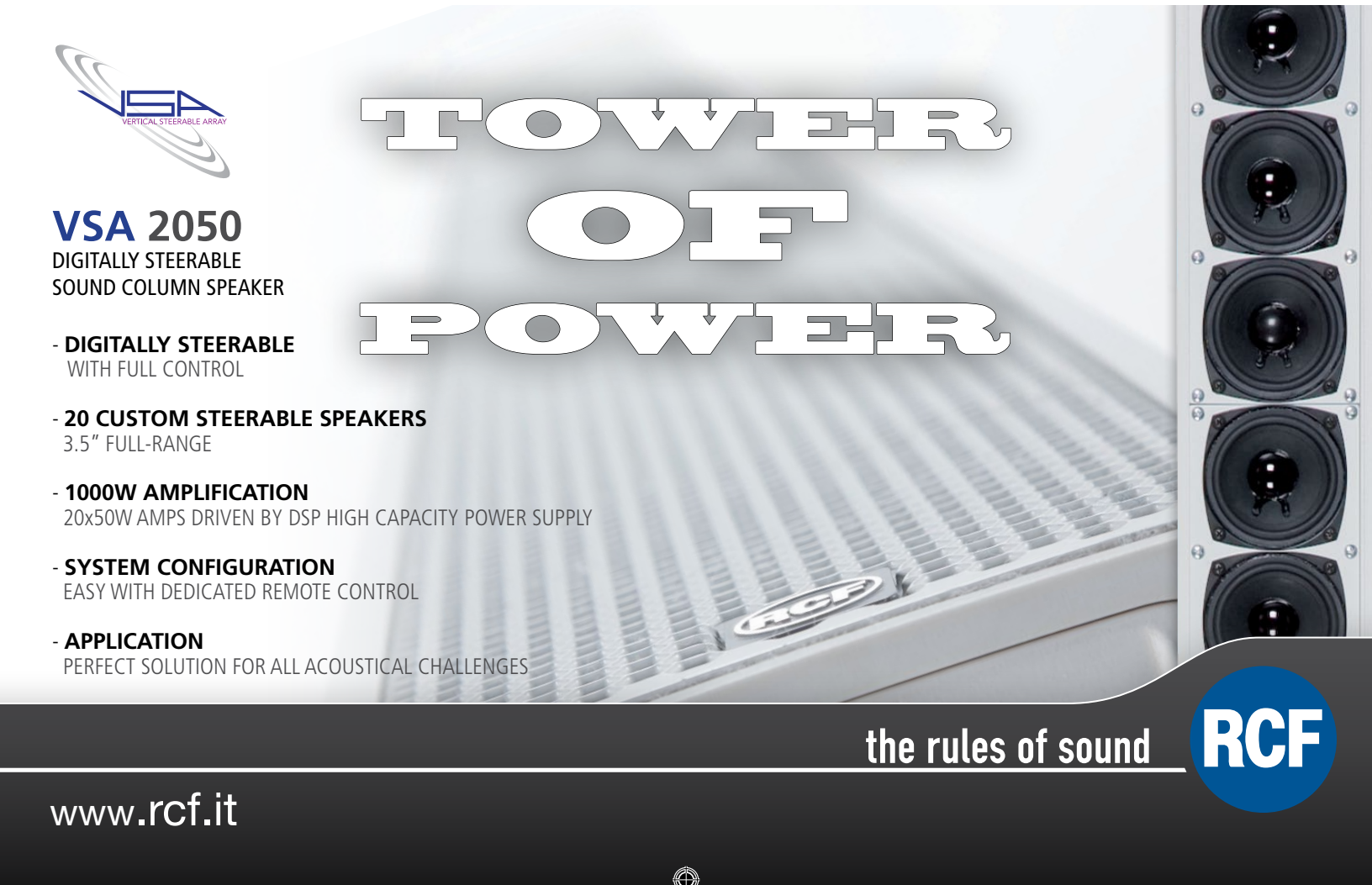
Projection, Projection, Projection

"Given that KSCVC draws an international audience, the content had to be as visual as possible and, given that it's NASA, all scientific and engineering content was rigorously tested until we were sure that, from every corner, everything we showed was 100% accurate and conveyed what we were supposed to convey," said Matthew Solari of BRC Imagination Arts, who was Stage Director/Project Development Director. "I don't think the visual emphasis is overt. It is designed to be a free choice learning environment."

