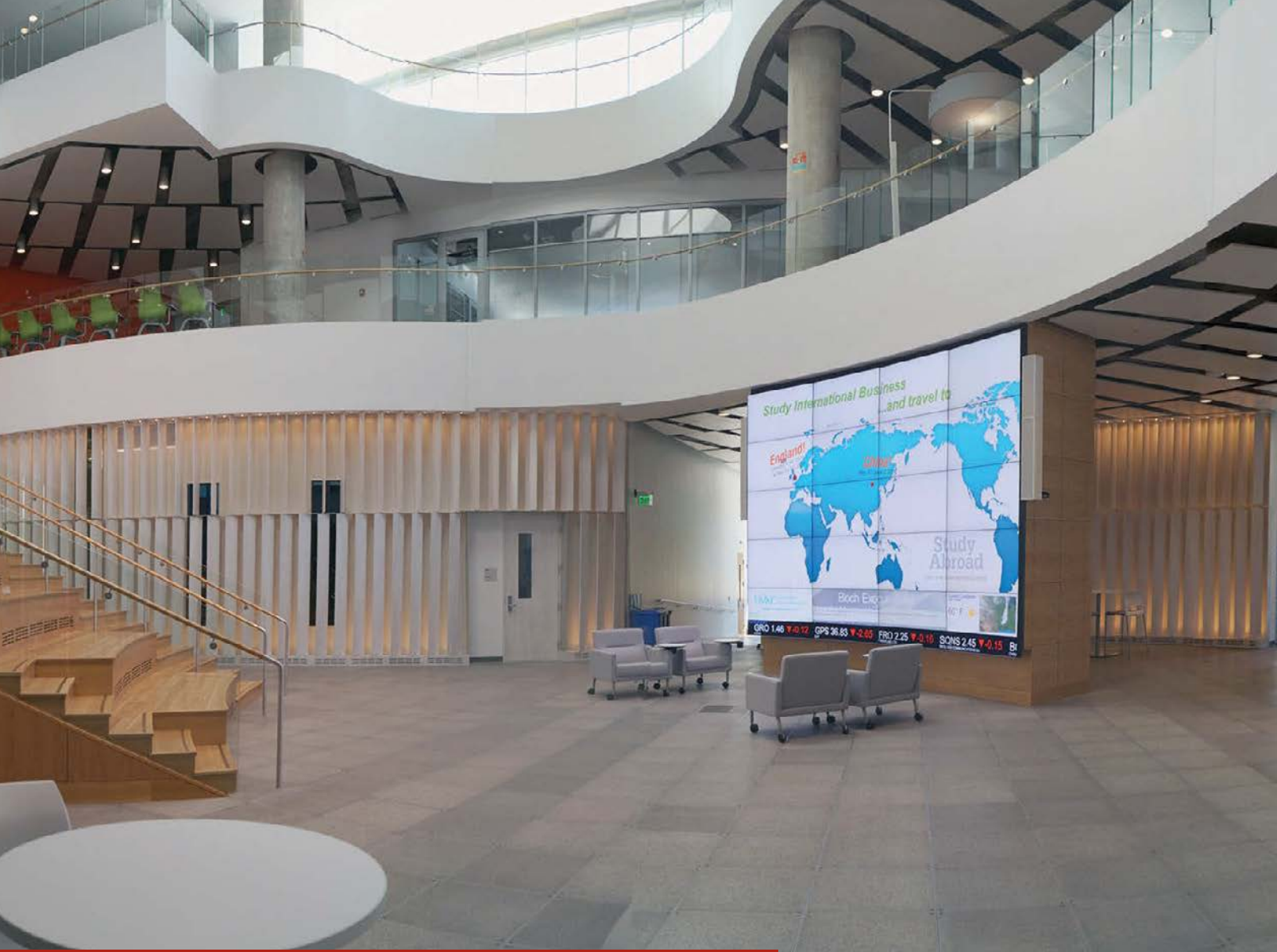


A SUPPLEMENT TO SCN MAGAZINE

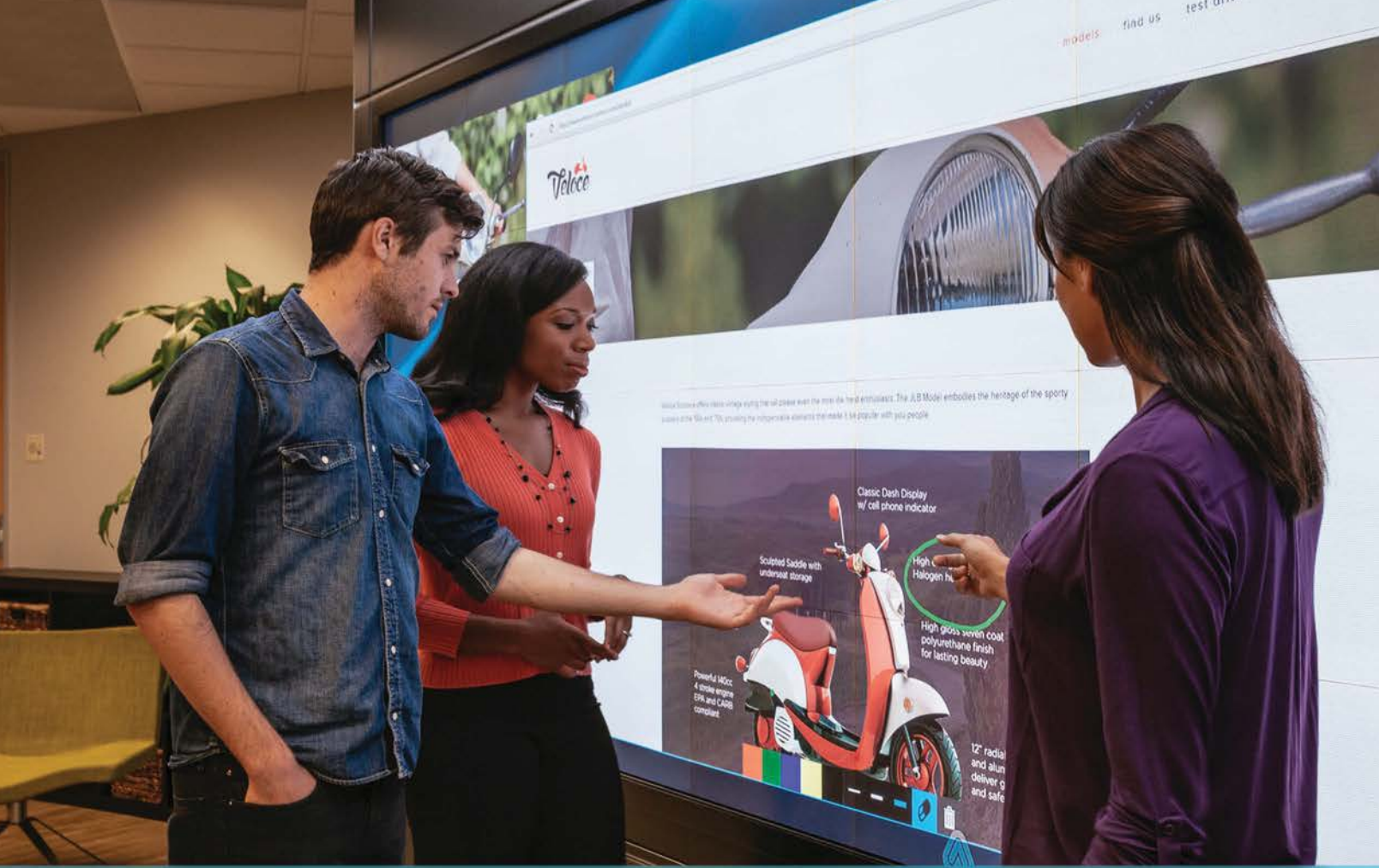
THE INTEGRATION GUIDE TO VIDEOWALLS

SPONSORED BY

ALTINEX · Aurora · BLACK BOX · CHIEF · GEFEN · HRS High Resolution Systems

Jupiter · LED3 · LG Life's Good · LIGHTWARE USA · matrox · peerless-AV · PLANAR

PRYSM · RGB SPECTRUM · SVSi · tvONE · userful · VuWall



PRYSM®

Changing the way we work. Forever.

From the boardroom to the huddle room, Prysm's Cascade collaboration solutions improve workflow and streamline communications — maximizing productivity and accelerating the time to decision.

