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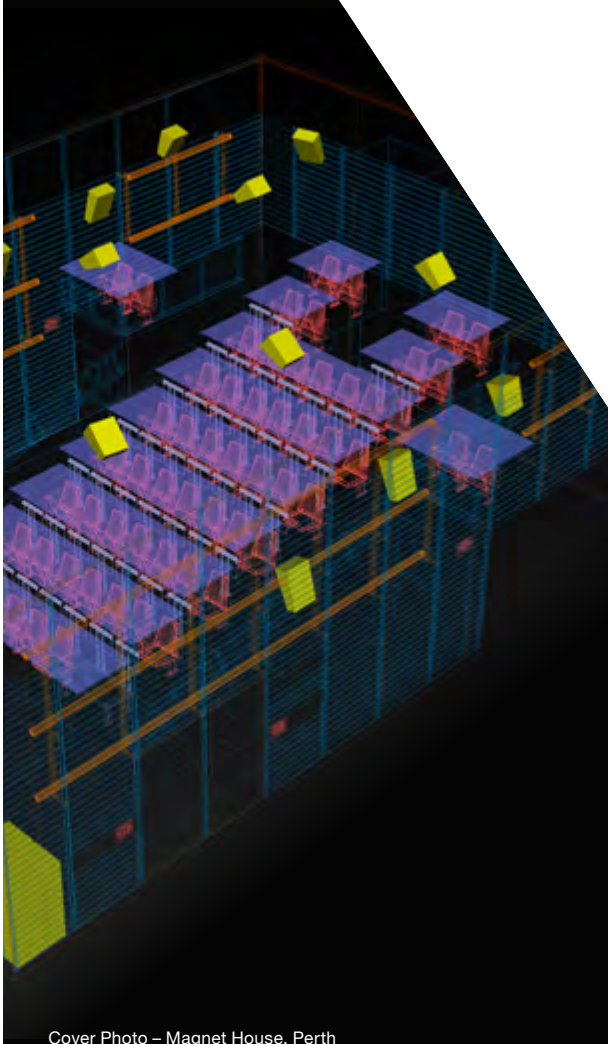

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Protect Your Business from Ransomware – An Urgent Guide

by Jason Allen

With three major companies in our industry hit with costly and disruptive ransomware attacks over the last few weeks, we've put together a primer and 'how-to' in order to protect Australian businesses from this widespread threat. In the current climate, a ransomware attack will be enough to send most businesses in our industry into bankruptcy.

Don't think it's just the big companies that need to protect themselves; ransomware attacks affect everyone from the sole trader to the biggest manufacturer. British cyber security firm Sophos published a white paper in May that contains the results of an independent study of 5,000 IT managers across 26 countries, including 200 respondents from Australia. The statistics are sobering.

The survey showed that 51% of all types of organisations were hit by ransomware attacks in the year to February 2020. 47% of those had 100-1000 employees, so it's not just about big corporate targets. Worryingly for our industry, 'media, leisure, and entertainment' report the highest level of attacks at 60%. Australia sits around the middle of the list nations targeted. With just 17% of businesses in Australia preventing their data being encrypted in an attack, we are woefully behind in our implementation of anti-ransomware measures. Even worse, Australia has the world's third highest remediation cost to clean up the aftermath, with the bill coming in at an eye-watering average of $1.5 million AUD.

Having some form of cybersecurity insurance is now the norm, with 82% of Australian organisations reporting that they have it. However, only 65% of those have cybersecurity insurance that covers ransomware.

The most common vector for a ransomware attack is via either a malicious link or attachment in an email, with 45% of attacks originating from this technique. This highlights the absolute imperative to educate your staff in how to spot malicious emails. The second most common was remote attacks on servers.

Here's Sophos' list of actions you should take immediately to reduce the risk of damage to your business:

1. **Invest in anti-ransomware technology to stop unauthorized encryption**
2. **Protect data wherever it's held - almost six in 10 ransomware attacks that successfully encrypted data include data in the public cloud. Your strategy should include protecting data in the public cloud, private cloud, and on-premises.**
3. **Make regular backups and store offsite and offline.**
4. **Ensure your cyber insurance covers ransomware.**
5. **Deploy a layered defence.**

For a local perspective, we asked George Kostopoulos, the owner of event IT specialists Beyond Network Solutions, for his recommendations for Australian companies:

Create several back-ups of your data a day to several different locations, both on-site and off site, that are disconnected from your servers. Even cloud servers need to be backed up, and need virtual firewalls and antivirus protection.

Educate your staff. This could be bringing them in to create a realistic scenario using existing IT infrastructure. Teach them how to spot fake emails and malicious links, and to understand how files function on computers. From there, help them to spot signs that they're the core of the attack by looking out for suspicious computer activity; that their computer is running a lot slower than normal, for example.

Segregate your network. Separate guests from internal staff, separate IoT devices, and put

servers into their own network. Allow users to access only the devices that they actually need.

Use the right firewall. Some devices advertise their firewall capabilities, but out-of-the box, they're usually wide open. You'll need to configure the device, allowing what you actually need and closing what you don't. We recommend known brands for firewall and security, not brands that have these options but don't specialise in it. Recommended brands include Sophos, Fortinet, Cisco, Palo Alto, Juniper, and Watchguard. Brands like Ubiquiti, for example, aren't proper firewall solutions. The top brands are actively looking for new security threats and helping patch them. They are often aligned with an antivirus company that gets real-time threat reports back from the antivirus client installed on people's computers.

Use an antivirus solution that aligns with your firewall appliance on your network. This part is really important and is one of the main reasons why we decided to become Sophos Partners. It's all fine and dandy to have the best network firewall, but your devices aren't always on your network when an attack happens. With Sophos' Intercept X, it's on your device actively protecting you. Once it discovers something unsafe, it will isolate your computer to help prevent against spreading the malicious attack. It does this through synchronised security, where it will notify the firewall. The firewall will isolate you and let other devices on your network know that your computer isn't safe. When Intercept X finishes removing the threat, it will notify the firewall to say "hey, I'm clear and safe again" and will allow it back into the network of trusted devices.

You don't need to pull out and re-do all of your existing I.T infrastructure. The software can be a package installed on each user's machine and the hardware can sit in-between the internet and your users to scan incoming and outgoing traffic.

Here's what you could be risking if you're an events, AV, or distribution company:

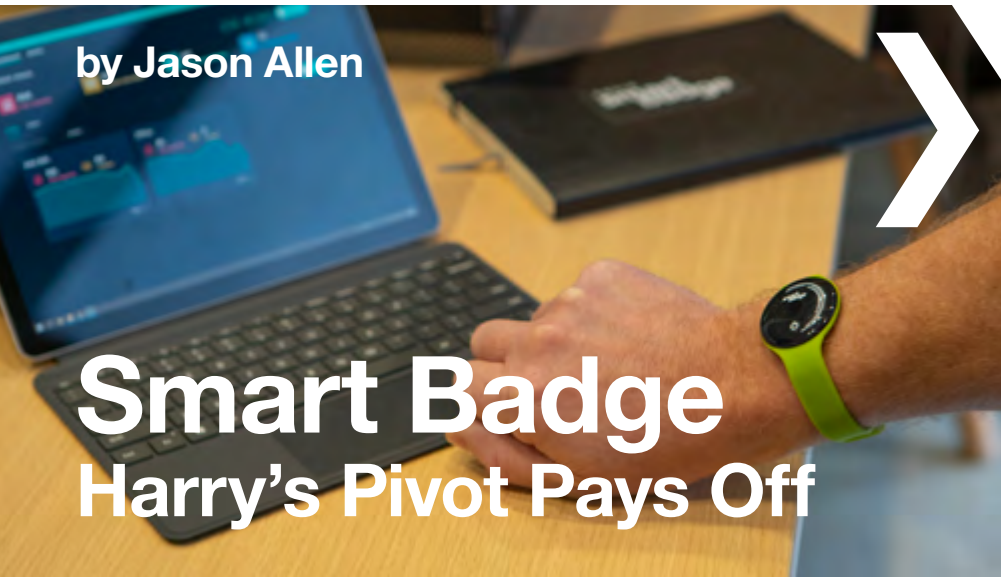
- **Your company's and client's data**
- **Client recordings from a recent event**
- **Down-time and not being able to operate**
- **The cost of repair and coming back into operation**
- **Any new hardware that might be required to secure your company after having already paid to begin restoring your data**
- **Not being able to restore anything from backups and needing to pay the ransom**
- **Someone gaining access to your computer that is also syncing your cloud content**

There's some good further info form the Australian Government here - cyber.gov.au/acsc/view-all-content/threats/ransomware

Beyond Network Solutions are happy to consult on realistic solutions for any company or individual. I understand that not everyone has money to fork out for antivirus licenses for all their devices, or a premium firewall. In reality, firewalls are not that expensive, but it all depends on what internet connection speed you have. For example, if you have 50/50 NBN, you'll only need the smaller boxes, but if you're on fibre 1000/1000, you will need a larger box to handle a larger data volume.

Not everyone needs a premium firewall system. A lot of the time they just need a back-up solution and an understanding of not crossing paths. For example, maybe they have a device that does not touch the internet that is used for transferring confidential client information for a banking event. Little things like that help prevent data breaches and leaks, but also mentioning that to your client provides them peace-of-mind. It also lets their security team know that you are aware of the severity of the outcome of a leak. For large organisations this could mean loss of value in stocks

beyondnetworksolutions.com.au



by Jason Allen

Smart Badge
Harry's Pivot Pays Off

When the events industry shutdown, the team at Harry the hirer got to work. In addition to their vast staff of production professionals, Harry also employ six full time IT staff that create custom software and firmware for the business. Over the years, this has included the hire management software that powers the business. Now, they faced a new challenge.

Bringing together systems and hardware that Harry had previously used for separate applications, they have created Smart Badge, the first integrated, wearable social distancing and contact tracing system available in Australia. Designed initially to get the events business up and running, the enormous potential of this suite of products has been realised across Australia, including in primary industries.

Launched under new business entity Smart Badge, General Manager Simon Finlayson has overseen a rollout with successful trials in the meat processing industry, construction, and aged care. "The food processing industry is where Smart Badge initially took off," says Simon. "It's been adopted by meat, poultry and the dairy industry. Dairy in particular is entering its peak season and they just can't afford a shut-down. Smart Badge is about businesses being able to 'control the controllables', move fast, and not have to wait for DHHS contact tracing."

The Smart Badge system sees workers wearing a 'fitness tracker' or lanyard style Bluetooth device. Its badge number has been paired with the wearer's contact details in the back-end of the system. The device issues a tone and vibration warning if the 1.5 meters distance rule has been breached and logs who has been in contact with each other. All data is stored on a cloud server, and if a COVID-19 infection is reported, businesses can act immediately with the data they instantly have to hand.

With accurate and instant contact tracing the technology can prevent an entire organisation from closing by identifying specific user interaction and locations, negating unnecessary isolation of staff and deep cleaning of areas not affected.

"The badges run low energy Bluetooth 5.0 and the portable network Nodes that create the network for the system are battery powered, and can use 4G cards if necessary," illustrates Simon. "We have an Entry Column that you can station at the door to a space that has a screen updating the numbers of badges already inside, and can display a 'site full' warning. There's a Mailbox Return Column with a gateway inside it that automatically gathers data from returned badges and then turns them off. Staff then pull them out, sanitise, and hang up for re-use. Industries like live production can choose to mute the proximity alerts if necessary, but all the proximity and contact tracing data are retained."

All contact tracing data is stored securely in the cloud via Microsoft Azure. As users move around a space, the Nodes collect their data and upload to Azure. Site managers get access to all the data via a website portal, with no software to install. A business just needs to buy the badges, get their log-in code, and they can see all proximity and contact tracing data in real-time.

Amazingly, the Smart Badge team developed and deployed this system from scratch in under two and a half months. "The team did a great job of software development in an extremely short time frame," praises Simon. "To get the hardware up and running that quickly is a feat in itself. They should be recognised for the turnaround."

With literal containers full of the tech already landed and more to come, sales have already been enthusiastic. "We've moved nearly all of what we have, and a significant amount of what's on the way," reports Simon. "We are fielding lots of enquires from business events planning for 2021, particularly in NSW. We're also talking to some of the bigger agencies and international events."

www.smartbadge.com.au

The Smart Badge System – How It Works

Smart Badge

- Simple wearable device
- Wristband, Lanyard or Watch style
- Badge gives social distancing alerts if user is within 1.5m of another wearer
- Alerts via a beep, vibrate or flash
- Communicates with Software and Node to track wearer locations and close contacts
- USB rechargeable battery with 14 days power at 12hrs per day

Beacon Software

- Standalone Software designed to control badge functionality and deliver accurate contact tracing
- Smart Badge & Beacon Software shares information via Bluetooth technology
- Software registers wearer's data via QR code in secure portal
- Software controls badge functionality and contact tracing via online portal

Node Points

- A 'Node' is the device providing connection between the badge and online software portal.
- WiFi, Ethernet and inbuilt 4G versions available allowing plug and play deployment
- Minimum of two nodes are required at entry and exit points for technology to work
- The more nodes used will deliver greater levels of information and location mapping.
- Web-based platform

Additional Hardware

- Capacity Control Units: an LCD display showing maximum numbers and if the limit has been reached for that space.

For contactless registration, entry, and exit:

- Entry Peg Column - workers can grab their badge directly from here
- Grouping Device - LCD display that allows families or housemates to group badges
- Return Mailbox - contactless return and automated deactivation of badges upon exit

Game Day for 4REA4 at the MCG

The Melbourne Cricket Ground is the largest stadium in the Southern Hemisphere, and the second largest cricket ground by capacity in the world. Established in 1853, just 18 years after the founding of Melbourne itself, the MCG remains one of the city's most iconic and celebrated features.

As part of the stadium's recent A$25m audio overhaul, the MCG's System Control Room has been upgraded to include dual redundant 4REA4 audio management systems and a workhorse DiGiCo SD9 mixing console; thanks to technical consultant Auditoria and integrator Diversified.

4REA4 is a uniquely designed system processor created to bring quality, flexibility and ease of use to networked venue audio. Featuring 128 inputs and 56 outputs via a range of network ports, DMI and SD-Rack card slots, the system offers a host of channel processing and signal flow management abilities. 4REA4 can act as a point-to-point router for up to 512 channels, meaning any channel from any device on the network can be routed directly to any other device on the network, all without affecting processing capacity.