Solari continued, "There is a beginning-middle-end format, but the audience is free to come and go as they please. They can walk in at any moment, stay as long as they want, browse deeply or just scan. Exploration Space is designed to meet people where they are, and give them the opportunity to explore where they want to explore."

What was called the "Rosetta Stone" of the project was a statement turned up in the course of research by Mark Hayward (BRC's Creative Director in the early conceptual stages) on Slide share.com, a kind of manifesto posted by a group of young NASA engineers that conveyed suggestions about how to motivate younger generations to learn to appreciate space science.

"Mark had been wanting to do a 'let's project on everything in the room' sort of show," recounted Chuck Roberts, BRC Director of Design and Production Designer on Exploration Space. "He went home on the weekend with some foamcore and came back with this model: He took a projector with a picture of a Mars Rover and spread it on as many screens as he could get the projector to hit, like the whole room was moving across the surface of Mars. Everybody reacted pretty favorably. It is a big challenge to take these exhibits and turn everything so the visitor can take it all in at once," Roberts continued. "And most things about NASA are linear—countdowns



"Explorers Wanted" runs twice an hour with a live presenter, or Communicator, supported by audio, acoustics and lighting.

are linear—so we have a whole bunch of linear sequences going on, a salad: chopped up, telling the whole thing at once, broken into chapters.

"Christine On was a most valuable contributor with her media, design, editing and musical selections for the space. We worked hard to make sure that this attraction was maintainable," said Roberts. "We took equipment and systems that integrators and technicians are familiar with and then used them in very special ways to create an amazing environment."

Large Trapezoidal Screens

The video system employs large trapezoidal screens, most front projection and some rear projection. Christie digital projectors with fixed focal length lenses are locked into the ceiling truss using Chief (www.chiefmfg.com) projector mounts. The Your Destination and Main Stage Screens and frames were specified by Electrosonic and custom manufactured by Harkness (www.harkness-screens.com). Five trapezoidal screens fabricated by Nassal cover the walls of the exhibit area, and there are four smaller soft-surface screens over the stage.

The main show is displayed on a series of fixed screens: primary content on a large center RP screen and a secondary circular RP screen, stage right. Two additional projectors display content on four trapezoidal screens, which grow progressively larger in size as they arc over the top of the main screen.

With four custom-shaped trapezoidal Harkness Contrast Grey front-projection screens flying above the stage and two large main stage rear-projection screens, the viewer is completely engulfed in imagery.

The main stage 16:9 Harkness Translite Super Grey 14'x7.8' rear-projection screen was also custom designed to fit into a scenic bezel with LED lighting. The second standard-shaped Harkness Translite Super Grey rear-projection screen, located to the right of the stage, measures about 12½'x12½'. A scenic bezel is used to make a 12-foot-diameter circular viewing area. Because the upper screens are trapezoidal, "a normal 4x3 or 16x9 image was out the window. We had to digitally pixel map the images using Dataton WATCHOUT. WATCHOUT was used to display the video and some of the audio using custom WATCHOUT computers," said Fronte.

There was a challenge on the five large trapezoidal screens. "We needed to project from high up enough in the space, with the bottom of the screens placed such that, unless the guest is right up against it, they don't interfere with the video cone. The screens were tilted slightly. We pushed the Christie projectors and their lenses to their physical limits, right at the ragged edge of the bottom of the lens." Tom Brighton was Electrosonic's WATCHOUT programmer.