LEARN MORE ABOUT PRYSM COLLABORATION VIDEO WALLS AND DISPLAYS AT PRYSM.COM

SCN SYSTEMS CONTRACTOR NEWS

Lindsey M. Adler
Editor

Kelleigh Welch
Managing Editor

Matt Pruznick
Associate Editor

Kirsten Nelson
Editor-At-Large

Phil Holtberg
Group Publisher

Deborah Rosenthal
National Sales Manager

Tara Preston
Midwest Audio Sales

Gene Kinsella
Midwest Video Sales

Zahra Majma
Specialty Sales

Steve Palm
President & CEO

Adam Goldstein
EVP, Group Publishing Director

Nicole Cobban
Senior Art Director

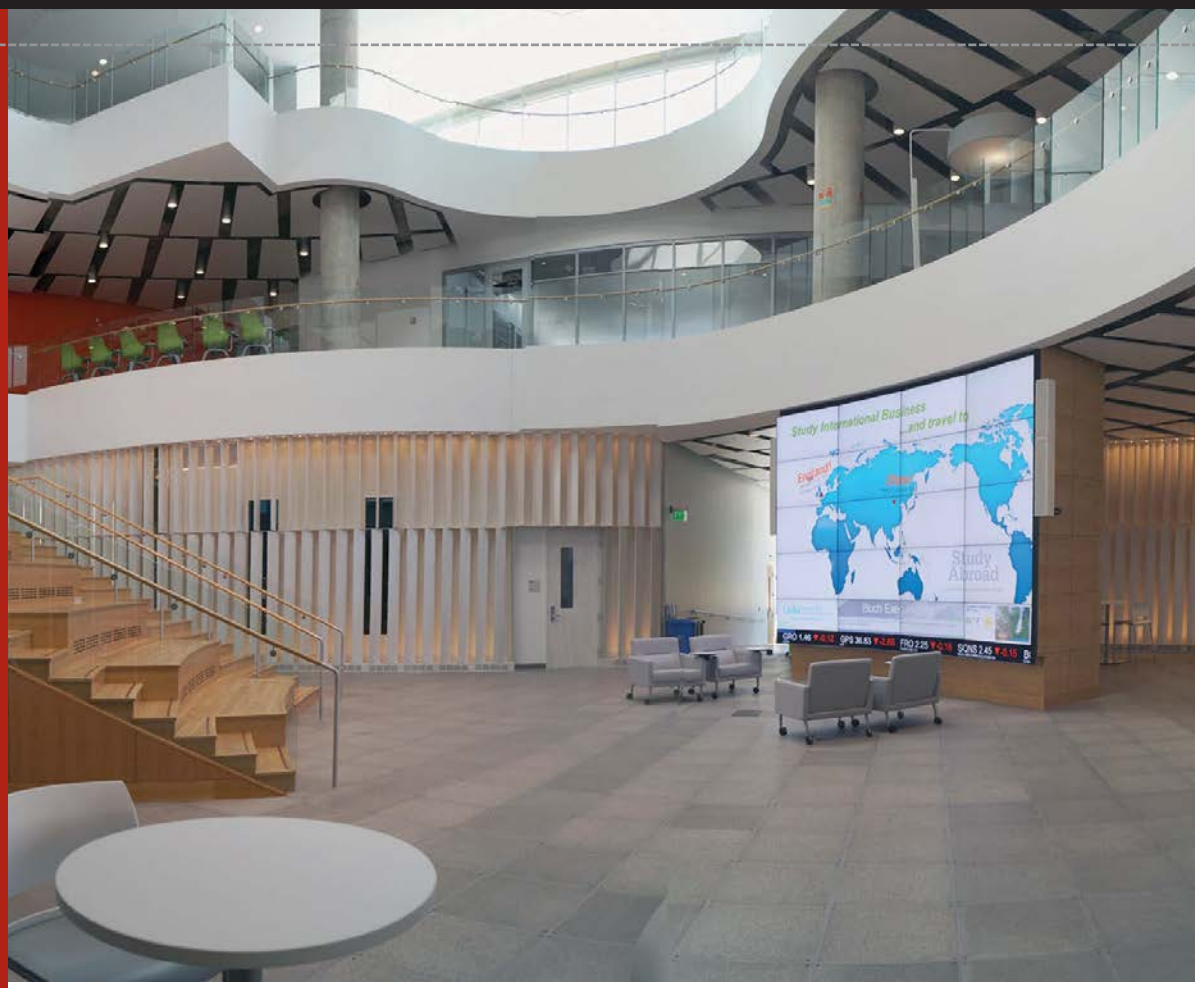
Walter Makarucha, Jr.
Associate Art Director

Fred Vega
Production Manager

NewBay Media

Published by
NewBay Media L.L.C.
28 East 28th Street, 12th Floor
New York, NY 10016
Tel: 212.378.0400
www.nbmedia.com

All names, trademarks, or brand names used herein are the property of their respective owners.



Video walls give users and architects the ability to create displays with odd aspect ratios and integrate them into the building in beautiful and compelling ways. A good example of this is the lobby in the new Henry W. Bloch Executive Hall for Entrepreneurship and Innovation building. As you can see, the display is curved, has a unique aspect ratio, and very bright…which works perfect in that space.

HIT THE WALL RUNNING

Video Walls Bring High Expectations

by Karen Mitchell

Video walls are more than a pretty face. Like a great live theater performance, what goes on behind the scenes—and the screens—via switchers, processors, extenders, and cabling is every bit as crucial and phenomenal. Not to mention content.

So meeting clients' expectations requires some solid forethought. "One of the most important tips is to have the conversation about video wall content up front, said Scott Gantkin, account manager, Presentation Products, NYC. "Having a great big fancy video wall is fantastic, and often it's all that's initially thought about. Clients need to understand how content comes into play, how it's going to be used, if it's a custom pixel count and aspect ratio, and how they go forward with having content created. More often than not, the AV systems designer and

integrator don't stay as involved, or involved with content after the system is installed and working properly."

Matthew LeFeber, project consultant, The Sextant Group, Omaha, said the big points to understand initially are these: What is the content for the video wall? Where is your closest and furthest viewer? How many sources do you need to display at one time?

"The answers will inform you as to whether you will require a $100,000 video wall or one costing several $100 thousands," he noted. "Then you can start to hone in on an exact design."

In assessing the right size/pixel density, consider a 2x2 video wall made up of 55-inch 1920 x 1080 displays. "If your closest viewer is around eight feet away, you could feed that wall with a single HD source and the viewer will not see the individual pixels, LeFeber said. "Now, if your closest viewer is around four feet away, you would need to feed the wall with four 1920 x 1080 video feeds from a processor to avoid seeing pixels."

The native total pixel canvas of a video wall is usually very high. An eight foot wide by four foot tall wall made up of 1920 x 1080 displays has around 66 million pixels. "Trying to feed each display with a channel from your video processor can get very expensive," he noted. "Doing this will maintain your display's native resolution, but may not be required if your closet viewer is far away, or you plan to only show lower resolution content."

THE 4K GAME CHANGER—OR NOT

4K doesn't change what the clients ask for, which generally is just a "large video screen," but it provides the optional tool to (potentially) give them what they really need, LeFeber said. "And, if they need a high resolution source, 4K gets them that much closer to matching the native resolution of the video wall."

The biggest challenge around 4K is in making sure you have a video processor that can handle it. "I'm seeing a stronger adoption of computer based processors for video walls; it's a popular trend" he explained. "But there are not a lot of options for 4K capture cards. 4K is great but you have to make sure your video processor will ingest 4K. On one of our projects, with a computer-based processor, we're taking four 1080p outputs from the computer and feeding the processor to get the 4K input. So make sure your processor supports 4K or find a way to use multiple inputs to get up to 4K."

Although everyone is talking about 4K / UHD, the speed of the technology and the speed of the content aren't necessarily the same, Gantkin noted. "We're seeing lots of folks asking about 4K displays, but again, not thinking about the content."

Additionally, he said, even though the display is 4K capable, designers, consultants, and integrators need to inform and teach clients that everything behind the scenes must also be 4K capable. "Where accurate color and very accurate representation of the content is key (for theaters, pitch rooms, or otherwise), it's important to understand what combination of color space and frame rate your input/output and signal transfer devices are capable of. While having 4K resolutions may sound cool, if the color space is 4:2:0 or the frame rate 30 Hz, the system may not be acceptable to the client."

SOURCES OF CONTENT-MENT

Whether you have in-house content creation staff or a go-to, third-party provider, content is something to be considered at the very start of a project. What are your primary sources for video wall content? How are you working to create video wall content more in-house than via third party providers, or vice versa.

"As consultants we don't create content and some integrators excel at it," LeFeber said. "The point I like to drive home early in the design process is that on day one of a video wall project you have a beautiful blank piece of paper, and unless you have a content plan in place you need to find some creators for content and have a budget for it. Have that conversation early whether you have in-house content creation or use a third party."

Gantkin has been using WATCHOUT software by Dataton for years. "It's a great multi-display content engine in the live event/staging world but we're also seeing more use cases for it in the installation world. We're also using media players by manufacturers like Bright Sign, and seeing triggering commands from control systems to activate video cues via QLab, Playback Pro, etc. as well. Live event technology and installed AV technology are finally coming together as one in many spaces."

Fostering relationships with great third-party content providers offers the benefit of being able to cross-refer opportunities back and forth, he added. "I think it's important for integrators to be completely competent in the video player hardware/software that's being deployed, and be able to provide content up to 'X.' Once the needs of custom content becomes 'Y,' it then should be referred to a custom design company, where that is all they do, and will work with you to understand the compression and encoding specifics of the player being used."

WHEN TRADITIONAL AC POWER IS NOT AN OPTION!

Muse products deliver AC power over a low voltage data cable. The technology, dubbed ACBaseT ™, offers a simple way to install video displays in places where it was not possible to do so in the past. Installing displays on brick and concrete walls, in historical buildings, museums, K-12, places of worship, and shopping malls just became much easier. The Muse power products are safety tested and certified, and can be installed in all commercial buildings.

The Muse power transmission concept is simple: convert high voltage to low voltage and then repeat this process in reverse. After two years of research, we became very good at doing just this. Whether you need 150W or 300W, video or network, or just power, you came to the right place. Muse products are reliable, simple to install, and are easy to use. The next time you need AC power where none is available, try Muse.