The 4REA4 system allows engineers to split the audio workspace into 4 zones, each with their own stereo master, to which access can be limited through Permissions and User Groups. The system also features 8 Macro control buttons that can instantly change the signal flow configuration- enabling engineers to tailor the setup for different applications, which can then be recalled on demand.

Auditoria's Senior Consultant, Luis Miranda, says the 4REA4 system is integral to collating the wide range of audio i/o that runs throughout the complex, comprised of flexible location-oriented input structures and outputs to over 3,500 loudspeakers.

"There are a lot of different rooms and different audio applications here. And the MCG staff need control over absolutely all of this, as the system we've tailored for the MCG doesn't just run entertainment audio, it also runs the information, public address, fire and emergency systems. These are all combined into a comprehensive setup that needed to be rock-solid," explains Luis.

The MCG features a plethora of event spaces, including function rooms, cafes, pubs, and private suites, all of which can run local source audio separate from the main PA with varying degrees of complexity. In addition to these, the MCG also includes two loudspeaker systems for the entry areas and one for the exit area.

"With the extensive primary PA and all the additional spaces, we've ended up with a huge number of different amplifiers, racks and networking modules. The 4REA4's job is to take different i/o types and unify them into a centralised mix architecture. This means they can be fed into the SD9 mixing console if need be, or just addressed directly through the 4REA4 mix engine."

4REA4's i/o and control peripherals can interface over a standard, standalone network. The unit is designed to be plug and play, supporting 'off the shelf' Layer 2 network hardware, no IP or MAC addresses are required, meaning simple ID settings are all that are needed to establish communication. 4REA4 has the ability to interface with a multitude of proprietary and standard network protocols, including Dante, MADI, Aviom,

Waves Soundgrid, Optocore, ME-1, and AES. A powerhouse of connectivity and flexible operation, 4REA4 supports bi-directional communication with every device on its network.

"We decided to use 4REA4 in our project for several reasons" says Luis. "The 4REA4 serves multiple purposes in the installation but its biggest role is interfacing the worlds of production audio with the kind of 'room AV' one might typically associate with spaces like classrooms, boardrooms, and convention spaces for example."

"We have a production suite fitted with a DiGiCo console that gives an operator all the necessary tools and a familiar environment to deliver game day audio. But we also have several rooms fitted with systems that use simplified controllers, such as touch screens, to control things like audio feeds and TV channels. 4REA4 serves to bridge both worlds and allow for sufficient separation and independence so that both styles can function on the same network at the same time."

"We also use 4REA4 as a mixing engine in a reduced mode with the inclusion of ACONTROL8 panels, for scenarios in which a console operator is not required, but typical audio feed adjustment would be desirable, such as large corporate presentations in the bowl. As an additional benefit, the 4REA4 engine serves as a backup console with the ACONTROL8 panel if the main console were to stop working."

Leveraging the power of FPGA technology, 96kHz sample rates and intuitive control software, 4REA4's abilities make it a worthy choice for the MCG's new system. The unit's ability to natively integrate with top-tier PA and broadcast products, demonstrates why 4REA4 is quickly becoming the preferred connectivity option for AV installers faced with multi-room designs.

digico.biz

grouptechnologies.com.au

auditoria.systems

diversifiedus.com.au

Point Source Audio Partners with Studio Connections Australia

Studio Connections is the new home for Point Source Audio's unique range of award-winning microphones and headsets in Australia. The move is a result of Point Source Audio looking to build on its already strong reputation in the country with the appointment of a new distributor dedicated to the market.

Point Source Audio microphones and headsets have been available in Australia for years. Various products have featured on a number of international touring productions over this time, creating an ever-increasing demand and the need for a new partner that was dedicated to this territory. Following an extensive search, Point Source Audio has decided that Studio Connections Australia is the perfect partner to meet this brief.

"Studio Connections Australia is proud to have been appointed as the Australian distributor for Point Source Audio," says Deborah Sloss, Managing Director at Studio Connections Australia. "Point Source Audio is the perfect addition to our stable, providing us with exciting new opportunities. We look forward to working with the Point Source Audio team in growing this unique, innovative and performance-based brand here in Australia."

"We have been making good progress in the Australian market and we can see the potential for growth we have here," adds James Lamb, President of Point Source Audio. "Appointing Studio Connections is a big step for us along this path. They are a well-known and respected player in Australia and will provide us with a trusted presence in the local market. We know that Deb and her team will play a powerful role in expanding our market share in the country and deliver the levels of service our customers around the world expect. We couldn't be happier with our choice of distributor and we feel this will be the start of a long and mutually beneficial relationship."

The distribution agreement is effective immediately, and Studio Connections Australia will now represent Point Source Audio across the country.

point-sourceaudio.com
studioconnections.com.au

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- 5-Year Warranty

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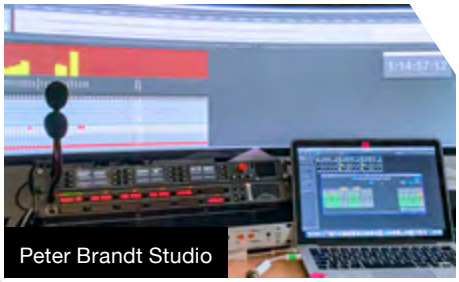
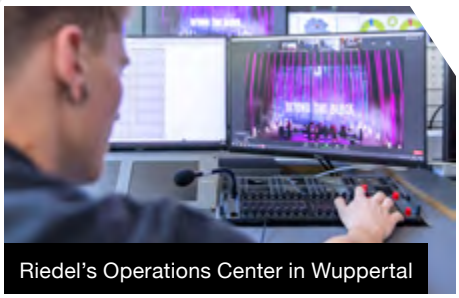
Ronald Prent (Recording Engineer) at Valhalla Studios NY

Riedel's Industry-First Trans-Atlantic Remote Mastering Workflow Brings Exceptional Sound to Wacken World Wide



Peter Brandt Studio



Riedel's Operations Center in Wuppertal

Riedel Communications partnered with Remote Recording Network (RRN) and Live Nation to establish a first-of-its-kind trans-Atlantic remote mastering workflow for the Wacken World Wide 2020 music festival. Streamed live to 11 million fans worldwide from July 29 to August 1 by MagentaMusik 360, Wacken World Wide took the world's largest heavy metal festival online in a mixed-reality production. The audio for this broadcast was mixed in Hamburg, Germany, and mastered at Valhalla Studios NY, with communications and signal configuration, transmission, and monitoring handled by Riedel's Remote Operations Center (ROC).

"This new remote mastering workflow is incredible, and we've never before had such cool broadcast sound at Wacken," said RRN Founder Peter Brandt, the Grammy Award-winning producer and engineer who oversaw audio production for the event. "Because we were able to master in an acoustically calibrated room, we had perfect conditions for a well-balanced sound."

Audio for Wacken World Wide 2020 was delivered from the Live Nation stage in Hamburg to the Riedel ROC in Wuppertal and then on to Valhalla Studios NY for mastering by Ronald Prent. In addition to serving as a communications and signal distribution hub, the Riedel ROC supplied extensive control and monitoring capabilities, as well as a secure server structure ensuring data security and a redundant system providing reliable signal transmission throughout the event.

Developed jointly by Riedel and RRN, this new remote model is setting the bar for the production of high-quality, environmentally friendly, and cost-effective audio transmissions.

"Working with our partners at RRN, we are redefining the possibilities for live audio production," said Carsten Voßkühler, Project Manager at Riedel Communications. "The groundbreaking remote workflow connecting creatives on both sides of the Atlantic helped to make Wacken World Wide 2020 a huge success, and it opens up exciting opportunities for a wide variety of distributed production applications. We look forward to working with RRN on many more great events."

www.riedel.net

WAAPA GOES WIRELESS WITH RIEDEL'S BOLERO

WAAPA has migrated its production communications infrastructure to Riedel's Bolero wireless intercom system. Replacing an obsolete wired system, Bolero provides crystal-clear, efficient, and easy-to-manage communications for WAAPA performance crews at both on-campus and off-site venues.

Situated on the Mount Lawley Campus of Edith Cowan University near Perth, WAAPA is recognised nationally and internationally for providing Australia's most comprehensive range of performing arts training. WAAPA's world-class staff, working in state-of-the-art performance and teaching facilities, provides rigorous and specialised training.

"Over the course of our academic year, we stage around 25 key productions of musicals, plays, dance, jazz, and classical concerts. With such a busy production schedule, a dependable communications infrastructure is paramount in the successful delivery of each show," said Cameron Malacari, Production Manager at WAAPA. "When our previous systems reached the end of their useful life for supporting multiple productions, we had two choices: reduce our production capabilities, which simply wasn't an option, or invest in state-of-the-art technology. Bolero is an outstanding choice, giving us newfound flexibility and reliably clear, concise, and portable communications."

With the previous hard-wired system for production communication between technical crew such as lighting, sound, stage managers, and mechanists, WAAPA was experiencing around 50 hours of downtime annually. The downtime, coupled with maintenance delays, was hampering the school's ability to stage modern productions; furthermore, students' learning hours were affected as staff triaged the breakdowns in communication. The previous communications setup was also costly, supported by two discreet for-hire systems that racked up substantial annual equipment costs and additional fees for associated support.

In contrast, the new Bolero wireless system provides a streamlined and reliable communications infrastructure that works equally well for both on-campus and off-campus productions. The modular, integrated design allows for fast setup times and cost efficiencies, and the wireless operation removes the risk of cable entanglements with machinery such as fly-lines and large, moving trucks. Because the Bolero installation is designed around a facility-wide backbone, the system is already in place to enable on-the-fly communications between two venues as needed, without additional hardware and with only minimal configuration changes.

"With Bolero, we've eliminated several annual hire costs, and we can receive convenient support from Riedel in our own time zone. If we need additional equipment, Riedel can provide it on a rental basis to help us keep our total cost of ownership down," said Tim Landauer, Venue Services Coordinator at WAAPA. "Riedel's experience in major performing arts venues, theatres, and universities across Australia was invaluable in helping us optimise the system design."

He added, "Going with Riedel and Bolero has also boosted our educational mission. Since Riedel systems are the industry standard in the broadcast and theatre production/event workspace, our production students receive training on technology they will use in the real world. Our instructors can concentrate on the core work of teaching production and performance practice, rather than spending hours troubleshooting faulty systems. In this manner, Bolero supports our ultimate goal of enabling performance and storytelling on stage smoothly and invisibly."

www.riedel.net

Minka Gillian's Mind Garden

Cable Management as Art. By Jason Allen

CX reader Graham Parsons contacted us last month to tell us about an interesting exhibition he'd just seen at Incinerator Art Space in Willoughby, NSW. Artist Minka Gillian had taken over the space with her Mind Garden exhibition, an 'immersive installation of contemporary sculpture'. What caught Graham's eye was Minka's extensive use of the tools of the AV trade as materials; USB, HDMI and RCA cabling, jacks, and cable ties. We contacted Minka to find out what had drawn her to these materials, and what their use meant to her.

"I have always been a bower bird, attracted to colour and texture," said Minka. "I like to use materials around me partially as a challenge to make the 'mundane' beautiful and partly because I hate waste. My sculptures have always been biomorphic shapes that allude to nature and the body but when I discovered I needed a Pacemaker at age 36, my materials took on a new meaning."

"Electrical wire, leads, electrodes, plugs, and adapters all came to represent my electrical heart problem and Pacemaker. I use weaving techniques to create my sculptures, cable ties to replace stitching and cords to replace more traditional threads. I love these materials for their ease of use and colours, but I am oblivious to their original uses. There is nothing more disturbing than a box full of tangled cables so through my creations I enjoy making order from the chaos!"

"In the Mind Garden exhibition, my sculptures are hand-woven structures that transform everyday prosaic materials into biomorphic objects of beauty and intrigue. Through the process of making I am sometimes guided by the materials as if they have their own life and will. The final sculptures are rarely how I planned them but much more complicated than I could initially visualise. I reference nature and human anatomy in a broad sense but also try to imbue my sculptures with my own personal stories of my life."

Maybe those of you with boxes full of old cables, power supplies, and adapters might take up the challenge to create your own cable management art. If you'd like to get in touch with Minka and purchase one of her excellent AV sculptures for your office, you can contact her at:

www.minkagillian.com

minkagillian@iinet.net.au

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Clear-Com CC-70

The CC-70 is a premium lightweight wrap-around dual ear headset that can be worn under a helmet, hard-hat or personal protective equipment. This new headset offering is an ideal option for professionals required to wear protective headwear in compliance with increasingly stringent safety regulations, or for people who simply prefer a wrap-around headset configuration. Audio is delivered through comfortable and flexible noise-attenuating, in-ear buds. The CC-70 utilizes a 4-pin female connector which can be used with a variety of Clear-Com devices including FreeSpeak II, FreeSpeak Edge, HelixNet beltpacks and V-Series Iris panels and more.

Australia: Jands www.jands.com.au or (02) 9582 0909
New Zealand: Oceania oceaniaproductions.co.nz or 09 846 5533

Cloud CA Series

The Cloud CA Series is a range of versatile multi-channel audio power amplifiers able to drive low or high impedance loudspeakers directly. They are ideal for sound reinforcement applications in the retail, leisure, hospitality, commercial or industrial sectors. The CA2250 can deliver a maximum of 500 W, shared between its two channels. Models CA2500, CA4250, CA6160 and CA8125 are all capable of delivering 1 kW. In 70/100V-line mode, this maximum power rating can be shared between channels in an intelligent manner, allowing the amplifiers to drive different types or numbers of loudspeakers in the various areas of a building or venue with maximum economy.

Australia: NAS https://nas.solutions or (03) 8756 2600
New Zealand: NAS https://nz.nas.solutions or (09) 414 4220

Ashly FA Series

The FA Series is designed for easy and flexible placement, going where other amps cannot: under conference tables, behind displays, inside kiosks; anywhere high-quality, reliable power is needed, but space is limited. The ½ RU FA-125.2 & FA-125.4 offer 125W of efficient Class D power per channel (x 2 on the 125.2 and x 4 on the 125.4). With selectable Low Z or Hi Z operation, they're capable of powering low-Z, full range speakers as well as 70V and 100V distributed speaker systems. Where additional power is needed, the full 1 RU, 4 x 250W FA-250.4 (also designed for Hi/Low Z) delivers seriously high power-density in a 1U package.