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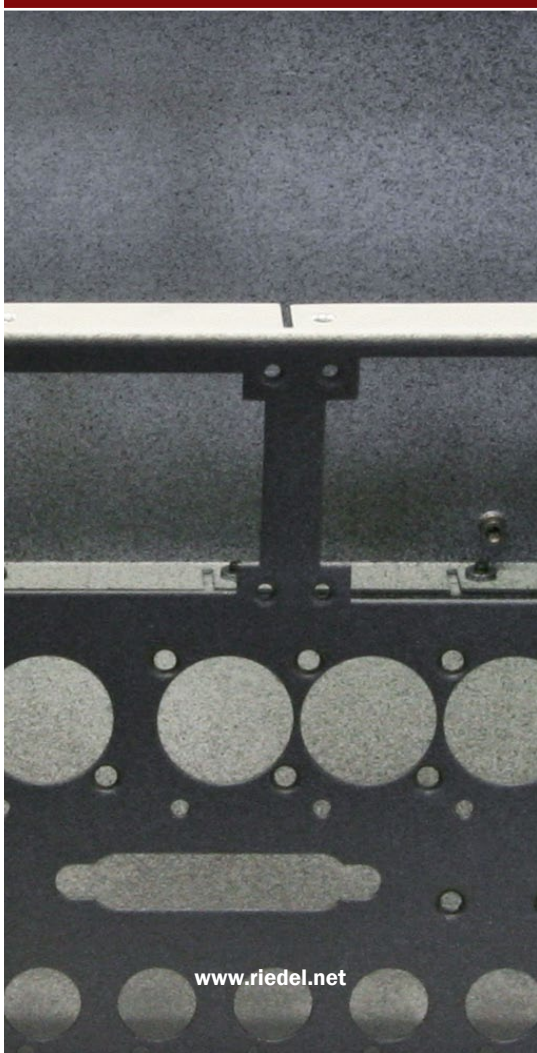

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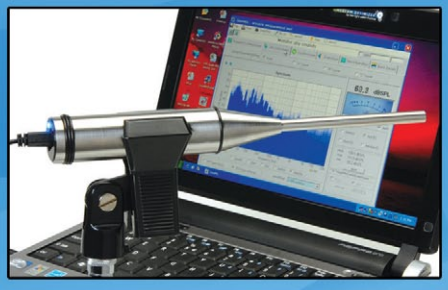
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Acoustical Treatment

The perforated metal screens supplied by Nassal doubled as an acoustical treatment for the space, and were backed with three inches of fiberglass specified by Haas. "We really boom some audio in there during the main show," said Fronte, and those perforated screens with acoustic absorption keep it from bouncing off the back walls."

The introductory "Your Destination" exhibit uses a 14'x19' Harkness Translite Super Grey rear-projection screen to create stunning images of potential future space travel destinations. The screen is recessed into a window, configured to produce a 3D-like effect by virtue of its tilt and masking.

"The effect was designed by BRC," noted Fronte. "That screen was tilted at a really extreme angle, more than usually seen. When you tilt the screen like that, it tends to belly under its own weight, with no support in the middle, and that bellying created a very impressive 3D effect."

Located behind some of those trapezoidal screens is the equipment room with the control gear and audio/video sources stowed on four Middle Atlantic equipment racks. The interactive kiosks are mostly self-contained with their equipment localized. Electrosonic's team on the project was extensive and included, in addition to those already mentioned, Tom Brighton, Studio Manager and Media Support Specialist, and Install Supervisors David Boudreau and Chris Cooper. "They did a tremendous job," said Fronte.

As visitors prepare to exit the attraction, they are invited to "Stay Connected" at sign-up stations in four interactive kiosks. Their images are captured by webcams and composited inside astronaut helmets in shots showing them performing various space-related activities. Visitors get to see their astronaut selves on 24-inch monitors in portrait mode. They can then email and Facebook the shots back home or to friends.

Modularity/Flexibility

"It was a requirement that the show have the ability to meet the needs of the day...be up to the minute," said BRC's Project Manager/Show Systems Manager Josh Cottrell. "Using a touchscreen, Communicators can select from a library of modules that they want to play for the main show, and choose the order in which they want to play them." Using Adobe Premiere software, BRC's team customized an editing suite and trained some KSCVC and Delaware North technicians to create in-house, one- to two-minute show segments.

