The Encounters gallery in *Stories of Cinema* at The Academy Museum. *©Academy Museum Foundation/Image by WHY Architecture*

The ISAAC ecosystem

Driving today's massive AV and LED installs with ISAAC and partners

by Judith Rubin

The ecosystem of the ISAAC management platform from Smart Monkeys Inc. continues to grow and diversify to support AV installations in new ways, keeping up with industry trends and evolving operator needs. Current trends include: Big videowalls and digital signage. Immersive and interactive environments and digital art displays. Spaces featuring multiple displays with multiple feeds. Remote support. In-house content management. The shift to AV over IP. And, in general, ever more sophisticated systems distributing ever larger quantities of data that conversely need ever greater simplicity, flexibility and redundancy when it comes to operations, management and troubleshooting.

The backdrop to these trends is the increasing prevalence of IT-style infrastructure and the data center model. Some business sectors embraced it sooner than others, and the attractions sector was not an early adopter. But in today's emerging entertainment markets, IT network culture has become the rule, as seen with new theme parks in the Middle East and Asia. It is also the natural choice for venues where large amounts of data are fielded in addition to the entertainment component, or where an IT department is already embedded, such as casinos, resorts, airports and corporate attractions.

Smart Monkeys Inc. is headquartered in Miami and has a global clientele. The company was established in 2008 and the co-owner and face of the company is Stephan Villet. In 2019 Smart Monkeys added an office in Orlando to expand its support to the attractions industry. Recent and upcoming high-profile themed entertainment projects that utilize the ISAAC platform include the MGM Cotai resort in Macau; the FlyOver attractions in Iceland, Vancouver and Las Vegas; Orlando airport, the Illuminarium themed, immersive experiences opening in multiple cities; The Shed entertainment complex at Hudson Yards and another big project TBA in NYC; the soon-to-open Academy Museum of Motion Pictures, Superblue experiential art centers (the first of which recently opened in Miami), and Warner Bros. World™ Abu Dhabi.

Get ready for ISAAC 2.0

Smart Monkeys is preparing to release ISAAC 2.0 and will be exhibiting and demonstrating the platform at two major industry events in Orlando in 2021: InfoComm in October, and the IAAPA Attractions Expo in November.

ISAAC is an acronym for Integrated Scheduling and Automation Control. The technology received global attention and acclaim for the integrated environmental media system at the Tom Bradley Terminal (LAX). The Themed Entertainment Association (TEA) honored the project in 2016 with a TEA Thea Award for Outstanding Achievement, praising it for "an unprecedented passenger experience and a new source of non-aeronautical revenues for the facility" and noting that "the IEMS is supported by an intelligent show control system that enables mapping content onto unique, very large-scale, multi-dimensional media surfaces…content floating throughout this massive canvas."

The ability to deliver myriad media content streams from myriad sources to myriad displays in service of a great guest experience is the front-facing part of ISAAC. On the back end, ISAAC is able to dramatically downsize the equipment footprint - to consolidate and link multiple PCs, black boxes, control and management systems through virtualization and integration. As mentioned above, ISAAC speaks the language of IT. And the platform also accommodates content management as well as distribution and control.

ISAAC has become popular with a number of leading suppliers and manufacturers, with providers of control software and systems, and with integrators and technical designers. Medialon, Q-SYS, BrightSign and RealMotion have all collaborated with Smart Monkeys to build enhanced compatibility between ISAAC and their respective products. Two new alliances, recently announced, are with Megapixel VR (their OMNIS ® AV Monitoring Platform for monitoring and troubleshooting systems is now fully embedded within ISAAC) and ZeeVee (their ZyPer Management Platform for streaming AV over IP has been optimized for ISAAC). These enhancements help make the ISAAC platform more versatile, the integration process more streamlined and straightforward and create a model of new best practices that lay a path for new industry standards.