Australia: NAS https://nas.solutions or (03) 8756 2600
New Zealand: NAS https://nz.nas.solutions or (09) 414 4220

NEW GEAR

Rogue R1 BeamWash

Rogue R1 BeamWash is a versatile and compact moving head that projects a punchy beam and wash. Weighing just under 5½ kgs, the unit features a custom designed optical system with seven 40W RGBW LEDs and a zoom range of 5° to 58.2° that allows it to project tight, solid beam effects at its most narrow, transforming the light source into a nice, even wash as it expands. The unit's small size also allows for a fast and smooth pan and tilt movement. It's RDM enabled for remote addressing and is equipped with a selectable PWM setting to maintain flicker free operation on camera.

Australia: Showtools www.showtools.com.au or (02) 9824 2382
New Zealand: M.D.R Sound & Lighting www.mdrlighting.co.nz or (06) 355 5073

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NEW

d&b audiotechnik 44S

The 44S is d&b's first ever flush mountable cabinet, delivering compact, high performance audio and a wide range of flexible mounting options. Featuring an intelligent waveguide and baffle design and 90° x 30° dispersion, the asymmetric cabinet design and the optional back box supplies additional flexibility that allows adjustments of +/- 20° in 5° increments, accommodating different listening heights. A rotatable waveguide extends this to both horizontal and vertical positioning. The two-way passive loudspeaker cabinet measures just 128 x 390 x 150mm and houses 2 x 4.5" neodymium LF drivers and 2 x 1.25" HF dome tweeters, delivering a frequency response of between 90Hz – 17kHz.

Australia: NAS https://nas.solutions or (03) 8756 2600
New Zealand: NAS https://nz.nas.solutions or (09) 414 4220

Crestron HDMI Switchers

Crestron's new HDMI switchers enable sharing of content simply and effectively. Out of the box functionality covers most common use cases without the need for programming. Crestron XiO Cloud service support enables network deployment at scale, help desk integration, and remote management. With a full range of enterprise security, these HDMI switchers deliver peace of mind to even the most security conscious customers.

Models: HD-MD4XI-4KZ-E (4x1 4K60 4:4:4: HDR), HD-MD4X2-4KZ-E (4x2 4K60 4:4:4: HDR), HD-MD8X4-4KZ-E (8x4 4K60 4:4:4: HDR), HD-MD8X8-4KZ-E (8x8 4K60 4:4:4: HDR)

Key features: 4K60 4:4:4, HDR10+, and Dolby Vision processor support, integrated display control via CEC, auto route and priority routing (HD-MD4X1-4KZ-E, HD-MD4X2-4KZ-E), enterprise-grade security (802.1x, Active Directory® user authentication, TLS, HTTPS).

Australia: Crestron Australia
www.crestron.com or 1800 555 040
New Zealand: Crestron NZ
www.crestron.com or 800 273 787

Highlite Infinity Signature Series TF260C7

Infinity Signature Series is a new range of state-of-the-art LED theatre fixtures. The Infinity TF260C7 LED Fresnel is the outcome of a collaboration between Robert Juliat and Highlite International. Producing a true Fresnel quality beam, the TF260C7 features a 260w Seven Colour LED engine, CRI above 96, manual and motorized 15°-50° zoom, flicker-free selectable PWM via DMX and a tungsten simulation mode with natural colour drift and tag and release times. High build quality, built-in linearity calibration to maintain a steady colour and output, combined with 16bit high resolution dimming, the TF260C7 delivers the performance of a 1.2kw tungsten unit with energy efficient design.

Australia: Clearlight Shows www.clearlight.com.au (03) 9553 1688
New Zealand: Kenderdine Electrical kelpls.co.nz or (09) 302 4100

GEAR

Elation Fuze Wash FR

The Fuze Wash FR features a new 480W, 6,500K, 92 CRI engine that utilises a 5-color homogenised LED array of Red, Green, Blue, Mint and Amber sources, the same colour system found in the Fuze Profile and Fuze Spot. A virtual gel swatch book, virtual colour correction, magenta/green adjustment plus CMY emulation give designers access to an impressive LED colour array. The RGBMA LEDs and high native CRI ensure accurate colour reproduction while delivering an output up to 14,000 lumens. Featuring a specially designed Fresnel lens, and housing an 8.2° to 42.1° (beam) and 12.7° to 62.1° (field) motorised zoom, the Fuze Wash FR also includes a full blackout framing system with four rotating blades which can index +/- 60 degrees.

Australia and New Zealand: ULA Group www.ulagroup.com
AU 1300 852 476 / NZ +64 9 218 6532

ETC Source 4WRD Color

The ETC Source 4WRD Color offers a colour-changing retrofit for existing full-size Source Four ellipsoidal/profile fixtures, bringing additive RGBA colour mixing, saturated washes, quick colour changes and much more to Source Four. Source Four ellipsoidal/profile fixtures can be transformed into RGBA LED luminaires with the Source 4WRD Color LED engine, while retaining all of the features of the Source Four including the lenses, accessories and its renowned reliability. Source 4WRD Color technology is also available in two complete wash light fixtures. The Source 4WRD Color PAR and PARNel. These luminaires incorporate the Source 4WRD Color LED engine into a custom housing, offering economical colour washes, including zoom on the PARNel version. As well as producing a homogenised beam and around 5000 lumens, all versions of the S4WRD Color feature 12 built-in presets and 5 sequences in stand-alone mode.

Australia and New Zealand: Jands jands.com.au or +61 (0) 2 9582 0909

NEW GEAR

LSC Lighting Systems UNITOUR

UNITOUR is a premium portable power solution for video, audio and lighting for the events, touring, film and TV markets. Its 48-channel modular system can be fitted with power switching modules for audio and video users, or with dual-mode TruPower dim/switch modules for lighting operators. The focus of the product is all about safety, for both the operator and the gear attached to the UNITOUR. This protection includes dropped neutral protection, over/under voltage protection, individual 30mA RCBO per output, ZCSS (Zero Cross Soft Start), and current monitoring (RMS and Peak) per channel Any number of UNITOUR racks can be monitored and remotely configured over Ethernet, perfect for multiple stages at festival sites. In the factory, this feature allows the racks to be configured without needing 400A 3-phase – just connect all the racks via a PoE Ethernet switch and the control module is powered, allowing local or network configuration. UNITOUR is made In Australia, and is covered by a full two-year warranty.

Australia and New Zealand: LSC Lighting Systems
www.lsclighting.com.au or +61 (0)3 9702 8000

Pioneer DJ CDJ-3000

Harness a higher level of creative power with Pioneer DJ's brand-new flagship multi player, the CDJ-3000. Driven by a new MPU (micro-processing unit) and boasting specially developed high-quality components, tracks and Hot Cues load faster than ever thanks to the capabilities of the MPU and Gigabit Ethernet connection. New functions such as Touch Preview enable effortless and rapid track selection, and other fresh features include Touch Cue, Stacked Waveform, and 3Band Waveform. With a touch screen that's bigger and clearer than the one on the CDJ-2000NXS2, the CDJ-3000 adds extra information, shortcuts, and buttons for frequently used categories and functions, such as Playlist and Search, so you can access them directly at any time.

Australia and New Zealand: Jands
www.jands.com.au or 02 9582 0909

Event Pixels VD3.9LI1000

The Event Pixels VD3.9LI1000 is an interactive dance floor screen. This new, load bearing LED screen is available in 500mm x 1000mm cabinets with a P3.91 pixel pitch (256x128px). The interactive resolution is 16 x 16 pixels. The system is capable of holding 1.5t per m2 and has an IP54 rating to handle any spillage. Coupled with the driver and a PC, the screen behaves in a similar fashion to a touch screen, allowing suitable video files, including basic games and interactive effects, to be manipulated as people move over the floor.

Event Lighting IP Rated LED Bars

New from Event Lighting comes a range of affordable IP67-rated outdoor architectural LED Bars. Available in a range of sizes and styles, with 5 to 72 LEDs and various lengths, these bars run on 24V and are controllable by DMX via an external controller. RGB, RGBW and CREE options are available, with all variants requiring a separate power supply and controller. To view the range or for more information, visit https://event-lighting.com.au/collections/architectural

Australia and New Zealand: Eventec
www.eventec.com.au or +61 (0) 2 9897 3077

NEW GEAR

JBL VTX B28

The VTX B28 is JBL Professional's next-generation dual 18-inch subwoofer, designed to complement the company's flagship VTX full-range sound reinforcement systems, capable of delivering uncompromised low-frequency performance. The B28 boasts JBL Differential Drive transducers, an exclusive port design, and the same industrial design found in JBL's VTX A-Series products. It is equally ideal flown or ground stacked, in omnidirectional or cardioid configurations. Simple and fast rigging, a selection of accessories, and software support make the B28 an exceptional choice for rental, AV, and touring companies, as well as in high-end fixed installations.

JBL BRX300

JBL Professional has released the BRX300 Series of modular line array systems for small- to mid-size applications in APAC, China and India. The series, which includes the BRX308-LA Line Array Element, BRX325SP Powered Subwoofer with DSP, BRX308-ACC Transport Kit, BRX308-AF Array Frame and BRX308-PM Pole Mount and Adapter Kit, provides versatile sound reinforcement solutions for bands, DJs, A/V rental firms, houses of worship and anyone who requires pro-grade fidelity, class-leading output and seamless front-to-back coverage in a simple, scalable sound system. Systems are available in minimum one-subwoofer/two-top or one-subwoofer/four-top configurations and can be stacked, pole mounted or hung.

Australia: CMI Audio www.cmi.com.au or (03) 9315 2244
New Zealand: JPRO www.jpro.co.nz or (09) 275 8710

Eclipse Broadcast SIGNAL BOX

The Eclipse Broadcast SIGNAL BOX range of handheld SDI and analog video testers comprises three models – the basic RED, the mid-tier BLR, and the top of the range YELLOW model. These new portable testers can test lines and equipment in digital SDI format, with some models also analog capable, and feature a loudspeaker and a headphone socket to allow audible testing and proving of an embedded audio signal on the incoming video stream.

MSolutions MS TestPro

MSolutions' award-winning HDBaseT tester provides AV professionals with all the information that they need while in the field to enable them to verify the integrity and stability of HDBaseT systems down to the last detail. The MS-TestPro generates a report including all the parameters necessary to certify link quality and status up to 4K Ultra High Definition. The report can then be transferred to a computer or a smartphone for use by both installer and end-user.

AudioPressBox

AudioPressBox have released a range of new media splits featuring Dante inputs. The APB-112 SB-D and APB-112 OW-D are standalone devices with twelve individual transformer isolated switch selectable mic/line outputs. The SB variant is designed for portable applications with a Neutrik EtherCon input, whilst the OW version is designed for permanent installations. Both units can be PoE powered for single cable functionality.

AudioPressBox has also released three rack mounted Dante equipped models. The APB-D116 R-D and the APB-D216 R-D are both 2 rack units high and feature both Dante and analog audio inputs with adjustable input level. The 116 has a single input, while the 216 has two inputs, each with switch selectable high pass filter and Compressor/Limiter. Both units provide sixteen individually selectable mic/line outputs which are galvanically (transformer) isolated, along with capacity to drive additional output extenders. The APB-D200 R-D is an input and drive module, again featuring two analog or Dante inputs, high pass filtering and Compressor Limiter. This unit then features four outputs, each designed to feed an extender device for a total of up to 48 individually selectable galvanically (transformer) isolated mic/line outputs.

Australia and New Zealand: The P.A. People
www.papeople.com.au or +61 (0) 2 8755 8700

CTP Systems dBbox2

CTP Systems dBbox2 has been updated to version 3 firmware, which include AES signal generation and monitoring at 96kHz as well as 48kHz, a timecode reader with monitoring and metering, a test timecode generator, audio delay, white noise (as well as pink noise) generator and many other significant enhancements.

NEW

Yamaha ADECIA

Yamaha have announced ADECIA, a family of communication products designed to work together seamlessly to provide a complete and customisable audio solution for any enterprise or meeting space. The ADECIA solution combines Yamaha's new dynamic beamforming ceiling microphone (RM-CG), room control processor (RM-CR), a Yamaha Dante-optimised network switch, and VXL Series line-array PoE+ powered speakers. Together, the system supports multi-beam tracking technology, Human Voice Activity Detection, Noise Reduction algorithms, speaker tracking, adaptive acoustic echo cancellation, and much more. These automatic, smart audio technologies empower crystal clear, stress-free remote communications

Australia: Amber Technology www.ambertech.com.au
or 1800 251 367
New Zealand: Amber Technology www.amber.co.nz
or +64 (0)9 443 0753

ONEstage

New Melbourne based manufacturing start-up ONEstage has come to market with a range of region-specific power and signal distribution products for the pro AV and events industry. The SPD-t18 is a 3Ø, 8 channel, 2RU distro with Neutrik True1 output connectors, 'Power Present' LEDs and Häger 16a MCBO per output. The SPD-T1au is the accompanying 'power drop' which features overcurrent protection, 5 AU/NZ type outlets (rotated and spaced for those pesky power packs!), True1 input and throughput. All housed in a discreetly sleek black anodised aluminium enclosure with plastic bumpers for maximum durability. Spearheaded by electrical professional Lachlan Elmore from Element Audio, under the mentorship of Bruce Johnston of JPJ, ONEstage has also produced a range of truss-mountable Socapex and XLR cabling solutions, as well as etherCON 'problem solvers;' all of which share familiar form factor.

Australia and New Zealand: ONEstage onestage.com.au or 1300 328 346

PROLiGHTS EclPanel TWC

EclPanel TWC is a compact 2x1 LED soft light that comes with the full range of white reproduction, from daylight through to tungsten tones, with high CRI, TLCI and TM-30. The EclPanel TWC allows for quick and accurate local adjustment of light through 3 rotatory knobs with three fully featured modes: CCT with +/- green shift, HSI for total control of hue, saturation and intensity, and FX mode to access the on-board pixel cinema effects. The unit can also be controlled on a per-section basis, allowing for reproduction of onboard customisable effects or through the lighting desk. The unit is designed with an onboard driver and built-in power supply and, being lightweight, the EclPanel TWC offers easy rigging and cabling.