"They can stay on top of the day's events and have the most current material to tell guests about; the new content is available immediately, as soon as it is created," noted Cottrell. "In addition, Communicators have a laptop with internet access that they can use to stream in other relevant material. They also have access to the closed-circuit NASA campus network and a number of discreet NASA channels, for instance. They can take a live feed of the shuttle rolling out to the platform, or a process for the International Space Station, and put it into the show

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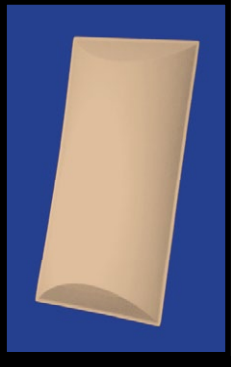
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live and talk about it as it's happening. Electrosonic worked closely with us to program the system."

BRC's team also provided the client with a set of special-event templates. "They can load a special-event show, put up spinning NASA meatballs, a starfield or one of a variety of nebula shows we developed from Hubble Space Telescope images with a little animation enhancement," said Cottrell. "There are also some special-event lighting looks, where the whole venue is covered in Philips LED ColorBlast fixtures, which can transition through any color of the rainbow."

"The goal was ultimate flexibility," Cottrell reiterated. "The space program was in huge flux; nobody knew what was going to happen. This was a capital investment to promote the future of space without knowing what the future was." The use of Dataton WATCHOUT to build and run the exhibit files supported that goal. "When the Ares program was canceled, we were able to instantly go in and remove the word 'Ares' everywhere it appeared."

Opening Day Cancellation

It was, in fact, opening day of Exploration Space that the Ares program was canceled, and the flexibility of the system underwent its first real-world testing. "With the cancellation of Ares and Constellation, we had to scrub mentions of those programs, and the rockets that were featured either went away or became concept vehicles instead of vehicles of record, stepping stones," recounted Solari. "Within two weeks, all that content was replaced."

Solari stressed that the updateability is not only for addressing sudden changes, but also a basic feature to keep an exhibit at the level of freshness expected by the younger audiences Exploration Space most wants to reach. "This is a generation that expects constant updating," he said, praising NASA for embracing the challenge.

"A lot of clients say they want modularity but then pull back from the commitment. NASA and Delaware North saw that it was necessary and jumped for it, and have made it work really well," he stated. "We created a manual for them and walked through it as a team together, and it's up to them to follow the instructions and find people with the ability to craft those messages. All together, about 20% of the entire experience is something they have access to changing on a moment-to-moment basis."

Control System Talks Back

The show control software and hardware is Medialon, programmed by Electrosonic's Ryan Sims. According to Fronte, "They wanted a system that pretty much ran itself. Medialon is definitely one of the big frontrunners

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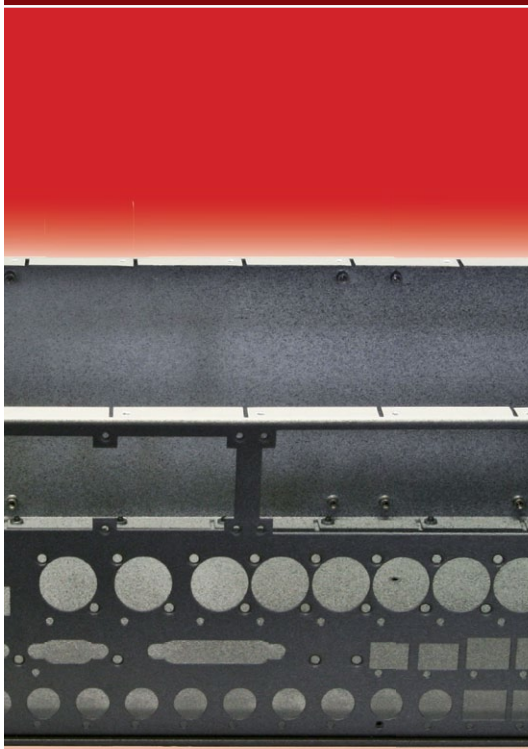

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in show-control software. It gives you the ability to create a schedule, and is capable of integrating and incorporating and working with almost any controllable device. And if it is not or there is no protocol for it, oftentimes Medialon will work with us to develop the protocol."

To run the main show, "the Communicator pushes the start button and the system looks for the next available window to start a show," explained Cottrell. "The exhibit content running in a loop ends at the appropriate point and the show starts seamlessly. There is a portable Medialon rugged 10.4-inch wireless touchscreen in a backstage location and also a handheld remote, an OKW Electronics RF three-button transmitter (start, stop, advance to next segment) that can be used to control the show.