Call us for availability and lead-time on different products

Muse Power & Video

AC power over low voltage CAT cable - Video
Delivers video and 150W AC power
AC Power over CAT6 AWG23 cable
Distance up to 300ft (100m)
Wall and rack mountable

Muse Power & Network

AC power over low voltage CAT cable - Network
Delivers network and 150W AC power
AC Power over CAT6 AWG23 cable
Distance up to 300ft (100m)
Wall and rack mountable

Muse Power Only

AC power over low voltage CAT cable
Delivers 150W AC power
AC Power over CAT6 AWG23 cable
Distance up to 300ft (100m)
Wall and rack mountable

Muse High Power

AC power over dual low voltage CAT cables
Delivers 300W of AC power
AC Power over two CAT6 AWG23 cables
Distance up to 300ft (100m)
Wall and rack mountable

Muse Power Distribution

AC power over 2x12AWG low voltage cable
Delivers 800W of AC power to 4 receivers
AC Power over 2x12AWG cables
Distance up to 600ft (200m)
Wall and rack mountable

ON THE DISPLAY HORIZON

So what should AV integrators have on their future radar? OLED, and more importantly the world of flexible displays will one day actually be in the realm of large/multiple display technology, Gantkin said. "Laser displays and laser projectors are becoming more and more prevalent. There are some great new glass projection surfaces that allow your content to appear as holograms. Wireless video transmission is becoming more stable with less frame loss. Being able to share wirelessly over greater distances is also exciting."

The advent of iPad's and tablets has changed the end-user's expectations for interacting with digital content. The trend is to go from large, static things to be more engaging and interactive, LeFeber noted. "The expectation is for more multi-touch interaction with displays, and the industry is not quite there yet, but there are some products out there making good strides. Finding touch technology that mimics the personal tablet may be just what your client is looking for."

For video walls in public spaces, making a video wall interactive may also make content creation easier; you don't have to think about cycling, looping, and how to specifically tell the story, he said. "Content becomes dynamic, similar to a web page. The end-user decides what to see and hear in a series of short stories. And content always feels fresh and different."

> "Clients need to understand how content comes into play, how it's going to be used, if it's a custom pixel count and aspect ratio, and how they go forward with having content created."
>
> Scott Gantkin, account manager, Presentation Products, NYC

IT'S PERSONAL

As our personal devices get brighter, faster, and have higher resolution screens, the expectation to have this same quality for large presentation/collaboration systems is high. "Thus, we are seeing a strong trend toward using video walls as the primary display in classrooms, auditoriums, lecture halls, training centers, and large boardrooms, etc.," LeFeber said. "A large boardroom with an interactive video wall now allows the presenter to leave the shades up, stand in front of the display without being blinded by the projector, show multiple high-res sources, and interact with the wall in a tactical manner via touch. Tying in video conferencing technologies allows you to put a remote participant up right next to you on the wall."

He noted a current Sextant design project for the University of Iowa using a large visualization system to display sets of data for collaboration. "We're creating a five-foot wide by three-feet tall video wall across the entire front wall of a room for 15 participants. The video wall is multi-touch and interactive using Anacore Synthesis. This is a really high resolution canvas that allows end-users to pull up multiple sources including the resident computer, the wireless presentation devices, wired laptop inputs, and cameras in the room and put those on the video wall so users can display an image and blow it up, make it smaller, flick around the wall with inertia scrolling, pinching-zoom, etc."

The environment is familiar to the average user; it's really interactive and unique for collaboration with multiple people. "We spent a lot of time on this design," LeFeber said. "We know the closest viewer would be at 12 to 16 inches so we couldn't tile the displays with a lower resolution canvas. We are feeding each display with an output from the video processor, getting a true 31 million pixel canvas. I see high resolution imaging as an important and strong trend in the healthcare and research market. It's even going to 3D video walls."

The client was very comfortable with the idea of having whiteboards cover an entire wall where they could pin up pictures, graph, etc. and have multiple people working on the wall at once, solving problems and collaborating, he added. "However, they realized that in today's world much of these activities were being done in the digital realm and research and collaboration really needs to happen on an international level to be effective. So they needed a space that felt very familiar, yet allowed them to embrace working with digital content and tie in remote participants. That is what we created for them, and to think this is the next big use of video walls. Video walls in lobbies have been done for years and still have their place, but using them as a tool in a classroom, training center or conference room is pretty exciting."

Build a Wall Anywhere From Any Set of Video Sources

The Difference is IP

Seamlessly switch between streams for any video wall preset
or seamlessly switch between video wall presets

It's simple to build a wall using SVSi's Networked AV IP-Based distribution and switching solution. Our Decoders can both crop and scale so you can position sources across multiple monitors or use SVSi's Windowing Processors to build full-spanning pixel-for-pixel video walls. Each input can be cropped, scaled, and positioned according to stored presets or user-defined configurations. A single connection to the network will provide you with everything you need to create stunning walls in a fraction of the time it takes to design walls using other solutions. It's time to choose Networked AV - the difference is IP.

SVSi

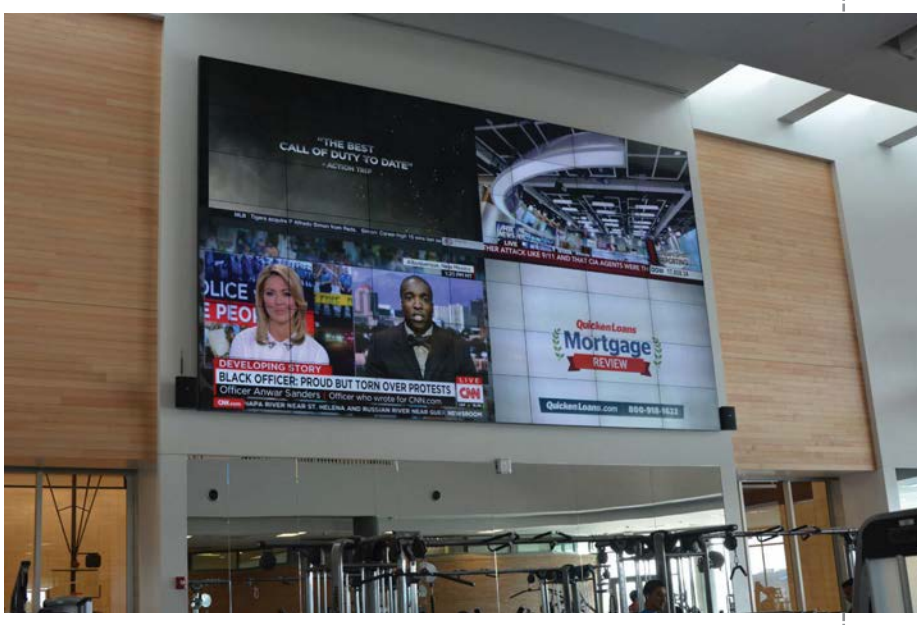
256.461.7143 • info@svsiav.com • www.svsiav.com

Distribution | Switching | Control | Windowing | Wall Processing | Recording

SVSi, voLANte and Networked AV are trademarks of Southern Vision Systems, Inc. in the United States and other countries.

Made in the U.S.A

PEERLESS-AV AT THE UNIVERSITY OF CALIFORNIA, RIVERSIDE



In early 2014, the University of California, Riverside (UCR) was putting the finishing touches on its new student center, the UCR Student Recreation Center, a building planned as the hub of recreational, intramural, and club sports on the campus. From health classes to casual sports games to personal training and even a rock climbing wall, the 80,000 square foot facility was jam-packed with everything the campus could possibly need to fulfill students' wants and needs – except for one thing. The university needed to find a way to showcase school events, share news, stream sports games, and more in a visually appealing, high-tech format, in line with the aesthetic of the brand-new state-of-the-art center.

Having dreamed of the possibility of a media system, the university sent out a request for quotation (RFQ) and High-Tech Electric answered the call. The solution presented was an impressively large 7x7 28.5-foot video wall, consisting of 49 Barco 55-inch LCD displays aligned and hung using Peerless-AV's DS-VW755S Full Service Thin Video Wall Mount with Quick Release.

Due to the various and changing needs of the UCR Student Recreation Center, the new wall would incorporate a variety of tuners from Contemporary Research to stream 16 channels and content from a Panasonic Blu-ray player, along with displaying large still images to share major campus news.

One of the challenges of providing this solution was the space designated to house equipment. Many of the components had to be assembled and prepared a far distance from the actual wall, using remote power supplies. To reduce weight and spatial constraints, the power supplies were also pulled out of the displays and rack-mounted along with media players in a separate, temperature-controlled room with low voltage cables running to the displays. Middle Atlantic Products provided the racks for the project. This resulted in less heat near the displays and less weight on the mounts.

An Extron Electronics touch panel created in the control room allowed for the university to easily control the configuration of the screens, from one full screen to four mini screens and beyond, to showcase a variety of news and sporting events.

With the video wall starting at 13 feet off the ground, with a peak height of 40 feet, Peerless-AV's DS-VW755S Full Service Thin Video Wall Mount was a crucial component of the success of the install.

The mount allowed installers to seamlessly align displays and negated tedious calculations and onsite guesswork through its reusable display dedicated wall plate spacers. While most mounts on the market require the use of tools, the DS-VW755S offers simple, tool-less micro adjustments at eight points.

Most importantly for this install, the mount's quick release function allowed installers to gain easy access to the back of displays. The DS-VW755S can also extend into a negative tilt position for ease of cabling (a feature not offered by any other mount). Both of these features were key in the installation of a video wall from a lift.

"This project consisted of so many industry firsts—it was scary to make it all happen, but that's what you have to do to get the latest and greatest," said James Gulke of High-Tech Electric, who led the project.

The installation was truly a success for all parties involved, but most importantly, for the UCR Student Recreation Center.