Australia: Show Technology Australia
www.showtech.com.au (02) 9748 1122
New Zealand: Show Technology New Zealand
www.showtech.nz (09) 869 3293

GEAR

QSC Q-SYS Core 8 Flex and Core Nano

The Q-SYS Core 8 Flex includes a 64 x 64 networked I/O channel capacity with eight onboard FLEX audio channels and eight GPIOs. Q-SYS Core Nano offers the same 64 x 64 networked audio I/O without the onboard analog I/O to support installations with smaller spaces with centralised processing and fully networked endpoints. Both of these new Q-SYS Core processors occupy a smaller half-width, 1RU footprint and include pre-installed 8 x 8 Software-based Dante audio channels (license upgradeable up to 32 x 32 channels), driverless USB audio, and AV bridging capabilities.

Australia: TAG www.tag.com.au or (02) 9519 0900
New Zealand: NSL www.nsl.co.nz or (09) 913 6212

Redback A 1760

Redback have released a new microphone delay unit, model A 1760, aimed at installations where feedback elimination is required in public address paging systems. The unit records any audio spoken and only plays back the message when the user releases the PTT switch on the paging console. This eliminates feedback issues in systems where a speaker is in close proximity to the microphone. Simple in-line connection makes it easy to interface with existing systems.

Australia and New Zealand: Altronics www.altronics.com.au or +61 (0) 8 9428 2122

A few of my favourite things


Rack Gear


U67

by Andy Stewart

All self-respecting studio owners want something. There's always another bit of gear worth owning, yet another object of desire worth pursuing. We're never satisfied with what we have, and we're jealous of everyone else's stuff, particularly if we don't own it ourselves. It's pathetic really. Here's my Top 10 list of professional audio gear I either own, or want.

In no particular order of value or consequence, here are some of my favourite pieces of audio gear, why I'm so fond of them and why I could never see myself parting with any of it. Here, also, is an attempted short-list of my current objects of desire (in audio), which is difficult because, like most of you reading this, I want everything (within reason), mainly because I feel so bloody entitled.

To illustrate what I mean, you've surely heard yourself say this: "Yeah, I could really use one of those on the record I'm working on right now."

Use it on the record you're recording right now? Surely, this is actually code for: 'I want it because I just can't stop acquiring stuff, even though I have 10 other bits of gear that would easily do the job.' You probably don't need that bit of aspirational gear, you're almost certainly not entitled to it, but hey, you want it… and that's what matters!

Or maybe, like me, you say this: "I can't really see myself recording that way again until I get an [insert object of desire here]. This statement is, of course, almost never about the next job being impossible to perform in the absence of a certain piece of gear (that just so happens to be the current object of your desire), and nearly always about your incapacity to differentiate between what you need and what you want. It's all about trading up, searching for something better, and never feeling satisfied with the gear you have.

Or maybe I'm wrong here. Maybe it's different for us studio owner/producers. Maybe we are entitled to own everything. We want everything, sure, but perhaps we also need everything, particularly if it's the best of the best. Perhaps we should think of this selfish pursuit as more of a service to the community. I may be onto something here.

But anyway, to my Top 10 list…

MY NEUMANN U67

I have lots of mics, I've used lots of mics, and I desire endless others, but my favourite is my Neumann U67. If I were forced to describe this legendary mic I would say this: it's perfectly balanced, smooth and rich, reluctant to get harsh, reluctant to get sibilant, and good in front of almost everything. It's 50 years old at least, has had a few issues over the years, but when it's working well (which it currently is) I absolutely love it. Do I think there's a better mic out there? Probably not, but will I spend the rest of my life trying to find out anyway? Yep.

But before I do, I also want at least one more 67…

A special mention must also be made of my U47fet here, which used to be Billy Thorpe's old vocal mic (although no doubt he had a few). This is a great vocal mic too: a very immediate and desirable sound. From

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Neve 5104

memory, it was the first bit of ‘vintage’ gear I ever bought, and in many ways this mic represents the beginning of the end of me ever having savings in my bank account. It’s also the best kick drum mic I’ve ever heard.

MY NEVE 5104

This 56-input Neve console has been with me for a while now. I became its owner almost by accident about 20 years ago when a mate of mine, to whom I loaned money for its purchase, couldn’t on-sell it… eventually I became its owner by default. It’s not the most desirable member of the Neve family, but I love its tone. It’s incredibly quiet, has great preamps, great EQ and punch for days. I love its size – not too enormous – and I couldn’t imagine parting with it… unless I got an 80-Series Neve.

MY EVENT OPALS

I’ve had my Opals for at least 10 years I reckon – since Peter Freedman and co first developed them in Sydney. In the time I’ve had them, many engineers I know have gone through several sets of monitors of differing brands and price-points.

What I love about these monitors is their full tone, their incredible power (they go loud without any effort) and their utter reliability. I get up in the morning, go to work, listen to them all day, and then power down. I never think twice about them: never question their durability, or wonder what part of a sound’s tone might be missing. They fit my ears, my taste and my room perfectly, it seems. I have other speakers: Genelec 8260s, Yamaha NS10s, Quested 2108s (somewhere in the building) but none of them work as hard, or as often, as the Opals.

MY NEVE 32254e STEREO COMPRESSOR

I own a stack of compressors, most of which are awesome. My Al Smart C2 works hard every day and is a great lock-down mix bus compressor. My Retro 176 and UA 1176 compressors are staple in most of my recording chains, as is the LA-2A, my Fairchild 600, ELI Distressors and my JLM Mac Opto Compressor. Other notables that don’t get much global attention anymore are a bunch of dbx 903 compressors, four stereo Calrec CY2662s, and even my Amek 9098.

But the granddaddy is my Neve 32254e. This thing is an iron fist, not just because it’s so good at compressing and limiting audio signals, but because when it does it makes things sound bigger, clearer and tougher. It’s ironic that sometimes the sound emanating from this unit feels more dynamic and alive than it did going in. I’ve never known any other gear to punch quite like Neve equipment, and in the case of the 32254e specifically, it’s the Mike Tyson haymaker of audio. I love it.

MY SPACE – THE MILL

It’s by far my biggest bit of gear and it’s also the most crucial. If I didn’t have this space, I simply couldn’t do what I do. I’m lucky to have it, lucky that it has epic views of the ocean and lucky that I’ve been able to develop it over time without the pressure of having to rent expensive real estate in the city.

FIVE OBJECTS OF AUDIO DESIRE

This list could fill CX Magazine for the next few issues at least if I had permission from its editor, although I’m not sure anyone would survive the utter tedium of the long version. So here’s the absurdly short version, which doubles as an insight into my dissatisfied mind.

Firstly, I’m obsessed with vocal mics at the moment, so I’m keen to listen to a bunch of U47 ‘sound-alikes’ to see if any of them are worth shelling out for, or if they’re markedly different from the Neumann U47fet or Warm Audio 47 I have here already. A few companies make a valve condenser that claim some level of authenticity with the original, but often these don’t stack up. This is an ongoing pursuit… enjoyable, frustrating and laborious, but worth it.

Then there’s the small matter of acquiring a Hammond C3 with a 122 Leslie. I have both here now, funnily enough, but they’re on loan. The sound of this particular C3/Leslie combo is quite stunning. Apart from its huge sound, totally epic drive and distortion levels, and the interesting feature of an insert point across its output, the Hammond C3 is just a fantastically versatile production tool. I want/need/deserve/require one of these, for sure.

I also need more preamps (says the guy with 21 channels of Neves, some Telefunkens, Quad 8s and a host of others). I’ve looked into getting some CAPI Heider FD312s – they come highly recommended, but haven’t had the time lately to get serious about them. Do I want them just because there are two spare spaces in my 500-series rack? Probably. Could I instead buy an AMS RMX16 module to slot in there? Yes, I’d have one of those too, for sure! Can I afford any of them? No.

Speaking of digital reverbs, I’d also like to get a Bricasti M7 hardware reverb unit and its associated remote. This reverb unit has been around a while now. In short, it’s superb. They don’t come cheap of course, especially if you’ve grown accustomed to the price of digital reverb plug-ins. From that angle they look preposterously pricey. But I want one regardless. Hardware reverbs are hard to justify at the best of times, but logic doesn’t really apply here (does it anywhere?). I just love the way the M7 sounds!

I’d also like to get a large format SSL 4000 series… maybe 64-channel. But where would I put it? In the paddock next door? Maybe…

Andy Stewart owns and operates The Mill in the hills of Bass Coast Shire in Victoria. He’s happy to respond to any pleas for recording, mixing or mastering help... contact him at: andy@themill.net.au


Hammond C3

AV HIRE & PRODUCTION MID-COVID

by Jenny Barrett

Vidcom, who operate across a number of major New Zealand venues including Eden Park in Auckland, Claudelands in Hamilton and the Intercontinental in Wellington, are currently navigating the switch to the new way of doing business.

The Dark Side

During the first New Zealand lockdown about ninety-five percent of Vidcom's business disappeared. The bulk of the events on Vidcom's books, typically over one hundred attendees at multi-room, multi-day conferences and award ceremonies, were either postponed or cancelled. A few streaming jobs continued. Vidcom fortuitously won the contract to stream the one o'clock government briefings from the Beehive, alongside the TV channels. Post-lockdown, things had begun to pick up but the most recent shift to Level 3 in Auckland saw another round of cancellations across the business.

The Bright Side

Although currently working with reduced staff and definitely under the pump, Vidcom do see opportunities out there. Vidcom are in the fortunate position of having offered a streaming service for a number of years and are successfully capturing a share of the virtual and hybrid event market. Even so, they have found that the sheer scale of the streaming workload is having an impact on their normal way of doing business. Jason Monk, Business Development Manager, describes how they are adapting, "There is a lot more work involved in the pre-production of a streamed event. We are working longer days and obviously spending a lot more time on phone calls. Although we have been streaming events or parts of events for a number of years, the event organisers themselves haven't necessarily been involved in one before and require a lot of support and reassurance."

Vidcom are leading event organisers through decisions on the streaming platform itself, on screen layouts for full, picture-in-picture and split screen, testing internet connections, choosing voting platforms as well as overseeing a full dry run, "MCs and speakers can't just turn up with their presentation on a pen drive and we flick through it and are good to go. Streaming live involves a lot more planning."

Jason describes a typical event, "We worked with the New Zealand Security Association on their awards night, where people gathered in face-to-face groups around the country, to watch the live stream from the Vidcom recording studio on the NZSA website, with MC Te Radar and DJ Lo Key. Firstly, we discussed reducing the event duration from its original form to one and a half hours of awards and thirty minutes of the live DJ. Secondly, we kept a level of interactivity by encouraging people to text in comments which we moderated and overlaid on the live stream and people did engage constantly throughout the night. Finally, we kept the element of surprise and used headshots of the award nominees before announcing the winner."

There was a number of hours put into pre-production from both the client and Vidcom to get the desired look and outcome for the event. On the night, two technicians from Vidcom and two of the client's staff managed the event and moderated the comments coming in.

Jason agrees with the widely held industry prediction that sees a virtual element to future events even post-Covid, "The vibe traditionally was that you wouldn't sell tickets if you offered the event online but organisers are realising that people are still attending the events, and the online presence is vastly larger than anticipated ." He sees potential in the academic world, "We have streamed surgical operations of global interest for some time but over the last few months where surgeons would have travelled to deliver training, they are now doing it online and are seeing many benefits. I think we will see a growth in this type of work."

Another growth market is remotely recording presentations, "Those speakers who travel around the globe are now pre-recording their presentation with us – at an hour that suits them – and then joining the event online for the Q&A or panel discussion. We have a medical event in October that has a large number of presenters pre-recording."

The Far Side

Having had the streaming arm prior to the pandemic has stood Vidcom in good stead, "We had staff with the expertise and they have quickly brought everyone up to speed so we are all on the same page, and we had the streaming platforms. Luckily we had invested in an Internet bonding unit which uses three other networks for internet, as well as the venues, to spread the load and deal with any drop-out issues."

The problem facing Vidcom, as with many in the industry, is not knowing what is around the corner, "We are working flat out and doing everything we can to maintain the business and not lose money. We would really like to be able to bring all our staff back on board, but we don't know what might happen next, especially around the venues."

The Client's Perspective: The New Zealand Security Association (NZSA) Awards


Grant Waterhouse

Grant Waterhouse, a corporate event organiser for Skeme with over twenty years' experience, navigated the production side of this virtual awards event alongside Vidcom, "I'd produced events with a virtual element, but for the streaming to be the main focus was a first for me." He had organised the NZSA Awards the previous year and knew it had to be live, "The security industry is made up of some really special people, and this is their night. It was especially important this year with all the additional pressures that COVID has added to their role." Working with the NZSA, he set up watch parties around the country from five to six-thirty on a Friday evening, with employers providing drinks and nibbles. The event was a roaring success. Grant identified five contributing factors:

Stability of the feed: "It was super stable and ran like a dream. It didn't matter how many people connected. We had five to six major companies and thirty to forty minor agencies involved."

The interactivity: "Te Radar was the perfect MC because essentially it is TV and that is his environment. The text messaging was an unexpected success and Te Radar could see them onscreen and would make reference to them. We got over one hundred messages during the show."

The music: "We weren't sure whether to use piped clapping, or ask one company to make sure they applauded and switch to their feed. In the end we opted for a DJ. DJ Lo Key came to the studio armed with beeps and claps, but actually him just playing his beats in the background was perfect, and his connection with Te Radar was immediate."