There is one "start of day" button that turns on everything in the building and puts all the gear through a test routine that includes alignment grids, color bars and pink noise audio test patterns. Once the test routine is complete and techs have done the morning maintenance confirming that everything works and looks good, the system loads itself and starts looping."

Extra Monitoring

An extra layer of monitoring and system feedback optimizes performance and maintenance for the extreme Florida climate and demanding exhibit schedule. All areas of the attraction use Omega iServer sensors to monitor for temperature and humidity; this information is fed to the Medialon show controller. Electrosonic trained KSCVC and Delaware North technical staff to use the system.

"We have six of these units around the attraction," said Cottrell, "including one in the equipment room and one in the projection room, to actively protect equipment during the warranty period and beyond. All the devices are networked in. They will send email alerts if there's a temperature or humidity reading outside the prescribed ranges.

He added, "The show control is tied into UPS so the system will shut down all equipment if there's a power outage, which happens at KSCVC often enough. We had to install a small dehumidifier in the rackroom just to keep the humidity in the 50% range. Logs are sent out at the end of each day. These safeguards help provide the 99% uptime that everybody expects."

The Medialon show controller also talks to an ETC Unison Mosaic controller specified to run the lighting system by lighting designer Mark Andrew Yeager Design, LLC (www.yeagerdesign.com). Said Fabian Yeager, "Throughout the day, there is the possibility of as many as 18 to 20 acts or video moments, ranging from two minutes to four minutes in length. Lighting, sound and even the live presenter are all supporting the videos of the nine-segment main show event. We used lighting to provide accent color that works with and supports the video: around the screens and along the floor with RGB LED cove light fixtures, and throughout the room with RGB LED Wash lights to help create the atmosphere.

Yeager added, "We used specifically branded gobos for moon moments,

Guests can try their hand at docking with the International Space Station or landing on the Moon.

Mars moments and so forth. The ETC Mosaic is different from a standard stage lighting controller in that it uses a video timeline rather than sequential cues. You can run an endless number of timelines on top of one another or asynchronously. Because it is a video-based show, lighting being controlled through a video-friendly timeline makes things more organic. We needed to be frame accurate on support for video presentation: Video was the element we were keying off of. The Mosaic worked effortlessly with the other systems in place, and we found the interface to be very user-friendly."

Warp-Speed Magic

Appropriate to its theme, Exploration Space was realized at warp speed: a design/build *tour de force*, that was one year in the making from concept to its December 2009 soft opening. "It was invaluable for us to have people in the field for most of the construction phase so any problems could be identified immediately," said Cottrell. On the ground for BRC were Alex McKay, Field Install Manager, and Annette Stock, Assistant Field Installation Manager and Coordinator.

New visualization tools help keep the process going. "Architects and trades are starting to rely more and more on programs such as Autodesk, Revit and Google Sketchup, which allow everyone to work in a 3D environment," said Cottrell. "In very early concept stages, we were able to draw the existing facility and its scenic components, trusses, projectors, ducts and structural elements to visualize what this attraction would look like.

"We were able to show that to the client in initial concept meetings, and get buy-in a lot faster. This process enables the construction phase to go much more smoothly, as well. The result is that more money can go into the exhibit—more money in front of the guest—which means more happy clients and future projects."

"It was a really invigorating process," said Solari. "And keep in mind that it was NASA that did this: A government institution that generally has to do things in small, drawn-out chunks, with millions of approvals. The initial charrette was just BRC and NASA; one week later, we sat down with Lexington and Electrosonic. Josh brought a lot of his own systems AV knowhow to the table. It was really nice bringing Lexington into sessions early on; it saved a lot of time and money. There were certain elements to be fabricated that we couldn't get from NASA, and Lexington knew how to stage these." Lexington's Project Manager was Scott Mello.