Today, the video wall serves more than 21,000 students at University of California, Riverside, on a daily basis—from entertaining to encouraging school pride, sharing news, school events, streaming sports games, and more—all in 13K resolution.

...If these walls could talk. Wait, they can!

Video walls make it possible.

Get your walls talking with these next-generation products.

HDMI-over-IP Video Extension & Switching

Unicast (point-to-point) or multicast applications to extend HDMI video over IP to a virtually unlimited number of screens with MediaCento IPX.

- Plug-and-play for easy setup.
- Control with mobile devices.
- Even better – a controller is also available for matrix switching and dynamic video wall creation up to 8x8.

LEARN MORE AT **blackbox.com/SCN23**

4K Video Walls

Output high-resolution video, up to 4K, to multiple monitors with flexible, expandable controller hardware VideoPlex4.

- Freely scale and position.
- Distortion-free display.
- Pair with multiple units and a DVI splitter for more than four displays.

LEARN MORE AT **blackbox.com/SCN24**

BLACK BOX®

800-355-8003

SECURING THE STATUE OF LIBERTY

When Hurricane Sandy hit the East Coast on October 29, 2012, the Statue of Liberty was on the frontlines. The storm surges and high winds caused extensive damage to the utilities infrastructure on both Liberty Island and Ellis Island. It took over eight months of renovations and repairs before the Statue of Liberty could be reopened to the public on July 4, 2013. As part of the reconstructive efforts, Lady Liberty received a state-of-the-art security system from Total Recall Corporation, a New York-based security integration company.

The new security system covers both Liberty Island, where the Statue is located, and Ellis Island, the site of the new security operations center. Total Recall designed the system using equipment provided by a team of industry-leading technology partners, which included RGB Spectrum. The company's MediaWall 2900 Display Processor adds powerful image processing capabilities to the installation by enabling the high-resolution display of camera feeds on a 2x2 video wall.

"Our MediaWall processor configures real-time information display on the video wall," said Bob Marcus, president and CEO of RGB Spectrum. "Operating with 24/7 reliability, the processor enhances operator awareness, essential for a security system tasked with protecting such an important part of America's culture and history. RGB Spectrum is honored to be part of the system protecting the Statue of Liberty," added Marcus.

Over 150 network cameras, supplied by Axis Communications, are used to monitor the park and monument. Additional cameras with a 200-degree panoramic view were provided by Scallop Imaging to ensure the security of all perimeters. A robust broadband network allows the high-resolution IP cameras to wirelessly communicate with the central command center, which was moved to a protected location on Ellis Island above flood elevation. Milestone and BriefCam servers take in the camera feeds and convert them to DVI signals that are input to the MediaWall processor, and Milestone's XProtect Video Management System (VMS) integrates the various systems used in the installation.

The MediaWall processor works with the VMS and servers to enable an expanded range of display possibilities, from a single video feed scaled across all monitors, to mosaic images of four, nine, or 16 cameras feeds displayed in each of up to eight windows of any size and configuration. These windows can be located anywhere on the video wall, including across monitor bezels. Operators use a BP-16 panel to quickly recall preset window layouts and change the on screen display with the touch of a button. The video wall display's real-time reliability and versatility enhance both public safety and operational efficiency.

Previously, the Statue of Liberty and surrounding grounds were monitored by an analog system composed of five separate sub-systems; technicians were required to know how to operate each of them. U.S. Park Police Captain Greg Norman observed that the new digital system is now fully integrated and allows operators "to identify any problems and quickly take action [as well as] make critical decisions to better manage the park."

According to Jordan Heilweil, CEO of Total Recall, the contrast between the old system and the new is more than night-and-day. "It's like going from Mr. Magoo who couldn't see his hand in front of his face, to Superman with x-ray vision" observed Heilweil. After seeing the National Park Service struggle for years to get funding for a new security system, Heilweil decided that he would design and donate a cutting-edge system to the Statue of Liberty. With an estimated value of over $4 million, the solution provided to the park by Total Recall and its team of technology partners was "not restricted by budget. It has all the features and benefits that the Park Service and police needed [including] wireless connectivity, video synopsis [software], ample camera coverage, and [excellent display processing capabilities]."

"The new system is used [to ensure] the day-to-day safety and security of park visitors while also helping monitor traffic flow, expand people management capabilities, assist ferry services operation, reconnect parents with misplaced children, verify theft, loss or accident claims and effectively respond to medical emergencies " said Captain Norman. "The ultimate goal: to keep the visitor experience enjoyable while at the same time being able to respond optimally to incidents or emergencies."

A 360° view of operations.
Anywhere. On any device.
Canvas
Collaborate with Canvas.
Now with Lync Integration
JUPITER SYSTEMS | WWW.JUPITER.COM | +1 510.675.1000
Jupiter

AT ISSUE

Which vertical markets are poised for the most growth and how can integrators capitalize on these opportunities?

JACK GERSHFELD
PRESIDENT, ALTINEX, INC.
Much of the focus in today's corporate enterprise revolves around simplicity of calibration. Borrowed from the software industry, the term "User Experience" is now commonplace when discussing the boardroom and meeting spaces environment. The ability to seamlessly share information across all platforms and environments is the key to developing new products and services. As this vertical market continues to expand, Altinex offers products that simplify the design and installation of state-of-the-art collaboration environments. For example, our ShareTime collaboration system converts any multi-input CEC compatible monitor to a full collaboration system. Our UT260-042 and UT260-052 4x1 and 5x2 video processors, used with ShareTime, offer an out of the box collaboration experience. Combined with tabletop solutions such as our TNP128, these products provide essential elements in the contemporary meeting or presentation space.

The ability to seamlessly share information across all platforms and environments is the key to developing new products and services.

RICK SEEGULL
SR. VP SALES & MARKETING, AURORA MULTIMEDIA
The vertical markets most poised for growth we believe are education, retail, and restaurant/sports bar applications.

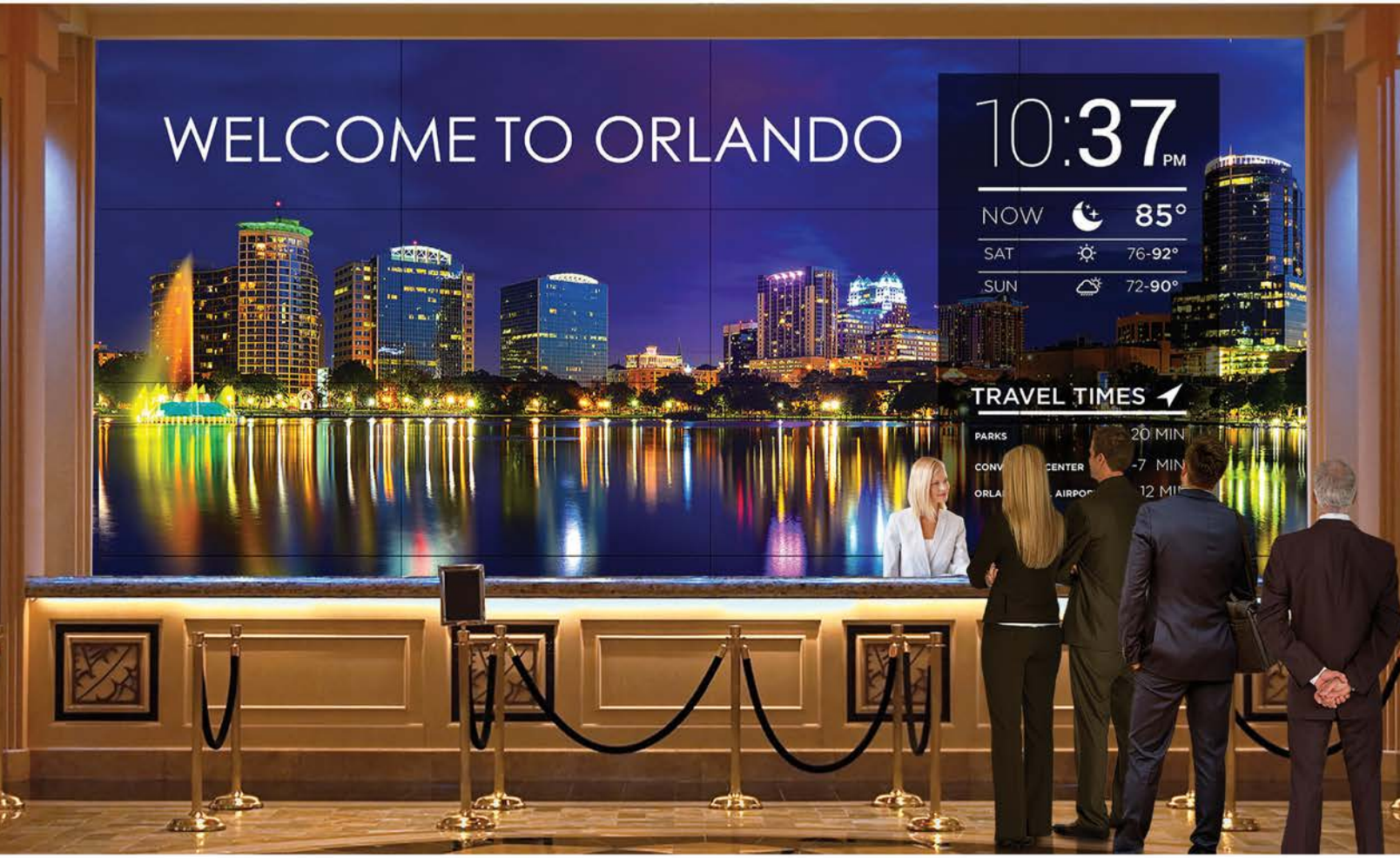
With regard to education, today's classrooms (even K-12) are requiring AV technology to further enhance the teaching process. The days of the chalkboard are long gone and now with lower cost solutions, AV has broken out of the "higher-ed only" phase and is now ripe for K-12. Here, clarity and visibility are key. Video walls can create a larger viewing area without the need for projectors and more adaptable in brightly lit room conditions.