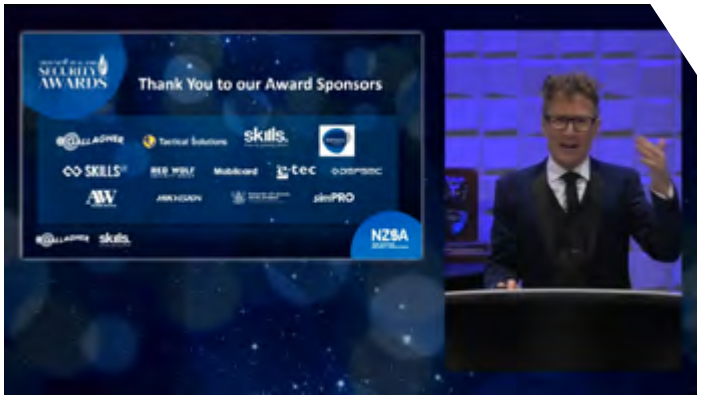
Rest breaks: "We had scheduled a few two-minute breaks to give the audience time to refill their glasses, but it also gave us time to regroup in the control room, to sort the autocue and to touch base with Te Radar."

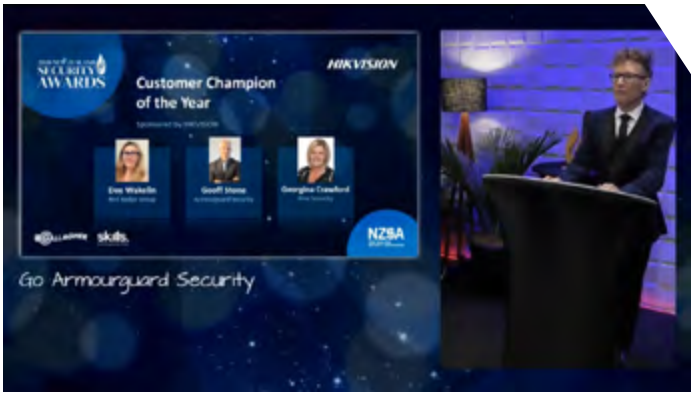
The remote cameras: "The NZSA don't have a huge budget so we didn't rehearse but the remote cameras were super-easy to operate and Vidcom's switching was perfect. Essentially we pulled off the event without needing to direct."

So successful was the live stream that it is set to be a part of the physical event next year in Christchurch, "For the winners' parents, children, friends and colleagues to be able to see them be rewarded for their achievements was fantastic. Alarm Watch in Wanganui had a security camera set up in the roof and captured their member of staff finding out he had won the major prize of the night and shared it on social media. It just made it so much more accessible. Next year we would like to be able to show these moments too as part of the main event."

Other elements that he would tweak, "I'd like for people to be able to send photos in as well as text messages so that we see people in their own environments, and I would spend more time styling my PowerPoint template! Otherwise, I think it went amazingly well."

And as to how he's enjoying this new world, "I feel like I am a TV producer as well as an event organiser and it is fascinating. I would definitely recommend going with a proven tech company. There is a fear factor to these events, and you want to know that you have solid support in place."



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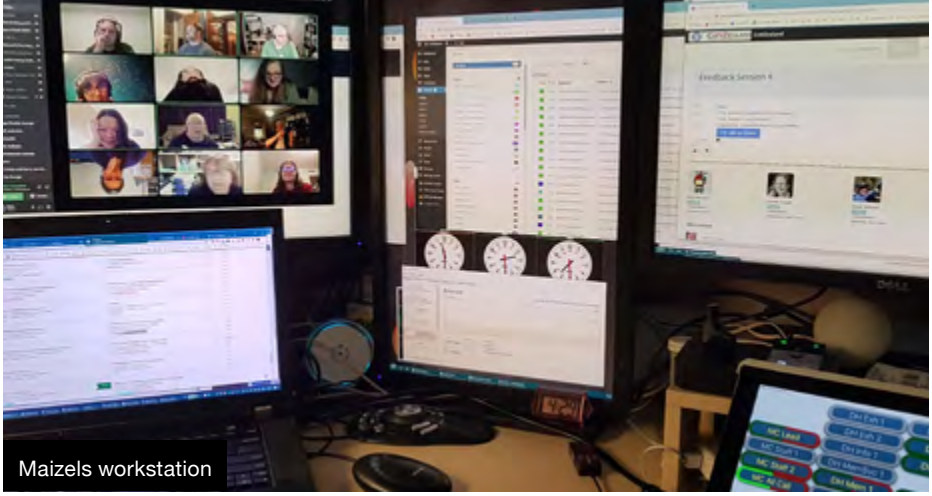

Maizels workstation

CoNZealand 2020 World Science Fiction Convention goes virtual

When the Covid-19 pandemic began to go global, the organisers of CoNZealand, the 78th World Science Fiction Convention, faced a difficult decision.

As the world went into lockdown in March, the 2020 event scheduled for late July in Wellington was forced to consider cancellation. With its proud all-volunteer tradition and can-do attitude, the team searched for an alternative. That alternative was centred around the RTS VLink virtual intercom solution supplied by Magna Systems & Engineering.

A lifelong science fiction fan and freelance broadcast engineer based in Sydney, Australia, John Maizels catalogued the requirements, searching for affordable, effective tools with which to address them. Using free, publicly available tools like Zoom conferencing, Discord chat rooms, and streaming video from Fantasy Network, the CoNZealand team decided to move the entire five-day event online, creating a virtual convention. The challenge was finding a way to manage it all.

“As a broadcaster, it was blindingly obvious that the key to operating as a team when you can’t see anybody is good communications,” says Maizels. “That meant finding an effective virtual intercom system.”

Maizels consulted with the Asia-Pacific broadcast technology specialists at Magna Systems & Engineering. Magna was already heavily involved in helping clients cope with virtualised broadcast events and socially distanced live sports.

“When John asked us about virtual intercoms, we could confirm that RTS VLink is the best online comms system on the market,” says Lucas Böhm, product manager at Magna Group Australia. “It’s perfect for global applications because it’s platform agnostic and basically infinitely scalable. It’s a very powerful tool.”

Looking at its flexibility and especially the fact that there is no limit to the number of users, VLink was quickly adopted. RTS and CoNZealand agreed on a 30-seat VLink license, meaning the only limit was a maximum of 30 simultaneous communication streams.

Maizels then developed a concept he called Mission Control, a virtual control room where the core team would have access to a global view of all convention activities. The key elements were RTS VLink for “backstage” communications, and vMix, a virtual production switcher, to monitor multiple simultaneous video events. Both applications were “located” in an Amazon Web Services cloud, creating a Mission Control operating independently of all the public-facing elements of CoNZealand.

“Being a product that I had never before used, VLink was slightly daunting, especially given what we were attempting,” notes Maizels. “But since its architecture is essentially that of an RTS digital matrix intercom, it quickly felt very familiar to me, and thus easy both to set up and to explain. That proved to be a huge advantage.”

The next challenge was education. “One of the biggest barriers was that people really believed that simply using their personal device for voice and text would be sufficient communication,” he explains. “Which is fine – until you have a problem and don’t know what caused it, how to fix it, and who can help. VLink provided the global view and instant access, both partyline and point-to-point, needed to address that.”

During prime hours, virtual CoNZealand offered 15 to 20 simultaneous program events – running multiple live events while preparing the next hour’s schedule. In addition to panel discussions and presentations via Zoom, there were also virtualised renditions of the exhibit hall, art show, fan tables, parties, bars and cafes. All had to be monitored. If there were glitches – in audio, in video, in chat – VLink was used to identify the problem and address it.

Another challenge was how best to present the traditional “big tent” events, normally produced live by the Technology Division in a ballroom. These included the opening and closing ceremonies, along with a Masquerade ball. But the most important events are two science fiction award shows: the Hugo Awards and the Retro Hugos.

For the Hugos, there was no gathering of nominees, no banquet, no physical awards. But using a combination of pre-taped video segments and live video, the ceremonies were viewed globally in real time, including live announcements of each Hugo Award winner by author George R.R. Martin, live from an empty theatre in Santa Fe, New Mexico.

Like any good intercom system, VLink spent most of the convention quietly enabling countless program events. But it was during the inevitable moments of crisis that VLink really showed its value. As an example, Maizels points to an Internet issue that hit the area set to host the video feed of the closing ceremonies.

“The Internet at the playout location in Alameda suddenly became very flaky, very unreliable,” says Maizels. “With a quick succession of point-to-point and partyline conversations on VLink, we were able to confirm the issue, then switch the playout operation to another team member, who was in Baltimore. Using the partyline on VLink, we could liaison with all parties for the tech handover and tech process. And no one attending the ceremonies online was any the wiser. I have several examples like that, where VLink saved the day.”

magnasys.tv/product/rts/
conzealand.nz/

SYDNEY 2000

Twenty years after the iconic Sydney Olympics, The P.A. People continue the legacy of Australia's greatest sporting event

The 2000 Olympics left a significant legacy within the Australian event industry, not the least of which can be found within The P.A. People - a leading solutions provider of event communications worldwide and AV design and installation services for large venues.

The P.A. People delivered many production and installation services for the Sydney Olympics, including the communications system for the Opening and Closing Ceremonies, permanent sound systems for the Olympic Stadium, many venues at the RAS showgrounds, The Velodrome and the Tennis Centre, the majority of the Venue Sports Presentation intercom systems at the competition venues, and all the non-competition venue overlay sound and vision systems.

The company has built on the opportunity and has gone on to become one of the leading providers of event communications worldwide, providing systems at five Olympic Games, and is arguably Australia's go-to vendor for the design and installation of sound systems in large venues. The company is also a significant player in the local events industry. Counting the Australian F1 Grand Prix and Sydney New Year's Eve amongst its regular clients, along with more than fifteen major venues delivered over the past twenty years, many of these have included multiple contracts.

"When the Olympics came along, The P.A. People had been around for just over 25 years. We had emerged as a significant player in the installation space having worked on new venues in the mid-nineties such as the Brisbane Convention and Exhibition Centre. We had recently moved out of the large-scale audio reinforcement touring space, instead opting to specialise on niche rental business opportunities. The Olympics was an opportunity to build on both aspects of the business," commented Chris Dodds, Managing Director of The P.A. People. "As we look towards our half century of continuous operation next year, it is timely to recognise the catalyst and the opportunity that the Sydney Games afforded us.

"The P.A. People have installed our audio systems, serviced the systems and supervised and operated the systems since the Stadium opened in 1999."

Daryl Kerry - Managing Director, ANZ Stadium

"Multi-sport, multi-venue events need partners who will genuinely work with them. The P.A. People have that attitude to partnership."

Sandy Hollway - CEO, Sydney Olympic Games Committee / International Events Advisor

"You have to have a company that has the technology and the experience to be able to guarantee delivery; that understands what you are trying to achieve… and The P.A. People is that."

David Atkins - CEO/Artistic Director - David Atkins Enterprises

www.papeople.com.au

Virtual concert stage buit in Unreal

GET UNREAL

by Simon Byrne

There is a lot of buzz in the film and television industries around the use of LED screens for backgrounds rather than green screens. That in itself is not big news. What is big news is the use of the video gaming technology to feed interactive, real time content to the LED screens.

The video game industry is massive, with an income of approximately $200 billion in 2019. As a result, it drives the development of powerful computing technologies, especially commodity graphics hardware and software which other industries take advantage of. For example, the Davinci Resolve video editor became a mainstream product because of the ready availability of high-end graphics cards developed for video games. Before that, it was a $100,000 product running on dedicated hardware.

In 1998, Epic Games (the makers of Gears of War and Fortnite), developed the Unreal real time game engine for their first-person shooter game, also called Unreal. In 2014 they made the engine available for others by way of subscription model and in 2015, in a bold move, they made it available as a free download with their Creator Licence or their royalty-based licence. Epic's logic was that if they made the engine easily available, the community would grow.

For production of the first series of 'The Mandalorian', Industrial Light and Magic (ILM) took the Unreal Engine and built a 360°, six metre high LED wall and topped it off with a LED roof to make a completely enclosed LED environment. The screens were driven by the Unreal Engine running on four PCs. This system allowed dynamic photo-realistic digital landscapes and sets to be live while filming, which dramatically reduced the need for green screen and produces the closest thing to a working "Holodeck" style of technology. An interactive and infinitely variable set! Amazingly, this approach saved them money when compared to traditional green screen methods and the required post-production to make the green screen footage work. Half the Mandalorian footage was shot in the Unreal Engine/LED screen environment.

But why real time technology? By putting a real-time three-dimensional tracker on the camera, the set can interact with it. This means the parallax of a scene can be perfect as the camera moves throughout a scene. For example, think of being in a car that is driving through a forest. When you look out the window, the trees near the car zoom past, while the trees in the distance appear to slowly drift by. That is parallax in action, and for a scene to look natural as a camera moves, it also needs to have the elements in the distance move less relative to those up close.

There is another benefit. Because Unreal is real-time rendering, you could add controllers to the car's accelerator, brake pedal and steering wheel. Now an actor in the role of driver has total control of the scene. He swerves left, so does the scene, he brakes sharply, the movement stops in perfect sync. This interactivity drives a better performance from the actors because the scene responds to the actor's actions and they no longer have to imagine what they are working with as they had to with green screens. Also, because the camera has a tracker, it can move around within the scene and maintain perfect parallax viewing throughout with the interactive action.

The fact that it is real-time opens up other opportunities. Perhaps the director wants less trees in the forest. Easily done. Maybe rain or fog would suit the scene. Also easily added then and there. Time of day wrong? Change it. Not liking the shadows? Fix them.

As you would imagine, the LED screens emit light and that light is from the scene itself. Therefore, the colour and brightness of the light is consistent with the scene being shot.

Imagine our car drives into a tunnel. As it enters the tunnel from the bright outside into the darker artificially lit tunnel, the change in light down the side of the car as it enters mimics perfectly what happens in real life. The moving reflections on the car's windscreen, chrome and paintwork is also realistic. You cannot do this with green screen.

Unreal Engine does all of this…and more.

It is a state-of-the-art 3D editor and real time engine that produces photorealistic rendering, dynamic physics and effects, lifelike animation and data translation.

It supports real environment scanning with a LiDAR Point Cloud plugin. You can laser scan a building and import the 3D data into the

Unreal Engine. That means you can import real life environments in glorious 3D.

Built on C++, the Unreal Editor, which is the software you use to create content, is available for Windows, Mac and Linux, but Windows seems to be preferred. It requires a powerful computer, something along the lines of a high-end gaming machine with a good graphics processing card. With the Epic Game's Creator licence, it is free to download and use and is 100% royalty free under that licence. For producers where income is directly produced from a product that uses the engine, Epic Games charge a royalty.