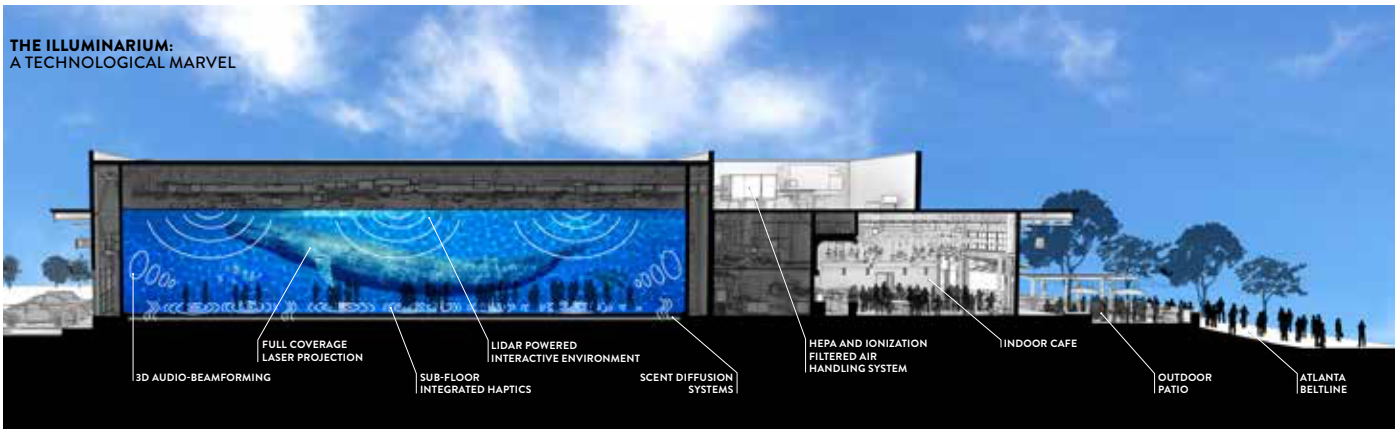
A well-known integrator partner is Electrosonic, which has specified ISAAC for a wide range of projects, including the Academy Museum of Motion Pictures, opening in Los Angeles in September 2021, and Warner Bros. World™ Abu Dhabi, honored in 2020 with a TEA Thea Award, as well as the Superblue art center mentioned above.

OMNIS: new benchmark for system support

Earlier in 2021, Smart Monkeys, Inc. and Megapixel announced a new strategic partnership that added Megapixel's OMNIS AV Monitoring to the ISAAC platform. Megapixel is a leader in large-scale LED display systems and monitoring; in 2019, the company debuted the HELIOS ® LED Processing Platform, capable of driving over 32 million pixels with an end-to-end, 8K workflow from a single, modular rack unit. Now the company's OMNIS platform is being offered as a software package within existing ISAAC ecosystems, in the form of a virtual appliance that can be activated on demand. Both companies are enthusiastic about the product offering.

"OMNIS is a must-have tool for LED installations as it provides aggregated, real time health monitoring and diagnostic feedback to users 24/7," says John Youngson, Megapixel's VP of Sales. "It enables owners to maximize uptime - to track, identify and locate problems and fix them quickly based on actionable data." Per Youngson, the wide range of installations that can be served by OMNIS includes "large-scale video displays from a variety of manufacturers as well as projectors and power and distribution systems for power/video/data." A single OMNIS can monitor hundreds of LED processors on-premises or in the cloud with a single health map view. OMNIS can combine display data from multi-location large display networks, such as theme parks and museums, as well as large LED shows and performance venues. "We combined the software expertise of Megapixel and Smart Monkeys to develop a virtual software suite to exist directly within ISAAC. No physical unit is required - and users gain all the redundancy advantages that come with a virtual appliance," says Youngson.

According to Villet, this boon for integrators and their clients has not previously been an option. "In the past, monitoring of this kind - a critical feature for systems running AV-centric



This technical diagram of The Illuminarium shows some of the technologies planned for the multiple facilities under development. *Photo courtesy of The Illuminarium.*

Stephan Villet
Smart Monkeys

Josh Cottrell
Electrosonic

John Youngson
Megapixel

Joseph Chordas
ZeeVee

Jeremy Hochman
Megapixel

spaces - has required custom programming. Now, when you activate OMNIS inside ISAAC, it becomes an off-the-shelf, fully functional monitoring system."