When it comes to retail environments as well as restaurant/sports bar applications, keeping the customer constantly stimulated, engaged, (and in the establishment) is key to increasing revenue and providing a stunning AV environment. Integrators need to know how to best communicate this message and back it up with reliable, easy-to-use, and cost effective products to enhance the establishment's user-experience.

ERIK INDRESØVDE
PRODUCT MANAGER FOR DIGITAL SIGNAGE AND AV, BLACK BOX
Corporate environments are where we see the largest growth potential for signage. Digital signage can be used to improve employee engagement and participation in company initiatives, provide wayfinding throughout corporate buildings, and display productivity achievements in real time. Additionally, big, interactive video walls catch the attention of visitors and can be used in lobbies to welcome them and inform them about the company and current activities. Education, hospitality, and healthcare markets also keep growing and pose business opportunities. Being able to communicate the benefits and ROI of a signage solution to the customer is critical to be successful in these markets. Integrators need to partner with a knowledgeable distributors of digital signage hardware and content management software in order to impress its benefits on the customer.

KATHRYN GASKELL
PRODUCT MANAGER, CHIEF
Retail is one of many vertical markets that are seeing and should continue to see growth. Stores can present a wide vari-

LG
Life's Good



THE THINNEST LINE
BETWEEN VIDEO AND REALITY

Discover new ways to captivate your customers. Imagine a grand Video Wall assembled with the narrowest bezel-to-bezel size in the industry—only 1.8 millimeters—for huge, striking images that are virtually seamless. Our IPS panels deliver best-in-class picture quality, with truer colors and a wider viewing angle than other displays. And with easy installation and calibration, plus versatile connectivity and codec support, LG's VH7B is the clear choice for all of your Video Wall needs.

www.lg.com/videowall

© 2015 LG Electronics USA, Inc., Englewood Cliffs, NJ. LG Design & Life's Good are registered trademarks of LG Corp., Inc.
All other trademarks are the properties of their respective owners. Video wall image simulated.

ety of mounting surfaces and challenges, so a good selection of installer-friendly solutions with flexibility and adjustment capabilities to handle any situation is a necessity.

In established stores, installations often need to take place when the retailer is closed. Tight timelines demand a mounting system that can be installed quickly without sacrificing alignment. Video walls, for example, can be particularly difficult to align quickly given the uneven surfaces they are often tasked with overcoming. A good solution with depth adjustment and generous alignment can address these situations efficiently.

ORRIN CHARM
GEFEN PRODUCT MANAGER

Gefen sees higher education, retail, and large entertainment environments as key drivers for growth in digital signage applications. With the advent of 4K video, TV showrooms, and other retail video displays, customers need to quickly upgrade their distribution systems to support the new, higher-resolution displays. Gefen's unique cascading capabilities make it easy and cost-effective to distribute 4K video to large numbers of displays with no compromise in quality.

Attending tradeshows such as InfoComm is one way to network with peers who are actively seeking cutting-edge solutions. Gefen also likes to work closely with resellers to educate them on the various options that are available and, more importantly, what's coming in the future so they can plan accordingly.

BRADY BRUCE
SENIOR VP OF MARKETING AND STRATEGIC ALLIANCES, JUPITER SYSTEMS

Today the single most important trend we are seeing for integrators is the requirement to provide access to all of the information that was once bound to the video wall in the control room, to make it available in a fully collaborative environment for remote colleagues on a variety of devices. Teams want to share live video and data, no matter where they are and no matter what devices they have with them—laptops, tablets, smartphones, and video walls. The control room must be everywhere. And they want to have the same level of collaboration as they would in the same room in order to get meaningful work done.

There is also the requirement by both public and private enterprise to visualize more of their organizations' information in real time in order to address complex operations. With

Truly Seamless, Ultra-Fine Pitch with Unmatched Image Quality

Planar DirectLight LED Video Wall System

The Planar® DirectLight™ LED Video Wall System is a family of seamless, ultra-fine pitch direct view LED video walls that provide a superior visual experience, and 24x7 reliability tailored to your unique indoor environment. Planar DirectLight LED video walls incorporate design principles gained from Planar's decades of successful video wall installations and is ideal for the most demanding applications, providing a uniform and seamless canvas of nearly any size or shape. For more information visit www.planar.com/DirectLight.

1.855.748.8199
sales@planar.com
www.planar.com

PLANAR®

Today the single most important trend we are seeing for integrators is the requirement to provide access to all of the information that was once bound to the video wall in the control room, to make it available in a fully collaborative environment for remote colleagues on a variety of devices.

far-flung operations, complex supply chains, extraordinary distribution networks, and a 24/7 schedule to maintain, the global enterprise needs to see what it must manage to understand what is happening at any place and time. This is no less true for a traffic management agency, a public utility, a police department, or a national defense force.

LYNN ROMAN
VP, OPPORTUNITY DEVELOPMENT, LED3

Houses of worship are definitely a rapidly growing market, as are corporate lobbies, conference rooms, and monitoring control centers. With the development of higher resolution displays—including pixel pitches as low as 1.6mm, it's becoming more affordable to replace LCD projectors and monitor walls with brighter, more dynamic, seamless LED screens. LEDs offer higher contrast and colorimetry control to blend within ambient environments. By increasing their knowledge and awareness of how far LEDs have come in performance and affordability, low cost of operation and longevity of life cycle, integrators can focus their efforts on interior displays as well as exterior signage. One of the latest innovations for the higher resolution displays is interchangeable modules for the same precision manufactured frames, with front or rear access.

DAN SMITH
SENIOR DIRECTOR OF DIGITAL SIGNAGE, LG ELECTRONICS USA

The largest available markets today are retail, QSR, and

finance. The integrators' primary point of entry should be learning the goals and aspirations of the companies looking to deploy signage solutions. Make sure the signage network integrates seamlessly into the strategies already in motion and have the network meld into the physical location and architecture to augment and not distract from their branding. The solution should be presented as a whole and require a minimal amount of decision points for the end user, and the proposal should be delivered with an in-application demonstration of the technology and content.

DREW TAYLOR

VP OF BUSINESS DEVELOPMENT, HIGH RESOLUTION SYSTEMS, LIGHTWARE USA

Driven by the demand to deliver more flexible and interactive content, digital signage will experience strong growth over the next few years. The transition from static, paper-based communication to vibrant digital content is developing quickly as organizations understand the benefits of modern digital solutions.

Current digital signage implementations are producing significant value by enabling content that is dynamic and interactive for its target audience. This new level of communication is an effective digital medium that will continue to increase in usage. With a control solution like Video Wall Controller from High Resolution Systems, end users now have the opportunity to quickly, intuitively, and effortlessly manage the layouts of their video walls. Integrators now have the ability to demonstrate capabilities easier and showcase greater value with this new technology.

SAMUEL RECINE

DIRECTOR OF SALES, AMERICAS AND ASIA PACIFIC, MATROX GRAPHICS INC.

The sub-vertical market in AV poised for the most growth is still digital signage. It's not only the low-cost of equipment and services that continue to propel this segment, but also the immediate and aggressive use of data collection and analysis. Features that add value to both customers and advertisers abound, such as automated triggers—like looking at an ad and being seen doing so by a smart-cam; interactivity—beyond just touch but also personalization based on data; and the nesting of live content as regions of interest—to keep viewers' eyes trained on the message. But if we were

Aurora

iPBaseT™ AV EVOLUTION

IPBaseT - The evolution of AV distribution and routing

IPBaseT synergizes various IP/AV technologies to work together as one. IPX with IPBaseT combines 4K2K uncompressed video with seamless switching, digital audio, USB 2.0 with Aurora control and distributes it all over a 10G network. This provides the proper bandwidth to support a large, seamless UHD video and audio distributed matrix for years to come.

IPX Series Transceivers

- IPBaseT transceiver - one unit can be configured as a transmitter (encoder) or receiver (decoder)
- 4K2K with zero compression and zero latency
- Available for 10G fiber or 10G copper networks
- 128x128 w/HDCP distributed routing (nearly unlimited scalability without HDCP)
- Seamless and breakaway switching
- Video wall capabilities
- Built in control system with web server for display and source control
- Dante® IP audio and USB 2.0 options
- Available in surface/rack-mountable (IPX-TC1) or wall plate (IPX-TCW3) versions
  Shipping Q4 2015

IPX-TC1

IPX-TCW3

Configurable as a transmitter or a receiver - Industry first!

www.auroramm.com

Aurora Multimedia Corp. | Morganville, NJ, USA | 732-591-5800 | sales@auroramm.com

to pick an "application" that is poised for the most growth across ALL vertical markets, it is unquestionably AV-over-IP—the convergence of all data, communications, audio and video over IP. What integrators need to do to take advantage of the next 15 years of growth is focus on enhanced hardware, software, and services in AV-over-IP.