The Unreal engine natively supports Blackmagic Designs and Aja IO hardware as well as support for NDI by way of a plugin. In terms of control, it has integration for linear timecode, MIDI, DMX, web and iPad control as well as 3D tracking from external devices. One such tracking device is the HTC Vive, which is a game oriented 3D tracker at only about $260. Entry level filmakers are mounting those to their cameras and getting great results.

The DMX plugin is particularly interesting because as well as controlling Unreal Engine from a lighting desk, Unreal Engine can output sophisticated DMX which enables real time rendering of lighting control. So when our car drives into the tunnel, Unreal Engine changes the lighting to suit the new scene.

The scripting system within Unreal Engine are called Blueprints. Blueprints are a visual scripting system and is a fast way to start prototyping. Instead of having to write code line by line, you do everything visually. Drag and drop nodes, set their properties in a UI, and drag wires to connect.

As you'd expect, Unreal Engine also does projection edge blending and LED screen mapping using its own multiscreen technology, ndisplay. ndisplay allows a master PC, and multiple slave PCs which are networked using standard Ethernet gigabit networking. The images are kept in frame-accurate sync using a separate genlock source fed to every computer in the network.

Unreal Engine is supported by a very healthy community and marketplace.

In the marketplace, there are scenes, textures, blueprints and plugins for the engine that others have developed which can be purchased, but many are also free. For example, there is a plugin that connects a Panasonic AW-UE150 PTZ camera to the engine. The plugin calculates the PTZ camera position as well as the pan, tilt, zoom, and focus parameters from the camera and applies those settings to your project. If the camera moves, the engine reacts accordingly.

In the community forums, there are literally thousands of topics being discussed. If you are stuck, you will quickly find a solution and if you cannot, there are thousands of other community users ready to help out.

In terms of training, the people at Epic Games have an extensive library of online courses which are also free. I was impressed with these. They are properly structured, well thought through courses complete with good instructors and support materials.

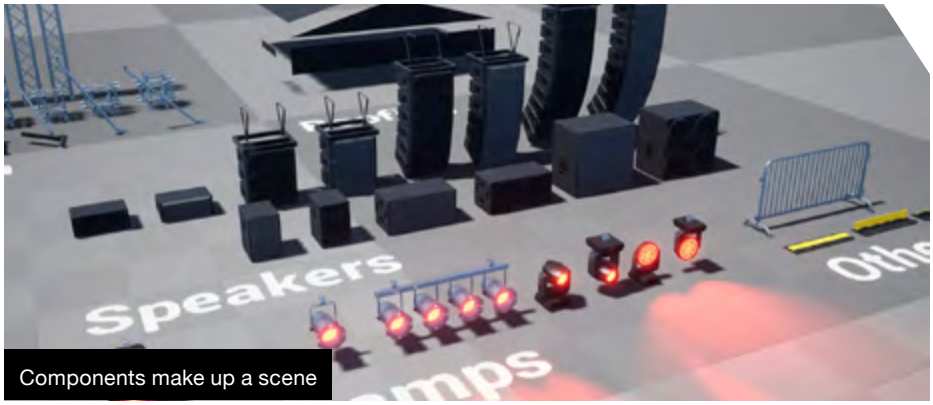
In these COVID-19 times, if you own some LED screens, virtual sets driven by the Unreal Engine might be a new market for you. If you are a tech with some free time, the market for Unreal Engine skills is definitely a growing industry which you may want to get into.

I'm glad Epic Games make obscene amounts of money in the video game industry. It means industries like ours get to play with their real time virtual 3D worlds at extremely low cost. Worth checking out.

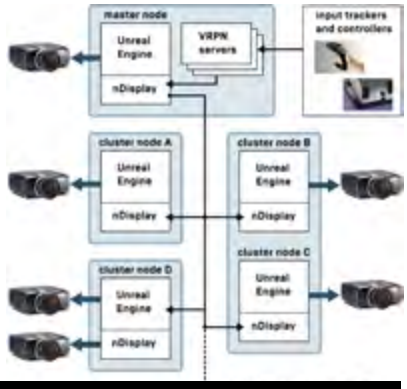
Download the Unreal Engine
unrealengine.com/en-US/get-now

Epic's Unreal Engine online courses
unrealengine.com/en-US/onlinelearning-courses

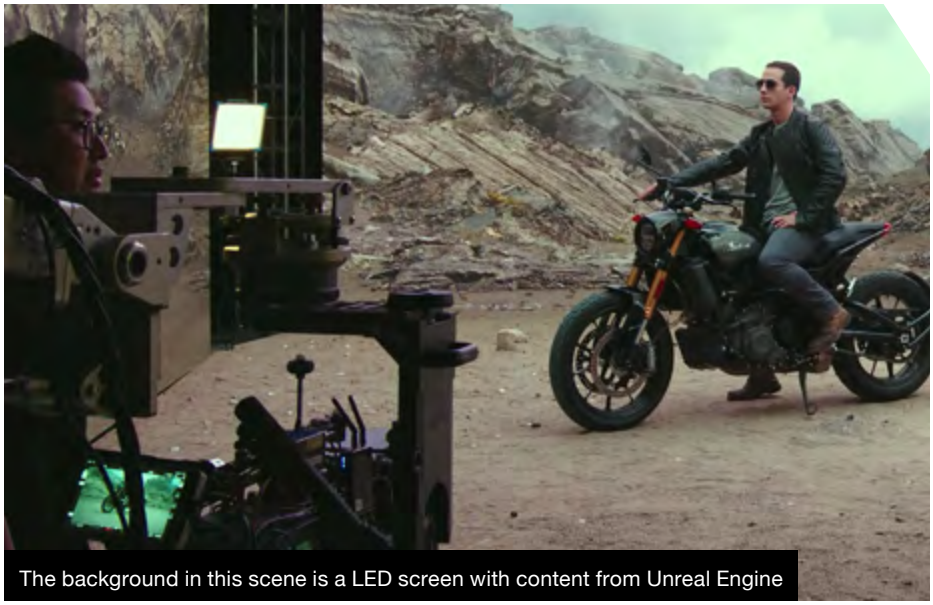
The Virtual Production of The Mandalorian using Unreal Engine
youtu.be/gUnxzVOs3rk

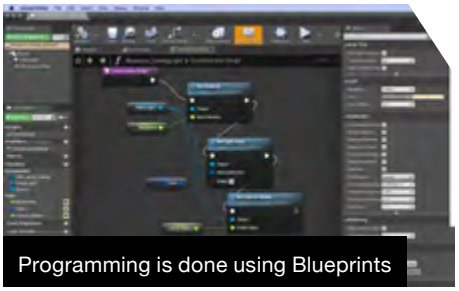


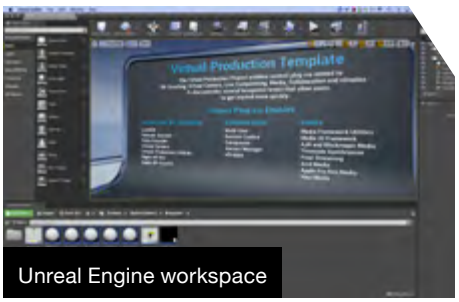
Components make up a scene



There is no limit to the size of the screen


The background in this scene is a LED screen with content from Unreal Engine


Programming is done using Blueprints



Unreal Engine workspace

By Open Media's Simon Barnett

LED WALLS

A Film Production Revolution

The business of film and television production is going through some major changes with applications of gaming technology being applied to studio production.

At the Alex Theatre in Melbourne's St Kilda, tests have been under way with LightScape World who have developed the 'Virtual Studio' for new studio techniques for filming.

These new studio techniques allow the filmmaker to capture complex visual effects straight to camera utilising Unreal Engine technology developed in the gaming industry and utilising large, ultra high-quality LED video screens.

This 'Holo-deck' style technology reduces the need for green screen filming and CG post-production. There are other benefits such as no green screen colour spill, and putting the actors in a real environment produces light reflections of the scene they are in which creates a more realistic effect.

But the real magic is dynamically updating the background to match the perspectives and parallax of the camera. In other words, the whole set on the screen moves in perspective with the camera moves resulting in a very realistic shot. It works in combination with a motion capture tracker which is aware of where the camera is and how it is moving.

There have been very few cases overseas that have adapted the technology and studio process but HBO's 'West World' and Disney's 'The Mandalorian' are two.

Mike Seymour stated in FXGuide.com recently that this technology is producing stunning visuals for Disney's 'The Mandalorian' series. Industry Light and Magic (ILM) is making its new end-to-end virtual production solution, ILM StageCraft, available for use by filmmakers, agencies, and showrunners worldwide.

Over 50 percent of The Mandalorian Season 1, screened on Disney Plus, eliminated location shoots entirely by utilising the technology in studio. Actors performed in an immersive and massive six-metre-high by 270-degree semicircular LED video wall and ceiling with a 23-metre diameter performance space, where the practical set pieces were combined with digital extensions on the screens.

The LED walls provided the correct highlights, reflections, and pings on the Mandalorian's reflective surfaces. These would have been completely absent from principle photography if it had been shot the old-fashioned way.

Some weeks ago, the Alex Theatre made available studio space for a large nine metre by six metre u-shape LED wall to be erected to begin tests.

Phil Ross from Pro Screens who works in the production industry on events said, "We found ourselves in a really unusual time and this new technology, the way to adapt LED screen walls to film work which creates a virtual studio, was presented to me. I needed to pivot my business because I've got millions of dollars' worth of equipment sitting in a warehouse gathering dust. It looked like something so fantastic and exciting but from the word go, I realised that this was a mammoth undertaking."

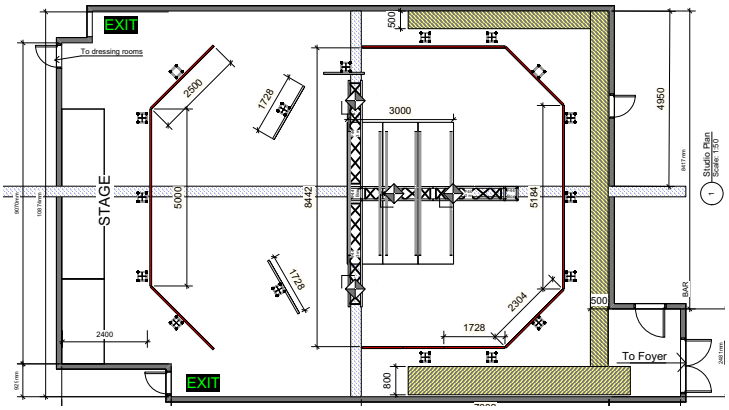
Phil realised that this direction needed more than his expertise. "I could see to do this properly would take more than just what I had. It had to be a collaboration. It had to be a multi-layered coming together of different industries. There's also going to be a great deal of research and development in pioneering a new way of filming. There's three technologies, the LED screen, the filming process and the Unreal Engine."

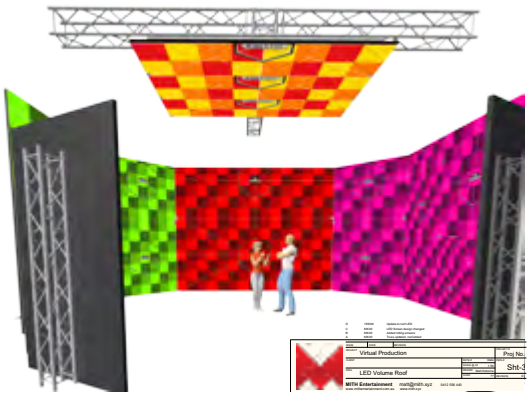
Eddie Postma, LightScape World CPO said, "Our first focus has been on getting all the technology working. There's the technology with the Unreal 3D environments, then there's the camera, and then there's making those talk to each other and work together. You need to understand how to make the environment work for the camera and then how to make the camera work for the environment."

The production crew had success with many elements in the filming including the DMX lighting, which is fully integrated and controlled by automation from Unreal Engine.

Phil added, "So once we got the hardware down pat, we have to pivot and turn to the world building or environment building. My skill and speciality is being able to make the three different technologies work together."

Greg Fendis, LightScape World CEO said,





"The workflow is more efficient now. Post-production is drastically reduced as most of the work is done during the production phase. Time and resource efficiencies are common outcomes of the virtual studio".

Greg believes that what they are doing is going to be affordable to the small to medium film maker. "You don't need $10,000,000 or $20,000,000 in set-up costs. Virtual studios are customised to cater for small studios with 500 LED panels all the way to the Mandalorian size studios with 5,000 panels. We are pioneering this new mode of creativity and making it available to the film and TV industry," said Greg.

"The amount of time you save in production and post-production is phenomenal," said Eddie. It's around one in two; for one hour in production you save more than two hours in post-production. There's a lot of tech, it's not an easy entry, because there's a lot of tech you have to work out. It's taken quite a few weeks to learn and every day you learn more. You have to have the lighting balanced a certain way, and you have to find what that balance is."

"It is going to truly revolutionise the film industry. It's not that we are creating an incremental change to existing studios. This is a giant leap forward," said Greg Fendis.

lightscape.world
alextheatre.org.au
etainment.com.au

Why LED screens are replacing green screens

an interview with Nathan Wright, Digital Technology Manager at ULA Group

Why are hi-def LED screens replacing green screens in TV and film production?

Utilising LED screens within TV studios has been a trend for some time now. Providing the flexibility of dynamic content helps create that extra visual element as well as that ease of quickly changing content on large surfaces. LED screens are nothing new to anyone in this sector, however the bigger changes that have been happening over the last couple of years are the graphics engines driving the content to them. This in turn has grown the market for virtual studios. There are many types of virtual studios in today's COVID environment. What we are focusing on here are some of the main things associated with studios used for the creation of films, TV commercials and other content, not a webinar type of setup, which has been called a 'virtual studio' as well.

Recently the production of the TV series 'The Mandalorian' used an extensive 'digital stage' comprising an almost 360-degree LED wrap around with a celling to create a 'true' scene. This was driven by the Unreal Engine, which has been the backbone of many of today's computer games.

So, what's so special about this? Using this set-up lets you create 3D worlds on the fly with the ability to move objects around as needed. The biggest feature being the motion tracking of the content with the camera. This creates a much more realistic visual on screen, a necessity to make it all work. It's now no longer a static look; the camera and content are moving in harmony.