MGM Cotai is an example of a media-rich project that benefited from this new technology. The custom LED display design and all processing provided by Megapixel are under the command and control of an ISAAC system. According to Jeremy Hochman, Founder of Megapixel, "there are a quarter of a billion pixels under one roof, with screens spread throughout the resort's vast atrium, dynamic theater, and outdoor marquees, all controlled by ISAAC."

"It's a huge vote of confidence from Megapixel to have OMNIS living on ISAAC," says Villet. "On a major install, the cost of the LED wall can take up much of the budget. And the more complicated the system, the more data you need to be able to monitor it fully. For the integrator and the LED manufacturer, to have ISAAC and OMNIS as part of the package means that the monitoring system is automatically on board from the start. It is simple to manage while delivering a level of detail and specificity that gives the operator the ability to be proactive in maintaining the system." A webinar spotlighting the ISAAC / OMNIS partnership and project is available at http://isaacplatform.com/learn-and-support/webinars/.

ZeeVee - AV over IP power

As discussed above, today's media environments are likely to rely heavily on LED displays. They're also likely to use AV over IP (AVoIP) infrastructure. These large-scale installations can be driven by ISAAC in combination with the ZyPer Management Platform from ZeeVee Inc. Earlier this year, Smart Monkeys and ZeeVee announced a partnership. ZeeVee is a global pioneer and leader in the development and deployment of AV distribution systems for industrial, commercial and residential applications. The partnership with Smart Monkeys extends the benefits of AVoIP to specialist integrators, by which the ZeeVee ZyPer platform now natively supports the ISAAC API, enabling users to customize, control, schedule, log and manage complex media presentations via a unified programming and front-end management workspace. "That big LED display can run using both OMNIS and ZyPer, with everything fully packaged into a single ISAAC box, and interface or user management also a part of it. You don't need any other computer," says Villet.

Just as the alliance with Megapixel VR creates a turnkey monitoring solution within ISAAC using OMNIS, the partnership with ZeeVee creates a turnkey AV distribution solution with ISAAC using ZyPer - again, applicable to a wide range of AV installations for such venues as theme parks, airports, casinos, corporate lobbies, visitor centers, museums, showrooms and more. And again, it means a streamlined installation and system, replacing black boxes with virtual appliances, all coexisting and communicating on ISAAC. "We developed the ISAAC platform to address the market need for aggregator control software that can manage the multiple interfaces of diverse AV components," Villet explains. "We chose ZeeVee as our partner for AV distribution as it has the deepest experience and success with the SDVoE AVoIP platform, representing the future with significant performance, flexibility and cost-saving benefits over the traditional matrix switch."

"Together, Smart Monkeys and ZeeVee are well positioned to provide solutions to specialized markets where there is a growing call for the ability to create larger and more immersive visual statements," says ZeeVee's Joseph Chordas, VP Marketing and North American Sales. ZeeVee is one of the founding members of the SDVoE Alliance, a nonprofit consortium of technology providers collaborating to standardize the adoption of Ethernet to transport AV signals in professional AV environments, and to create an ecosystem around SDVoE technology allowing software to define AV applications.

According to Chordas, it comes down to simplicity, flexibility and specialized programming. "AVoIP is the mechanism for the delivery of the zeros and ones that are video and audio that goes to the displays being installed as organizations put in new rooms, build new facilities and do upgrades," he says. "They are going to be choosing AV over IP, which delivers video over a standard network switch rather than an AV matrix. As long as there is an available port on that switch, you can use it, and the management platform automatically recognizes it across the network. When you fill up the ports, you team it with another network switch."

"AVoIP is just transporting video over Ethernet, as has been done with audio for many years with such products as Dante," says Villet. "It doesn't matter what type of video you have - it will maximize the quality. These solutions are providing all the tools for an integrator to respond appropriately to client needs."

Media management for the museum that's all about movies

Opening in September 2021 in Los Angeles, the Academy of Motion Pictures Museum promises to be "the world's premier institution dedicated to the art and science of movies" with immersive, dynamic exhibitions and programs. As might be expected, it will depend heavily on a wide range of media and AV delivery vehicles to tell its stories in a variety of theaters and presentation spaces.