BRIAN MCCLIMANS
VP GLOBAL BUSINESS DEVELOPMENT, PEERLESS-AV

From aesthetically pleasing video walls for entertainment and information sharing in student and fitness centers, to interactive kiosks for wayfinding, scheduling, and student purchases, to outdoor displays in stadiums, the education market, particularly at the university level, holds great opportunity for integrators. The best way to capitalize on this is to focus conversations with decision-makers on ROO, rather than ROI, with that objective being enhancing the student experience and appealing to the prospective student. Today's youth are incredibly technology-driven, and these enhancements will certainly appeal to them. Moreover, a system of networked displays offers universities great opportunity to establish an exceptional emergency alert system, another area of great appeal for new students.

STEVE SEMINARIO
SENIOR DIRECTOR OF PRODUCT MARKETING, PLANAR SYSTEMS

With our recent introduction of the Planar DirectLight LED Video Wall System, it's been interesting to see where there have been the strongest pockets of opportunity and growth by vertical market and application. While there have been a number of interesting verticals, corporate presentation video walls have been one of the strongest where the value of a seamless, fits-any-space and resolution-rich characteristics of fine-pitch LED have been popular. Whether outfitting a new space or replacing older seamed or lower-brightness solutions, this appears to be a growth vertical. Most of these customers want to display a variety of data sources simultaneously, so integrators with image processing and show control expertise have a real leg up in this growing application.

DANA COREY
VICE PRESIDENT OF GLOBAL SALES, PRYSM

The verticals in the AV market that are poised for the most growth are education and corporate. Millennials, a genera-

Only the best, for the best!

CORIO**master** - The most advanced video processing for Multi-window videowalls now featuring Live Transitions and 4K input & output.

NEW FEATURE
LIVE WINDOW & SOURCE TRANSITIONS

Up to 4 creative Videowall layouts

Live Window & Source Transitions

360° video rotation in real-time

CORIOgrapher - quick & easy videowall setup

CORIOgrapher

A new generation in videowall creation for CORIO**master** & CORIO**master** mini.
Top performance for live, on-screen productions

NEW 4K Modules

tvONE

800-721-4044 • sales@tvone.com • **www.tvone.com**

While there have been a number of interesting verticals, corporate presentation video walls have been one of the strongest where the value of a seamless, fits-any-space and resolution-rich characteristics of fine-pitch LED have been popular.

tion that has grown up with technology, are increasingly driving this trend.

As work styles continue to evolve, students and workers will expect new ways to collaborate. Integrators can capitalize upon these market opportunities by improving the collaboration experience for their clients. With solutions such as Prysm's Cascade systems, they can deliver a feature-rich collaboration platform that leverages a familiar touch interface.

Cascade collaboration solutions combine the most advanced high-definition, low-energy, virtually seamless displays with an easy-to-use interface that works like a tablet. Live streaming video, web apps, documents, presentations, images and inputs from PCs and mobile devices can be displayed, resized, positioned, and annotated on screen.

BOB EHLERS
VP MARKETING & VERTICAL MARKET DEVELOPMENT, RGB

Emergency operations, traffic management, and security operations centers are all growing markets for video walls. As the quantity and resolution of surveillance cameras increase, the need for consolidated, collaborative display, particularly of high-resolution signals, also increases. Megapixel cameras provide more "pixels on target" and high-performance video wall processors should be designed to retain this pixel density, allowing display pixel densities to rival camera densities.

With more cameras deployed for surveillance, operators must view and respond to video from multiple cameras and source systems. Analytics software can simultaneously monitor hundreds of camera feeds and immediately alert operators when issues are detected by displaying messages,

The next generation of video walls is here

- Hardened software appliance runs on standard Intel PC and server hardware
- Network delivery reduces costs and simplifies management
- Simultaneously display multiple content sources (up to 4K resolution) with multi-Zone control

- Managed content via integrated CMS, live TV, real-time content via HDMI capture, interactive desktop, HTML5, and more...
- Artistic "mosaic" deployments with individual displays rotated 360°
- Entire solution easily managed through a browser

Get your trial kit today
1 866-873-7385 ext 1
+1 403-289-2177 ext 1
getstarted@userful.com
userful.com/videowall

1
PC/server for up to 25 video wall displays anywhere on the network

Userful Network Video Wall
Simply Stunning

userful™

© 2015 Peerless Industries, Inc. All rights reserved.

peerless-AV®

How do we get video wall mounts right for you?

- ☑ Constant improvement and innovation
- ☑ Alignment at your fingertips
- ☑ We make it easy from beginning to end

GET IT RIGHT™

With proven success of well over 50,000 units installed in just the last two years, Peerless-AV® is here to help you get it right with all your video wall mounting needs. We are constantly upgrading the features of our SmartMount® video wall mount line to bring you the best quality products. Our complete line of the SmartMount video wall series has everything you need, including ADA compliant mounts, from the thinnest to the biggest designs. Choose any award winning Peerless-AV video wall mount to feel confident that you got it right, the first time. And, for added reinforcement to get the job done right, download the Peerless-AV Video Wall Mount Locator App to take the calculations out of the equation when installing a video wall.
For more information on the industry-leading SmartMount video wall system visit peerless-av.com

changing borders, or adding labels to windows on the wall. By enabling the display of multiple videos and graphics in customized layouts, a powerful video wall processor enhances situational awareness and operator response.

Integrators should look at the complete ecosystem for EOC, SOC, and TMS design, to understand how source devices such as cameras & video management systems will impact the configuration of their video wall.

KEVIN DEASY
VICE PRESIDENT, MARKETING, SVSI

Consumers will push 4K resolution to widespread acceptance. Displays and media devices that support 4K are entering the mainstream marketplace with 4K content being the lagging component, but that will change soon. Integrators have the opportunity to upgrade their customers with new products to support this new format while being creative and utilizing existing HD equipment. One example would be the turning an existing 1080p video wall into a 4K video wall. By utilizing the built-in crop / scale feature in an SVSi 4K decoder, a 1080p video wall configuration can be driven full-pixel by the 4K encoders allowing the entire wall to be up scaled from 1080p to 4K UltraHD.

ANDY FLISS
SALES & MARKETING DIRECTOR, THE AMERICAS, TVONE

We'll expect to see regional retailers following the lead of their national cousins. As costs have fallen and the national retailers have deployed nationwide, competition will create expectations in the market and smaller retailers will fall in line. The beauty of it is that integrators will find a direct approach to regional retail management effective. Find the shops that don't use it today and do the legwork to find the decision maker.

Sports venues will continue to expand high profile areas in their facilities. Video walls create striking visibility for messaging. Use of non-standard, creative shapes and positions will open a world of creativity for marketers striving to catch attention. AV Pros are the people who need to bring the potential of products like tvONE's CORIOmaster to the attention of the sports marketing pros. Once the possibilities for creativity are unearthed, the management will be drawn into the new look.

ConnexSys™

Video Wall Mounting System

Installers and integrators asked for a better video wall mount. They wanted a system with speed, easy alignment, access for serviceability and rigidity. We designed a mount that quickly levels on strut channel, provides 6 points of PowerZone™ adjustments in one location, gently and remotely pops out screens only when needed with RapidDraw™ Display Release, and locks screens in place at a depth of your choosing. **You asked for it...**

We Solved It.

Find out how at chiefmfg.com/connexsys

CHIEF®

800.582.6480 ■ chiefmfg.com

©2015 Chief is a division of Milestone. SCN-1-15.

Corporate, internal production studios are also multiplying quickly. With a need for internal video production in the corporate setting becoming mandatory, proper sets and video displays are part of the mix. Efficient and flexible video walls are certainly part of the mix, but AV pros need to approach the traditional production staff in addition to the IT management, since they all need to work together.

PAUL VANDER PLAETSE
PRESIDENT, VUWALL TECHNOLOGY, INC.
We believe the need for video walls will continue to grow in all markets, particularly for small to medium sized video walls. With large monitors becoming more and more affordable, every day sees new applications for video walls. Until now, integrators have mostly used matrix switches to route content to video walls. This is a robust, but not very flexible way to drive video walls. The most innovative integrators use PC based solutions and are able to offer very flexible video walls where it is easy, even for end users, to adjust content across video walls.

DANIEL GRIFFIN
VICE PRESIDENT, USERFUL CORPORATION
At Userful, we've seen the strongest growth from companies that previously thought video walls were out of reach in terms of both price and complexity. We have a lot of companies deploying unique, artistic video walls in their lobbies and public spaces both because it can totally transform that environment but also in order to support company messaging and branding. Deployments like these are now possible without breaking the bank by using solutions like Userful Network Video Wall.

To capitalize on the growth in video wall opportunities across all sectors, integrators need a solution that's flexible—something that can be used for a wide variety of deployments. Many integrators are juggling half a dozen video wall solutions for various deployment scenarios and that's a recipe for trouble. Integrators need a single solution that can do it all: grid formats, banner-style video walls, 4K content, and artistic deployments. If integrators want to be nimble, they need a cost-effective and flexible solution.

The World's *First* True UHD Video Wall Display Processor

MediaWall V

Single-wire input/output resolutions to 4K UHD
Unique architecture with dedicated decoding & application processing
Fully-scalable windows, any size, anywhere

RGB SPECTRUM® (510) 814-7000 sales@rgb.com www.rgb.com

PLANAR DIRECTLIGHT LED

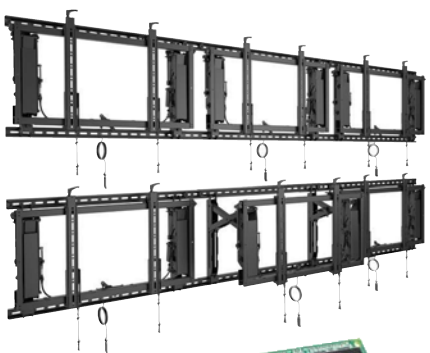
The Planar DirectLight LED Video Wall System is a family of seamless, ultra-fine pitch direct view LED video walls that provide 24x7 reliability tailored to your unique indoor environment. Planar DirectLight LED video walls incorporate design principles gained from Planar's decades of successful video wall installations and is ideal for the most demanding control room applications.