One of the major advantages of LED screens is the fact there is none of the old green screen 'spill' from reflective surfaces that was always a challenge to deal with in post-production. If your content is created right, you can get all the 'real' reflections and lighting on your subject, which was also traditionally done in a post-production environment. Another advantage is that your actors (and everyone else) can see in real-time what the environment is going to look like, and if they are referencing something that is in the virtual world, they can see it rather than just taking a guess.

How do virtual studio LED walls save money in film production?

Doing all of the clean-up work in post-production is very time consuming and costly. Even more costly re-shooting a scene if it didn't work. The initial outlay for a virtual studio is a large investment, but in the long run, a lot of the work that used to be done in post-production or on location can be done faster and more efficiently in a virtual studio.

What are the important factors when designing a LED wall for virtual production?

The main questions to ask is what are you trying to shoot, and what are everyone's expectations? Obviously, pixel pitch is one main factor to be considered when you purchase a screen, but of course the finer the resolution, the higher the cost will be. Also, what is the size of the digital platform you need to build in your studio? Can a mix of high and lower resolution panels work? Do you need to create a digital ceiling? Rigging and installation of the screen is also an important factor. You might have a grid, but can it take the weight of a large-scale LED wall or would it need a combination of ground support with some of it flown?

Most studios will also prefer a curved LED wall, so you need to make sure that the screen can support curving, or at least the rigging can. Most of the time the screen will be convex, which means the panels don't necessarily need to have the curve option (however it will make your line-up better if they do). Our VuePix Infiled DB Virtual Studio series supports +/- 5-degree curving on every 500mm facet as standard, so it's perfect for this type of application.

What are scan and refresh rates, and why are they so important in film production?

Scan and refresh rates seem to be the biggest cost factor when it comes to LED screens on the market today. Like everything, you get what you pay for. There are many ways to cut costs on the production of LED screens. The easiest way is to use low quality LEDs, driver ICs and PCBs. We are often asked to match or beat prices from other vendors, and the first question we usually ask is "what are the components of the screens and what level of components would you be looking for?" Most of the time the panels aren't of the same build quality nor are the components, which creates a significant price difference. We do provide budget offerings and these differences in quality will be clearly outlined, so you will know what to expect.

There are two main factors that determine the performance of an LED screen. These are driver ICs and receiving cards. I'm not going to dive into the science here as it starts to hurt your head if you're not an electronics engineer but, in a nutshell, the driver ICs tell the LED (RGB) what intensity it should be. The amount of LEDs that are driven off an IC is translated to the scan rate. It's a balancing act of ICs vs. scan rate and performance. When brightness isn't an issue (i.e. - indoors) the scan rate can vary from 1:8 or 1:32 and anywhere in between. So why not have everything at the best scan rate? Simple - cost! This all comes back to 'you get what you pay for'.

Normally, outdoor screens will have a better scan rate than indoor screens, because they run brighter and they need more IC power to drive the LEDs. Indoor screens don't need that level of brightness, so they will generally have a higher scan rate.

So why is scan rate important in film production? Working with LED walls on camera can be very challenging, from rolling of content, to Moiré effect, to just bad calibration or nasty setups. One factor to help with this is a better scan rate, so instead of a driver IC refreshing a group of LEDs (i.e. - 24), it might have the option to do 12 or 8, which is much more friendly to the sensor in the camera and will give you a smoother image when it comes to moving the camera in the field of view. Our VuePix Infiled DB Virtual Studio series offers a scan rate of 8 which is one of the best on the market in this class.

The other important factor is the refresh rate. This is how often the ICs, receiving cards, and processor are refreshing the LEDs. A lot of people relate this back to the way TVs work, but LED screens are different. The refresh rate of LED displays in the simplest terms refers to the frequency at which the LED display's hardware draws data from its source. This frequency provides a measure of frame rate per second; however, it is important to know the difference between refresh rate and frame rate per second. While refresh rates include the drawing of identical frames every second, frame rate specifically measures the frequency at which an entire frame of new data is fed into a display.

When you have lower refresh rates, cameras will often pick this up, as will the human eye. The higher the refresh rate, the better the screen will look. Most of the major receiving card vendors automatically suggest the appropriate selectable refresh rates. Most screens produced within the last couple of years should have a refresh rate above 1920Hz. High performing screens will normally be around 3840Hz.

On top of the above technical aspects, the type and quality of the driver IC will have a big impact on the image quality on the screen, mainly around greyscale and how it deals with bright and dark images. With cheaper ICs you may have some issues with greyscale and colours just not looking right. You could be running the best receiver cards, but if you have low quality ICs, you will have bad visual performance. MBI (macroblock) are one of the market leaders in the LED driving IC space, but there are more expensive and cheaper ones out there. It's just about defining your needs and making sure your vendor can deliver. We use macroblock in the majority of our VuePix Infiled range.

All of the above factors will vary the cost of your LED screen. At VuePix Infiled we offer a special version of our Deep Black series with a 1:8 scan rate, angled cabinets, black LED and special masks to reduce the Moiré effect. Our DB Virtual Studio series is available in a 2.8mm and 2.6mm option.

What do filmmakers need to take into account when creating content for virtual studio LED walls?

There are really no limitations with the content that can be shown, as it is just a giant video wall. However, you need to make sure that your content isn't too bright, to the point that it overshadows your main subject.

What needs to be considered when using or creating HDR/10bit content?

We are seeing more and more specifications asking to support 10bit and HDR content. While it's an easy tick box on paper, in reality it's a bit more complex. There are a few things you need in order to support both, and normally if your system supports HDR then 10bit will also be available. But on the flip side, your system may support 10bit, but your hardware may not support HDR.

The first and most important is to have quality content. I'm not going to get into colour spaces here, but true 4K HDR 4:4:4 content isn't readily available. There are only a few cameras that can actually record in this native format, and if you want to generate content of this quality, it isn't cheap to produce. On top of this, the file sizes are extremely large. The other factor, as mentioned earlier, is content getting generated on the fly by virtual engines. Depending on your needs (and client needs), most high-end render systems can create and export in a variety of formats. Once again this comes back to the question of what is needed vs. what is wanted.

The other element is the program chain to get the source to screen. There is definitely a lot more to HDR and all the variants, which is for another discussion.

At ULA Group, we are the distributor for NovaStar and Brompton in Australia and New Zealand, so we have a fair bit of knowledge and expertise on both product lines. One thing that is common across these two platforms is that if you do decide to use 10bit processing, you will halve the loading capacity of your system! This needs to be taken into consideration when it comes to your system designs, as most of the pixel load charts are based on 8bit processing.

Brompton has been the leader in this space for some time now. Their SX40 processors and the new Hydra calibration technology make 10bit and HDR a pleasure to work with. Low latency (two frames end to end), free rotation and chroma tune are supported on most of the Brompton range, and all of their processors allow advanced colour adjustments on the fly.

One of the other unique Brompton systems is their dynamic calibration. This is a recent addition to their software. It will change the values of colours and brightness depending on the content and variables that have been user defined to deliver a superb end user experience (you can read more about this on Brompton's website). We will have a Hydra system here in Australia in the coming months for you to re-calibrate your existing screens. If your screen is running R2 cards, then your screen will support Hydra calibration.

NovaStar also supports HDR and 10bit in their MCTRL 4K, H series and Ultra Pro HD processors. When you have supporting receiving cards (standard in our DB series), you can view 10bit HDR content on your panels. With the new range of processors driving large format screens (4K & above) one unit is making things much simpler, that's the H9, supporting a massive 52 million pixels in one controller. The NovaStar range offers four frames end to end with scaling on, or two frames with low latency mode.

NovaStar are also working on a new range of receiver cards using 5Gb Ethernet, which allows for five times the current pixel loading on a single cable – COEX. This tech was launched at ISE this year and has just become available. It is geared towards the 8K screen market.

NovaStar is the market leader in LED video processing with over 60% of global LED screens running their processing systems.

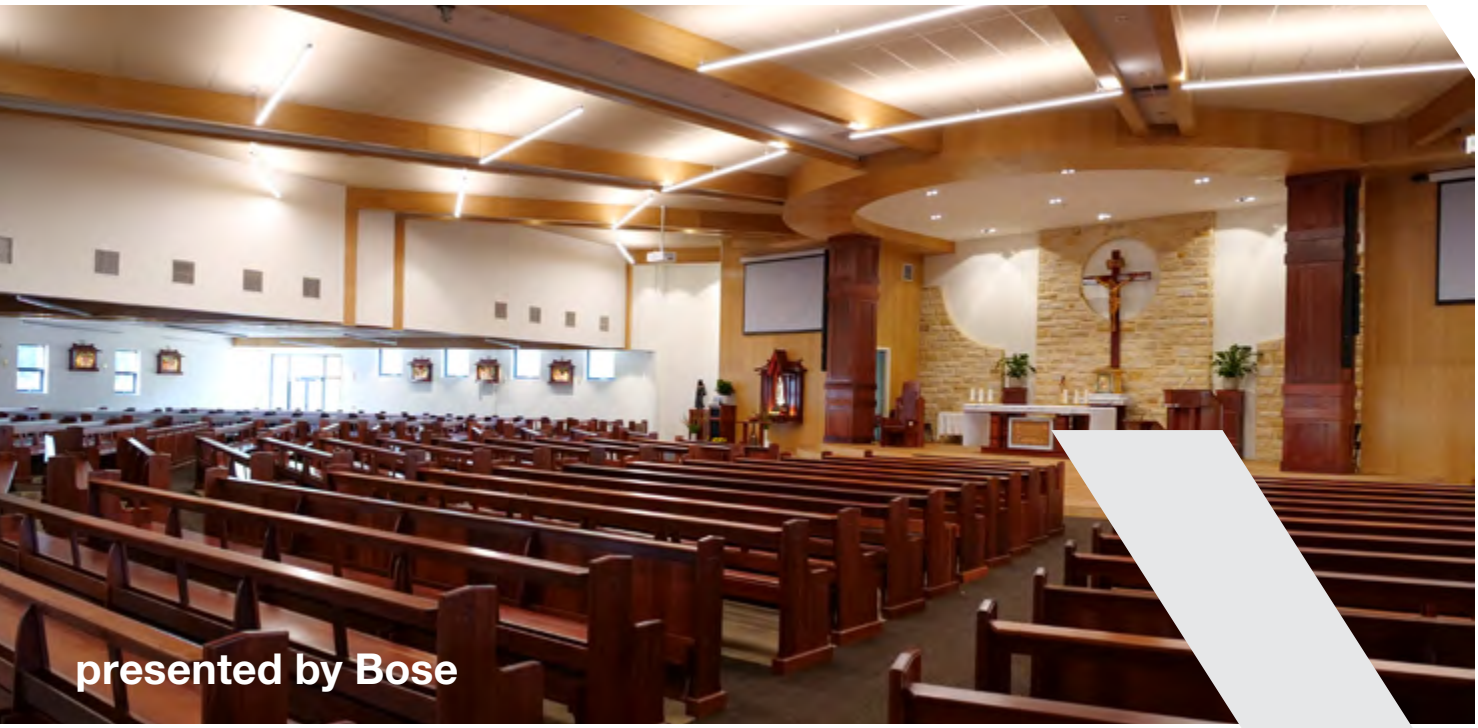
Both vendors offer processing and calibration that support Rec.709, DCI-P3, Rec.2020 as well as custom options (you need special LED chips to reach Rec.2020).

How are these technologies likely to develop?

LED screens are constantly being refined. At VuePix Infiled, apart from our new DB series specifically developed for virtual studio environments, we offer a whole range of other products suited to various markets - from the large outdoor mesh series designed to withstand the elements, to the superfine pixel pitch indoor 0.9mm panels.

New technologies always arise from our customers asking "can it be done?", and our team always works with the client to tailor our technology to perfectly suit their specific project. The main advantage we have in this space is that our factory is highly flexible and our products can be fully customised if needed.

Where is the world of media servers heading? I think we will continue to see further development in the processors and software, creating and optimising the content for the new high-tech platforms. With the consumer release of 8K TVs, this means big changes to a lot of program chains and cameras. But as with every new technology, this will come at a cost, as most companies have just gone to a 4K chain recently, so this will happen when the market is ready.



presented by Bose

VIETNAMESE CATHOLIC COMMUNITY IN SOUTH AUSTRALIA

From humble beginnings in the late 1970s, The Vietnamese Catholic Community in South Australia Inc. (VCC) has been thriving in Adelaide for four-plus decades.

As the Community grew over the first 15 years, it had to move to different locations around Adelaide as a result of the growing needs of its members. With a concerted and sustained effort, the hopes and dreams of the Vietnamese Catholics in South Australia were realised when in the late 1990s, a block of land in the suburb of Pooraka was purchased and on it a community hall was built.

In 2014, construction commenced on a multi-purpose hall adjacent to the community hall on this property. Its purpose was to enable the Community to continue to function while the community hall was being renovated into a proper church, which after much anticipation was opened on September 29th 2019.

The church is truly spectacular, seating around 1200 people on its freshly-stained timber pews. Placed along the perimeter are lit-glass sculptures of biblical scenes. Choirs form an important part of a mass and a dedicated mezzanine was built at the rear of the sanctuary to seat them.

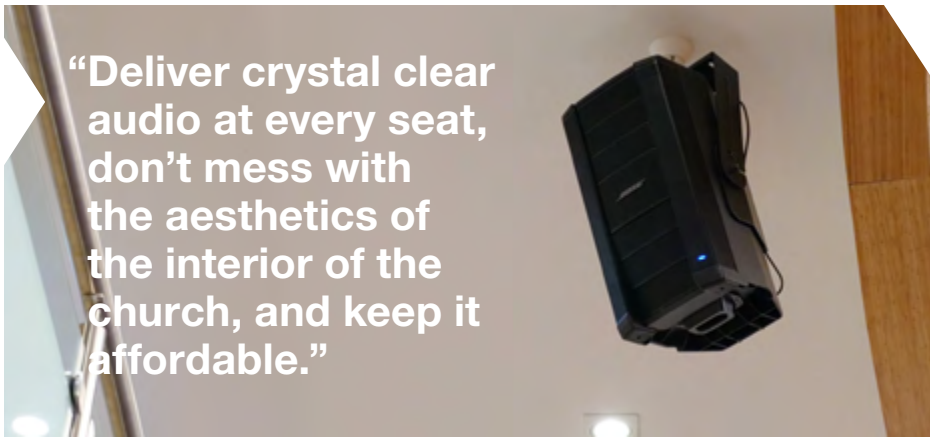
Sound Advice

The criteria in sourcing the right PA system was threefold: deliver crystal clear audio at every seat, don't mess with the aesthetics of the interior of the church, and keep it affordable. The challenge fell to Adelaide-based integrators Leedall – Future Thinking.