"As soon as you pull it off, you realize you've just cooked yourself with the hard work and long hours," said

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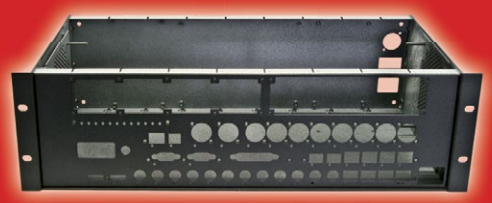

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2 Extron 1x4 VGA DAs, P2 DA4xi
3 Extron AAP 104 mounting frames
2 Extron cable clamp/pass thrus for Extron RGB
2 Extron CPM102-1 2-gang, 4-space mounting frames
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14 Gefen DVI Cat5 MS extreme extenders
1 Gefen DVI Detective
5 Gefen DVI FM Extender Plus video extenders
3 Gefen VGA/component HD extenders via Cat5e
7 Harkness custom screens
1 Hoffman Enclosures A-TC18126S 18x12x6 telephone cabinet
1 Hoffman Enclosures A-TC36306S 36x30x6 telephone cabinet
2 Intelix AVO-A2-PAC-F baluns
1 Interlink Electronics VP4150 Navigator Presenter 2.4 remote control
1 JBL C2PS Control 2P compact powered reference monitor system
24 JBL Control 25AV 5¼" 2-way vented speakers
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3 Juice Goose PD1A custom multi-circuit power distribution centers
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1 Medialon Show Control Machine Pro PC w/RAID 5-disc array, redundant power supply
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speakers
Neutrik 3-pole, 4-pole cable connectors
20 Neutrik NL4FC 4-pole Speakon cable connectors
1 Omega Engineering IDRN-PS-1000 universal switching power supply
1 Optex AX-100S surface-mount single-beam photoelectric sensor
2 QSC CX108V 8-channel 70V amps
8 QSC CX404 4-channel amps, 250W/ch @ 8 ohms
3 QSC CX702 2-channel amps, 425W/ch @ 8 ohms
4 Racks Unlimited custom metal fabrication
2 Radio Design Labs FP-UBC2 audio buffers
3 Radio Design Labs FP-UBC6 6-channel unbalanced to balanced converters
2 Radio Design Labs PS-24A NA PSU
24 VDC @ 400mA switching power supplies
1 Raloy RA17 1RU slim industrial monitor keyboard
1 Raloy RA17KVM16 1RU 17" rackmount LCD monitor w/16-port KVM switch
3 Renkus-Heinz SGX42 2-way dual 4" speakers, 2x4", nonpowered
4 RF Solutions 3-button, 315MHz AM keyfob transmitters
1 RF Solutions 315MHz AM remote control 3-channel system
6 Roger's Systems CC-DVID-3MM Dual Link M/M DVI cables
2 Samsung Electronics America 460FP-2 46'' professional LCD displays
9 Show Sage WATCH*rack 3U WATCHOUT playback computers
1 Shure MX418/C 18" gooseneck lectern mic
1 Shure SM58-CN cardioid dynamic mic w/25' XLR to XLR cable
1 Shure SM58S cardioid dynamic mic w/on-off switch
2 Shure UA221 passive antenna splitters
2 Shure ULXP124/85 UHF wireless mic combo kits
4 Shure WBH53B Beta53 omnidirectional condenser headworn mics
5 Stealth.com KYBX-300 PM-USB USB panel-mount keyboard w/SS trackball
2 svideo.com video to VGA converters
3 Synnex Seagate 1TB desktop USB2 HDD for media/system setting
16 Tannoy 8001-2610 V8 2-way 8" speakers, 8 ohm 130W RMS
5 Tannoy 8001-2620 V12 2-way 12" speakers, 400W
1 Tannoy VS218DR 2"x18" direct subwoofer system
1 Technovision Interactive TECHMP3 MP3 player

List is edited from information supplied by Electrosonic.

Roberts. "Then they turn up the heat even further. Would it have been better if we had had more time? No. Absolutely not."

Parallel Paths

Luis Berrios, NASA's Kennedy Space Center Program Design Specialist, said, "We traced parallel paths of design and creative development alongside facility impact and demo and preparation, resulting in an amazing transformation. Exploration Space, with its recruitment sort of theme, is our invitation to guests to participate beyond their visit to the Center. We're literally asking them, 'How will you play a role in the future of human space exploration?' This presentation speaks the right language: It is a fun learning environment that is in tune with the modern audience's very sophisticated expectations for communication."