LED3 A2

LED3 presents the ultra hi-definition LED display that won't crush your budget. The A2 from Absen brings a high definition LED tile with high brightness, high contrast, and high consistency. The 2.5 pixel pitch features a cable-free design, integrating power and control systems ensuring easy maintenance.

ALTINEX TNP128 INTERCONNECT BOX

The Altinex TNP128 Interconnect Box combines digital (HDMI) and analog (VGA) video connectivity, an RJ-45 connector (for network access), a 3.5 mm audio jack, and an AC power port into a single, tabletop interconnect unit. The TNP128 makes it easy to connect one's laptop to a video display and loudspeakers for a presentation. It is one of many Altinex solutions that provide quick and intuitive access to the tools that enable coworkers to share information.



CHIEF CONNEXSYS

The ConnexSys Video Wall Mounting System solves the most common installation problems: speed, alignment, serviceability, rigidity. Strut channel install aligns an entire row and removes the need for spacers. Six points of PowerZone tool-free adjustments are all found in one location. Depth can be set anywhere between 4 to 7.3 inches (102-186 mm). RapidDraw Display Release gives access to any display. The mounts extend up to 13.7 inches (348 mm). Added rigidity prevents accidental screen shift.

MATROX MURA IPX SERIES

The Matrox Mura IPX Series is a new line of 4K capture and IP encode/decode boards that let OEMs and AV system builders deliver advanced video wall controllers featuring high-quality, low-bit-rate, multi-channel 4K or HD encoding and decoding over standard IP. Designed to work with Mura MPX capture/display boards and Matrox C-Series multi-display graphics cards, Mura IPX packs 4K capture plus high-density encode/decode functionality onto a single PCIe card to simplify integration and reduce installation costs.

JUPITER SYSTEMS CANVAS CRS-4K

The Canvas CRS-4K is a conference room system in a small, quiet box that enables powerful Canvas collaboration for teams in conference rooms and huddle rooms. Running the Canvas Client, CRS-4K allows teams to share live video, real-time data, documents, application screens, and presentations with remote users in a rich collaborative environment. The CRS-4K supports up to four 1080p HD displays or a single 4K Ultra HD display, allowing even the smallest huddle room to have Canvas on the wall for powerful, collaborative teamwork.

SVSI N3510

SVSi's N3510 Multi-Channel Windowing Processor allows user customization of borders, text overlays, window size and positioning, backgrounds, and stores user presets for quick recovery. The N3510 accepts up to nine high- or main-profile H.264 streams from any source while outputting the windowed HD video stream for local viewing through its HDMI port or in streaming format to a remote hardware or software decoder. Plug in a single network cable and all nine video streams flow in while the windowed HD output stream flows back out from one cable to any destination.

AURORA IPX-TC1

Aurora Multimedia's IPX-TC1 4K AV IP-Streaming Transceiver is the market's first 4K2K transceiver with zero compression and zero latency. It combines the ability to use the unit as a transmitter-Input or receiver-Output, greatly simplifying overall system design, ordering, stocking, and deployment. Ideal for AV distribution, routing, control, and videowall processing applications, Aurora's IPX-TC1 can support over 128x128 channels using standard 10G fiber or copper ethernet switches.

TVONE CORIOMASTER

tvONE CORIOmaster systems expand capabilities by adding Live Window Transitions and 4K support. The addition of 4K consists of two new modules; the HDMI 4K30/60 input module and the HDMI 4K30 scaling output module, both allowing resolutions of up to 3840x2160. Live Window Transitions is a new animation feature controlled by presets allowing users to create dynamic visual effects on sources in windows, such as fade through black, horizontal and vertical shrink, spin, and window movement consisting of window size, rotation, and placement.

HIGH RESOLUTION SYSTEMS VIDEO WALL CONTROLLER

The High Resolution Systems Video Wall Controller enables end users to quickly, intuitively, and effortlessly manage the layouts of their video walls. With features such as the ability to save layouts; drag and drop sources; pinch to zoom; and recall existing layouts, all of this designed for mobile and touch.

The Ultimate in 4K UHD Management & Distribution

The "Smart" Wallplate

WP-UMX-TPS-TX130-US

4K UHD

HDBT™

4K and 3D Format Support | Extend Signals Over CAT5/6/7 Cable up to 550 Feet | HDMI, VGA, DisplayPort Connectors | 10/100 Ethernet Transmission | Bi-Directional RS232 and IR | HDCP Compliant, CEC, EDID Transparent | Local Audio Embedding

Find out more on our "Smart" wallplate solution and learn about upgrading at http://bit.ly/tx130-us

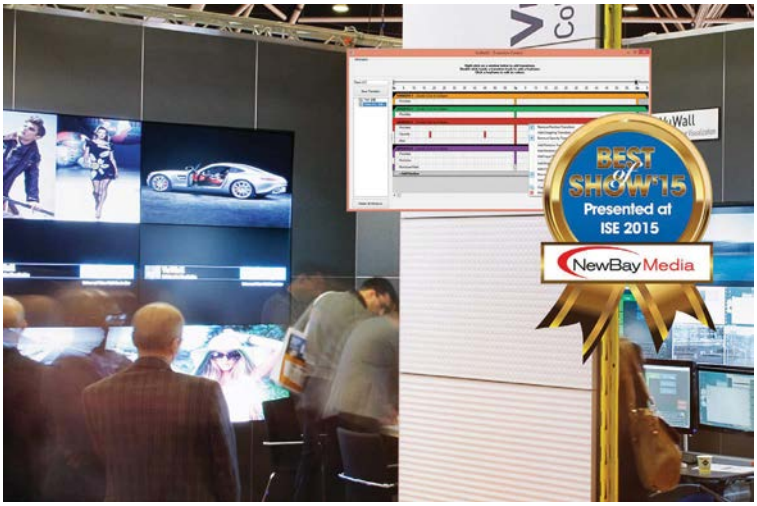
As seen at infoComm15

visual engineering LIGHTWARE USA

sales@lightwareusa 888.587.5587

VUWALL2

VuWall2 is a suite of software products designed to easily control video walls. From the most simple to the most complex video wall configuration, whether for presentations, dynamic digital signage, or highly collaborative security or control rooms, there is a version of VuWall2 that fits your needs.



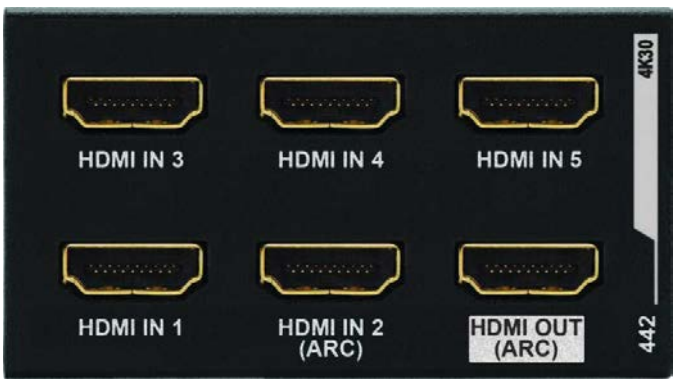
RGB MEDIAWALL V

RGB Spectrum's new MediaWall V Display Processor offers up to 4K/UHD resolution I/O, single wire connectivity, and fully-scalable, "drag-and-drop" windows. It combines hardware-based reliability with the flexibility of a separate, dedicated processor to run applications and decode IP streams.

The versatile processor supports a full range of input/output resolutions from 4K/UHD on down, and inputs are scalable for display on UHD or standard video walls. HDCP capabilities allow the display of protected content.

LIGHTWARE MODEX

The MODEX-AV-5HDMI-4K-IM-LH marks the continued growth of Lightware's Modular Extender (MODEX) family of multi-format signal extenders with modular capabilities. Unique and powerful in many ways, MODEX eliminates the need to invest in discrete units for different types of connections. The full range of MODEX modular transmitters and receivers interfaces with Lightware's 25G Hybrid line of digital matrix switchers or act as standalone extenders for users who need to transport digital and analog video, audio, or data signals over a single Cat5/6/7 or fiber optic cable.



BLACK BOX MEDIACENTO

The Black Box MediaCento AV-over-IP system uses existing ethernet infrastructure to distribute HD video signals from one source to an unlimited number of screens. Point-to-point extension, one-to-many distribution, and video walls up to 8x8 are supported from a single platform. With the optional controller, signals can be switched from any source to any screen. The system overcomes the distance limitations of traditional CATx video extenders. Video walls can easily be scaled from 2x2 up to 8x8.

Video Wall Controller

Those in the know find video wall layouts difficult to update after initial installation. The end user typically needs to go outside their organization for costly technical assistance.

High Resolution Systems' Video Wall Controller enables end users the opportunity to quickly, intuitively and effortlessly manage the layouts of their video walls.

Now, end users can:

- Save Layouts
- Drag and Drop Sources
- Pinch to Zoom Layers
- Recall Existing Layouts
- Work on Touch and Mobile
- Integrates with HRS Enterprise Control System

Discover the robust yet easy to use solution from High Resolution Systems.

It Really is Easy

If you can use a tablet, you can use HRS's Video Wall Controller. It's that simple.