Electrosonic provided AV design, install and programming for the space, and specified ISAAC as the master show controller and content management system (CMS), interfacing with 7thSense servers and BrightSign digital signage devices in addition to other media playback devices and audio delivery methods. The system relies on an "automatic failover" server configuration that ensures full redundancy. There are five equipment rooms: the main EER in the basement plus two smaller EERs on each of the two floors.

"We suggested the ISAAC platform to the Academy because of the complexity of the space," says Josh Cottrell CTS, Senior Account Manager, Electrosonic. "The Museum has nearly 100 different displays, including projectors, LCD panels and LED screens. It is content heavy and immersive, and highly focused on all the amazing artifacts the Academy has gathered. It does a great job of showing how those artifacts were used in the movies through all the different digital displays. Electrosonic is pleased and proud to have been a key team member on this project."

Cottrell added, "Working with the Academy team, led by Shraddha Aryal (VP, Exhibition Design and Projection) has been fantastic through this multiyear process. She has provided the leadership and guidance that has kept us on track, as have Christopher Richmond (Senior Manager for Exhibition A/V) and Ken Viste (Manager, Exhibition Project)." The Electrosonic project team included Project Manager Scott Decker, Design Manager Andy Batwinas, Design Consultant Jeff Folschinsky and Project Engineer Peter Alexander.

Smart Monkeys created the custom CMS software, and this new capacity makes ISAAC more versatile and convenient by enabling the means of distribution as well as content management to reside together on the platform. "Smart Monkeys continues to be a great partner on the project," says Cottrell. "They have been highly collaborative during the entire process, and they continue to provide great support as we push through the final stretch approaching grand opening."

Cottrell affirms that "Everything is converging into the IT space, being controlled via IT. The great thing about ISAAC is that it is robust, fault-tolerant and fully redundant. We use it for amusement parks because it's a virtual machine-based control system. At Electrosonic we have a number of large projects on the horizon where we intend to utilize the ISAAC system as we have for this and other complex projects. Smart Monkeys has been a key partner." • • •

Visit smart-monkeys.com.

Smart Monkeys' ISAAC technology is part of the massive digital media array, Spectacle, at MGM COTAI, a US $3.4 billion resort that opened in Macau in early 2018. *Photo courtesy of MGM Resorts International*

Riders on The Twilight Saga: Midnight Ride at Lionsgate Entertainment World don VR goggles and sit on motion-contol motorbikes for a realistic ride experience. *Photo courtesy of Lionsgate Entertainment World*

Meeting at "Midnight"

Sister companies CAVU Designwerks and DreamCraft collaborate on celebrated VR motion-simulation attraction, The Twilight Saga: Midnight Ride

interview by Martin Palicki

Taking guests on an interactive, multisensory VR motorbike journey, The Twilight Saga: Midnight Ride, located in the world's first Lionsgate Entertainment World in Zhuhai, China, is an impressive blend of motion simulation and virtual reality (VR). The attraction was recently named for a Thea Award by the Themed Entertainment Association, noting the various technology elements that combine to make "a truly cohesive, compelling and exceptional experience." The Twilight Saga: Midnight Ride was created in partnership with Lionsgate, the Thinkwell Group, CAVU Designwerks, DreamCraft and Framestore and is operated by Australia's Village Roadshow Theme Parks.

Guests wear lightweight VR goggles while seated on real motorbikes (each on its own multi-axis platform). Able to see other riders in the VR simulation and in control of their direction and speed, each rider takes a virtual journey through the forest to fight vampires.

This blending of a ride simulation system with VR and real-time feedback was made possible through the combined efforts of sister companies CAVU Designwerks and DreamCraft. Terry Sanderson, producer at DreamCraft, applied his gaming background in developing the VR ride system. Mark Stepanian, chief experience officer at CAVU, drew on years of experience developing ride systems to create the ride vehicles. InPark spoke with both on the development of the attraction and other ways their companies are responding to evolving market conditions.

You both came to the industry from very different, but complementary paths. Tell us what led you to CAVU and DreamCraft.

Terry Sanderson: I have a background working in video games for major companies like Capcom and Electronic Arts. A colleague of mine was the COO of DreamCraft at the time and told me to check out the VR ride system they were developing.