Berrios added, "It was a bit of a challenge to find the way to immerse the new audience. We used to refer to Apollo as 'your grandfather's pro-

(continued on page 83)

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One advantage of using SMO is that you can compete with companies much larger than yours without breaking the bank. Small businesses can leverage this new technology and turn their online efforts into offline sales.

Many companies are getting really inventive with their SMOs. Insteo recently launched a digital-signage integration with Facebook, Twitter, Flickr, Foursquare and more that runs through Insteo's patented message-filtering technology to ensure safe live-messaging in public places to a given company's digital signage. I'm certain that this type of integration, along with other innovations, will pop up more frequently in the near future. Your participation in SMO will keep you as up-to-the-minute as everyone else, so keep your eyes and mind open. ■

HOW: BUSINESS

(Continued from 18)

there for them. You can help them. Here's how.

For their Easter performances, music leaders almost always need additional microphones, especially high-quality choir microphones, and additional wireless lavalieres and small microphones such as the popular over-the-ear microphone. Or, perhaps they want a wireless in-ear monitoring system (IEM). They may buy or rent these products. Easter is the perfect occasion for you to facilitate the rental. Better yet, allow the music leader/pastor to "demo" a few of these microphones, IEMs or even a digital mixing board. I can safely say that almost every HOW that does not have a digital mixing board (and most do not) wants one badly. Make it happen for them. Let them use it. Teach them how to use it. Install it for them. Tune their system so it sounds as good as it possibly can. Favors during times of need lead to long-term relationships. Sure, you may have to invest time in making it happen for these leaders. However, I believe that, if you will invest your time, show genuine interest in addressing their communication needs, treat the leaders and their team members with respect, and allow them to demo your products and services, your chances of developing a new client will increase significantly. That's what I believe. Now, please tell me what you believe. ■

IN FOCUS

(Continued from 33)

Ultimately, though, according to Gottwig, Delta AV's secret to success can be divulged in one word: people. "The people who have come to work for Delta have sought us out and wanted to work here," he commented, adding that "there have been very few times that we've actually had to go out and find somebody to work for us." The company has a remarkably low turnover rate; according to Gottwig, about two-thirds of employees have been there for more than five years, with half having been employed for more than 10 years. "Our employees and their love for the business—their passion for it—are the key to our success," he declared. The company culture is unique, as well, inasmuch as the company has little middle management and almost no "people who manage people." Gottwig added, "We have people who manage *process.* Most of our employees are Type A personalities."

Delta AV, with its passionate staff, savvy management, technical expertise and PSNI-enabled national-scale resources, is well positioned to continue its growth. Whether it is increased involvement in videoconferencing, digital signage or large-venue installations such as stadiums and arenas, the company will stay on the leading edge in the integration community, all the while satisfying its growing family of clients. ■

EXPLORATION SPACE

(Continued from 53)

gram.' Now we say, 'This is *your* program. What are *you* going to do with it?' The power to dream and create has never been more interesting than it is now."

BRC Imagination Arts Founder and Chief Creative Officer Bob Rogers has a longstanding relationship with NASA and shared some observations. "Some years ago, I was a member of the MEPAG Committee: the Mars Exploration Program (sometimes Payload) Analysis Group. It consisted of 49 people who had paid attention in school, plus me. The rest were authentic rocket scientists.

"My job was to advise regarding Public Engagement. The report I wrote remains in circulation as a cult classic. I am no longer active in MEPAG, but I am occasionally asked to speak at NASA centers about Public Engagement. I received a NASA Public Service Medal, but not for my work on the MEPAG Committee and not for any other one thing. Perhaps the above, plus Space Center Houston, and our work at the Kennedy Space Center Visitor Complex.

"Exploration Space was a new strategy for NASA but, instead of giving all the answers, the presentation focuses on the questions, challenges and unknowns ahead. As a result, it has much greater emotional impact on young people. They are drawn in and want to become involved. They come away wanting to be part of the adventure, often by wanting to become engineers. That's magic!" ■