Learn more at hrscontrol.com/video-wall-controller

HRS
High Resolution Systems

GEFEN GTB-HD4K2K-142C/144C/148C

The new 1:2, 1:4, and 1:8 4K Ultra HD Splitters from Gefen offer 4K UHD/DCI at 60 Hz 4:2:0 or 24/30 Hz 4:4:4 support, and feature deep layer cascading ideal for digital signage, retail, and TV showroom applications. All three splitters are interchangeable and can be combined to create completely scalable video distribution systems. These splitters can also be easily integrated with a variety of Gefen products such as 4K matrixes, extenders, video wall controllers, and locking HDMI cables.

PRYSM OLYMPIC

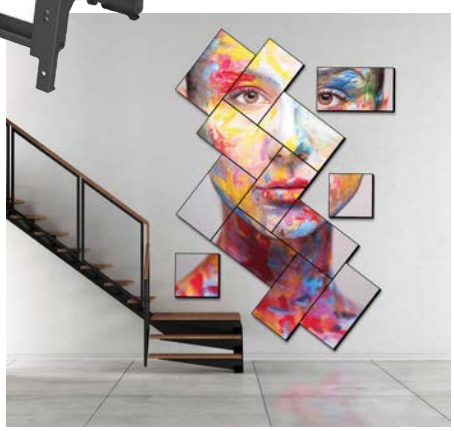
Olympic video walls from Prysm allow architects, designers, and brand managers to create unique, engaging experiences that make an impact. They offer a combination of breathtaking beauty, scalability, and best-in-class energy efficiency. Whether in an executive briefing center or a corporate lobby, Olympic video walls create an immersive and engaging visual experience that elevates your brand and makes a lasting impression on your guests.

LG ELECTRONICS VH7B

LG Electronics' new VH7B Full HD Video Wall boasts the world's slimmest bezel to bezel, measuring 1.8 mm. The series comes in three sizes, 49-, 55-, and 65-inches, and features LG's In Plane Switching (IPS) panel technology to ensure accurate color saturation and contrast, even at wide viewing angles. Additionally, it includes a built-in high-performance system-on-a-chip (SoC) that works with LG's webOS for signage platform and eliminates the need for an external player.

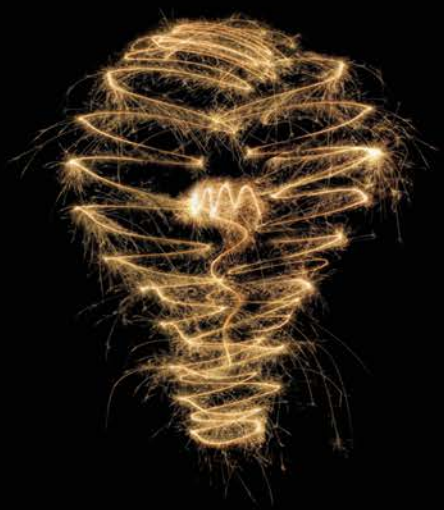
PEERLESS DS-VW755S

Peerless-AV's DS-VW755S Full Service Thin Video Wall Mount allows installers to seamlessly align displays and negates tedious calculations and onsite guesswork through its reusable display-dedicated wall plate spacers. The DS-VW755S offers simple, tool-less micro adjustments at eight points, while its quick release function allows installers to gain easy access to the back of displays. The mount also extends into a negative tilt position for ease of cabling (a feature not offered by any other mount).



USERFUL NETWORK VIDEO WALL SOFTWARE

Network Video Wall software turns a standard PC into a powerful video wall server delivering 4K and larger, real-time content through the network to up to 25 displays—a 5x5 video wall, or a mix of smaller video walls. It supports both grid layouts and mosaic-style artistic layouts and can intermix different display sizes at any angle 360 degrees. Stream one content source or many onto the entire video wall or zones within it (supports video, HTML5, 3D content, live TV, interactive content, and integrated CMS). The entire solution is all simply managed via a browser.



THE POWER TO REACH YOUR GOALS

NewBay Media provides the information you need to know — and the audience you need to reach — in the Broadcast & Video, Professional Audio, Musical Instruments, Systems Integration, and K-12 Education markets. Our services help readers, service providers, manufacturers, and associations reach their full potential, and exceed their expectations.

ONE COMPANY. ONE GOAL. YOURS.

We are here to help you succeed in any way we can — whether it is through our unique online and print media or our award-wining events and custom publications.

Learn more at www.nbmedia.com, or contact Carmel King, Executive Vice President, at cking@nbmedia.com.

NewBay Media

IN PRINT | ONLINE | IN PERSON

BROADCAST/VIDEO
TV TECHNOLOGY
RADIO WORLD
VIDEOGRAPHY
DV
GOVERNMENT VIDEO
BROADCASTING & CABLE
MULTICHANNEL NEWS

AUDIO
PRO SOUND NEWS
PRO AUDIO REVIEW
AUDIO MEDIA
MIX
AUDIO SOLUTIONS

MUSIC PLAYER
GUITAR PLAYER
BASS PLAYER
KEYBOARD
MUSIC PLAYER NETWORK
ELECTRONIC MUSICIAN

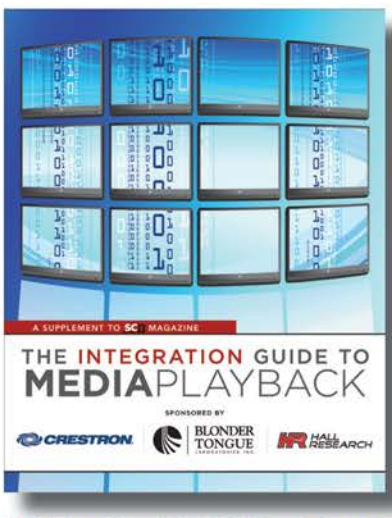
AV/ CONSUMER ELECTRONICS
SYSTEMS CONTRACTOR NEWS
AV TECHNOLOGY
RESIDENTIAL SYSTEMS
RENTAL & STAGING SYSTEMS
DIGITAL SIGNAGE
SOUND & VIDEO CONTRACTOR
TWICE

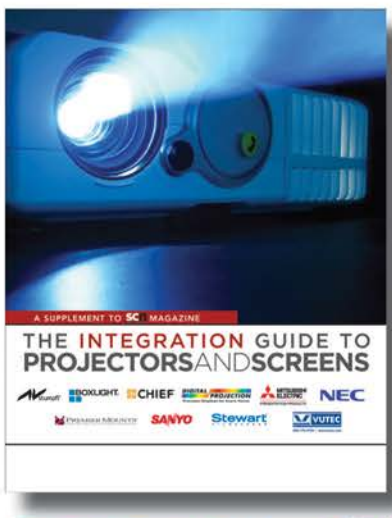
K-12 EDUCATION
TECH & LEARNING
SCHOOLCIO
TECH FORUM

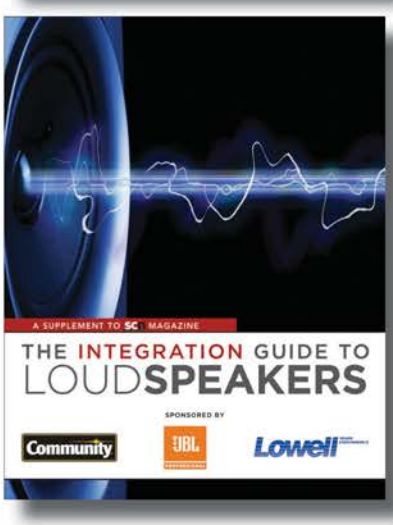
For more information on these brands and the many others offered from NewBay Media, as well as subscription information for all of NewBay's print and electronic products, **visit www.nbmedia.com.**

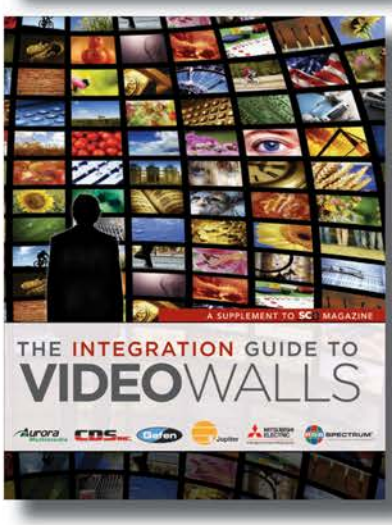
THE INTEGRATION GUIDE TO... SERIES

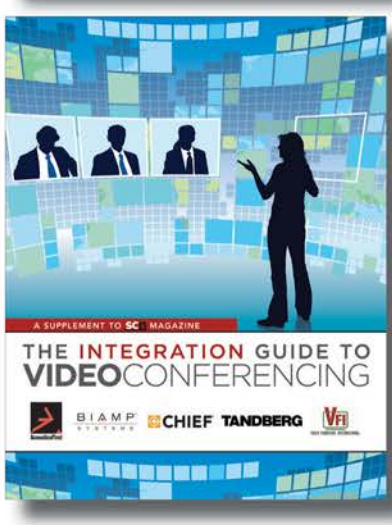
Brought to you by the same team that brings you **Systems Contractor News**, **The Integration Guide to... Series** presents an in-depth look into the most important product categories and trends affecting your business. Missed any of these titles or need to see it again? No problem, as each one has been captured as a **FREE** digital edition that you can access by visiting: www.systemscontractor.com/IntegrationGuides











Find these supplements and more at:
www.systemscontractor.com

scn
SYSTEMS CONTRACTOR NEWS