The width and breadth of the church made an ideal canvas for a line array PA system but given the strict orders to not impinge on the altar's aesthetics, this was not to be. Thus Jason Skene and Nigel Saywell from Leedall investigated five different column array options with the dealbreaker being whether it would cover the entire space without breaking a sweat. As one VCC operator put it: "We wanted a system that would sound louder than it looks."

The Bose MSA12X Panaray product won out against the contenders. Its superior sound quality was a major decider but it's also highly configurable when run with the Bose ControlSpace EX-1280C DSP. This allowed Leedall's system design team to beam-steer the sound exactly where it was needed (and away from highly reverberant ceiling areas) and thus meet the coverage and speech intelligibility requirements of the client's brief.

A VCC representative added, "The Bose Panaray steerable column speakers are a great addition because they fit discreetly to the side of each of the columns on the sanctuary but allows sound to be directed to the hard to reach areas of the congregation."



> **"Deliver crystal clear audio at every seat, don't mess with the aesthetics of the interior of the church, and keep it affordable."**

The FOH system is comprised of three stacked Bose Panaray MSA12X column loudspeakers linked as a single array and mounted on each pillar either side the altar. Tucked just behind these is another MSA12X to fire sound underneath the bulkheads to the far sides of the sanctuary. Two Bose 502s mounted to the rear of the columns act as in-fills, directing sound toward the Monsignor's position on the stage. Slightly further out from the altar sits four Bose subwoofers stacked in a custom-built wooden cabinet for seamless visual integration. Two delayed Bose F1 812 loudspeakers are hung from the ceiling above the mezzanine to provide the choir with time-aligned direct sound.

Additionally, four Bose Panaray 302 surface-mount environmental loudspeakers provide audio reinforcement around the outdoor perimeter of the church.

Inputs

All inputs enter a Dante network which feed into the ControlSpace EX-1280C processor. Video distribution and control is provided by Crestron systems. Most masses only need a quick recall of a preset before the entire system is ready to roll. A grid of supercardioid condenser microphones hang neatly from the mezzanine ceiling above the choir.

The same goes for the lapel mic worn by the Monsignor, with another Shure lapel and two wireless handhelds also available. The majority of spoken word content is through the two lectern-mounted gooseneck mics to the right of the altar. Nigel notes the most forward of the two is in a nightmarish position for feedback, virtually directly in front of the right MSA12X column, yet feedback is negated using adaptive feedback suppression, two-stage gating and ducking via the ControlSpace EX-1280C.

The Result

For the Vietnamese Catholic Community in South Australia, having a PA system custom-designed to sonically fit the beautiful new church like a glove is the ultimate result. The tailored coverage of the slim MSA12X loudspeakers paired with the powerful DSP capability of the EX-1280C has created a system that's visually understated yet sonically impactful. The result is very clean sounding spoken word which carries authoritatively and evenly from the front to back of the sanctuary.

"The really pleasing thing," says a VCC representative, "is that everyone from the front right to the back corners can hear quite clearly. When the system is correctly configured and tuned, it can transform the entire Church and lift the spirit of the whole congregation to another level. This was demonstrated at the dedication of the new Church with a packed congregation of more than 1200 worshipers."

"We're very happy with what we've delivered," reflects Jason Skene. "The fact that we could achieve full coverage without a centre array was key to us choosing the Bose solution. And obviously the flexibility of the EX-1280C DSP gave us a lot of confidence that we could manage the solution around a single platform."

pro.bose.com

CRESTRON

Who is in control here?

by John O'Brien

When I first came across the Crestron brand in 1995, I didn't yet fully understand the integration game and it was all a bit heady. Little did I know then that I'd end up working for them a decade or so later!

A history lesson

Crestron started in 1972, formed and led by Mr George Feldstein - a truer New Jersey-ite there's rarely been. Tinkerer, inventor and general eccentric, he led the company until his passing in 2014. I met him a couple of times and could see his mind working away as he talked.

This smart guy was also smart enough to surround himself with other bright sparks. Long-time VP and now CEO, Randy Klein, is a very sharp operator, well paired with VP & CTO Fred Bargetzi, an inquisitive engineer with personality to boot. Together, they've helped Crestron continually grow in size, scope and market share over many years.

To this day, it's still a private company that is growing year on year and they always invest a large component of revenue into R&D rather than acquiring companies to fill gaps. This development focus has helped them enable continual innovation and evolution of products and market approaches. Many of their solutions are now deployed and managed from the cloud.

From AV to Smart Space IoT

Historically, the company started with AV controllers but have gradually added more parts to complete a full solution. Audio distribution and structured lighting were early additions, but the first big breakthrough was adding Ethernet interfacing (eControl) in the days when AV & IT didn't mix.

This moment was surpassed with the introduction of their Digital Media suite - transmitting digitised AV over IP. It has been taken up widely and is a major part in the last decade of successful expansion for the brand, now reputedly turning over US$1.5Bn annually. Teams and Zoom integration in their Unified Communications solutions like Flex have been particularly successful during the recent WFH revolution.

From a distance, it seems that they have evolved from boutique bits and pieces that joined the dots between 3rd party gear towards full and scalable end to end solutions.

Antipodean vs worldwide - why so slow here?

In spite of great success elsewhere in the world, it took a long time for Crestron to really kick off in the Pacific region. Until 2004, they were distributed by a variety of companies that struggled to break the AVT/AMX stranglehold on the commercial and institutional integration sectors. That all changed when Audio Telex took the brand on.

I met General Manager at the time, Stuart Craig, and was impressed with his vision for growing the marque. I became their first tech and trainer, having recently finished two years working for the previous agent. When Stuart's father Rod retired, the company was bought by Hills and SVL was formed. Business boomed until the GFC, where I took a redundancy, but Stuart stayed on a while longer before pursuing other opportunities.

About six years ago, Crestron moved their global distribution model to direct regional offices and Stuart was appointed to head Crestron ANZ. I talked to him recently to see where the brand is going and how they are faring amongst the great upheaval.

"Since then [forming Crestron ANZ] the local team has gone from strength to strength and they are really good people that I am enormously proud of," said Stuart. Having worked with many of them, I have to concur. Ironically, their last face to face get together in January was at Quarantine Bay!

Markets

20 years back, Crestron's major market in ANZ was residential. They were into a few universities and corporate spaces but did not have the reach that AMX saw at the time. How things change. Over the last 15 years, Crestron has been doing increasingly well in the commercial sector.

From Stuart - "On the commercial side, our major markets are enterprise, education and government. Currently, all three are growing as we continue a very successful, extended

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Stuart Craig

period."

That growth has allowed the company to expand their scope beyond supporting dealers and system integrators. He continues - "In recent years we have focused heavily on spending time with end users to drive demand and that has been appreciated by our dealer base."

Not that the residential market has been forgotten - "The residential business is also growing and much of that is on the back of a relatively new platform called HOME. It has been quite the game changer."

High end approach

I always thought of Crestron as the Rolls Royce of AV gear. I certainly saw more than a few Rollers in the drives of some of the establishments where the gear was installed. But Stuart insists that - "I'm not sure you pay a premium these days as we have held prices for over five years, but I believe we are premium in terms of the sophistication of our solution and our support."

He elaborates - "We still offer free phone, email and on-site tech support and that is a service that is truly appreciated and valued by dealers and end customers. That 'care' makes us premium for sure."

You can't buy this stuff at a box store. There's a good reason for that - Crestron have such a wide range and depth of gear and solutions that they have always put value on ensuring that their product is deployed well. It's generally made well and keeping their dealer base supported and up to date has served everyone involved.

Training & support

A broad and deep gamut of hardware and software offerings necessitates ongoing education and assistance. Stuart says that - "We focus on driving demand to help [dealers] grow their businesses and we put a lot of money and time in training and support to make sure we can help their next project be a big success."

In light of the broader predicament we all face, Crestron ANZ are opening up some of that training beyond their dealer base. "We welcome anyone from the events/pub/club side of the industry who is looking to use the time to retrain in the video and control side of the business: we will put on extra classes and help where we can."

Stuart adds - "If you are doing it tough today, I firmly believe your time will come and using this downtime to do some Microsoft or Crestron IT and Teams focused courses will help your prospects. Again, our door is open."

I sure hope some of you take this offer up.

2020 vision

Crestron are affected by the current turmoil like everyone else. "For everyone this has been tough. In the AV industry we install systems into workplaces and education facilities. A vast majority of those facilities are empty. However, this is a period of accelerated digitisation and we are all a part of that." - wise words from Stuart.

Crestron have also been long term Microsoft partners and this alliance has been another big part of recent successes. As the whole world suddenly started working remotely, Teams and Zoom platforms have been in high demand.

"When we all got sent home in March there should have been a huge workplace disconnect and some serious chaos but there wasn't. We have all adapted to video and got on with it; that will be with us forever and will certainly feature heavily in everyone's workplaces moving forward."

Long term organic evolution with a keen eye on the future puts this company in a strong position. This approach is particularly pertinent in the rapidly changing environment we find ourselves in - "There is a lot of work being done around new technologies and new applications of existing technologies for this Covid world. This will be the time we see digitisation in our industry accelerate."

We then went on to talk about what was up next. Never resting on their laurels, Crestron are bringing out new models of some flagship gear this year. Strategically, they are expanding beyond just hardware and Stuart elaborates on selling services - "In a bigger picture, you will see more Cloud and Virtual Control developments as we look to further enable the SLA for our dealers. Room based subscription models for Cloud have started at Crestron."

48 years in the making

The world has changed considerably since 1972 and Crestron has evolved along with it. They've grown from geeky slide projector control to a massive and sophisticated presence in the AV world. I reckon George would be proud of where his project has ended up and excited to see where they go next.

UNITY – the Combining of New Technologies

presented by LSC Lighting Systems

Unity: the state of bringing together different entities into one. This was the philosophy behind a project that LSC Lighting embarked upon in 2016. Following on from the success of the GEN VI range of professional dimmers with combined power distribution, the team at LSC decided to extend into producing modular cabinet installations for large-scale projects.

The market was crying out for a product with the combined ability to dim conventionals and LED fixtures, control power switching to fixtures and remotely set-up, configure and monitor the system.

Whilst UNITY was still in the development stage, LSC was approached in 2017 by Ptarmigan Technologies (Hong Kong) to design, manufacture and supply a large-scale dimming and power distribution system.

"We were first approached by Simon Fraser from Ptarmigan about the possibility of supplying a large-scale dimming and power solution for their client, Warner Bros, for a theme park in Abu Dhabi," said Pete Floyd, LSC's International Sales Manager.

"The brief was for a system to control large amounts of complex LEDs, traditional fixtures and DMX controlled relay circuits. We already had plans in motion for a dimming/power cabinet, so this was the perfect catalyst to forge ahead with the design."

The scale of the project was massive – six different themed immersive lands under one roof, covering 1.65million sq. ft. In conjunction with the project design specification from Ptarmigan, the final channel count requirement was over 5,000 channels of both dimming and power switching to control in excess of 16,000 fixtures – one of the biggest installations of its kind in the world.

LSC already had a solid reputation for being at the forefront of industry trends and wasn't fazed by the magnitude of the challenge and delivered a formal specification for a new, multi-purpose power distribution cabinet.

The task was somewhat daunting though, with a brand-new design of dedicated LED control, dimming and relay switching modules (utilising TruPower – another LSC first) in both 48-channel and 96-channel cabinets needed – all within a strict delivery schedule.

This, coupled with the added complexity of a ground-up design for a control module that was able to monitor circuits, report individual channel information and seamlessly integrate with all major control protocols and third-party devices, had to involve the entire R&D and production team at LSC Lighting. However, LSC's Managing Director and Senior Software Engineer, Gary Pritchard, set his team to work on designing a radically updated dimmer/distribution system for the installation market.

"This new design allowed us to introduce a number of firsts to the industry including zero-cross switching. This eliminated nuisance tripping caused by earth leakage and inrush currents and provided the fixtures with a much longer life due to less stress being placed on PSUs when powered up," said Gary.

A new specialised power control circuit was devised to enable the Pulse Transformer Fired Dimming circuitry (PTFD) to be controlled via the software, reducing the number of components required, thus also reducing hardware costs and the overall weight of the system.

"This was the first time LSC had developed a large-format install dimmer and therefore, we wanted to ensure it was going to be a system

Unity 96

that could be commissioned and maintained with minimum effort," Gary added.

The need for swapping out modules in a quick and efficient timeframe was paramount. A simple Camlock system was designed with integral micro-switches to allow for quick power-down and release of the modules, thereby allowing the user to swap out any of the switch, dim/switch or LED modules any time.

"Acoustic noise was also a factor in the design, and it was an absolute requirement not to have a large and loud single-source fan controlling the airflow. Instead, we opted for an individual fan in each module with 'whisper fans' on the top of the cabinet to manage the temperature and reduce operating noise significantly. In fact, with a full load the cabinets are virtually silent in operation," he said.

From a user's perspective, living in such a connected world, it was also important to constantly monitor the system remotely from a third-party device and receive SMS messages reporting any fault conditions in a live situation.

As always, the main challenge was time. To embark on a project that would bring new innovations to the market seemed like an impossible task given the tight time constraints. "Within five months of the first prototype being tested and the great working relationship we have with our suppliers, we managed to ship all of the cabinets to site on time and on budget. This really was a fantastic achievement by the entire LSC team," said Gary.

The success of this mega install has resonated around the world and LSC has since completed the supply and installation of UNITY systems in major theatres in Europe, opera houses and television stations in Australia, and a second large-scale installation in a new theme park under construction in Qatar.

With other traditional manufactures relying on technology and system formats developed 20 years ago, LSC's UNITY is truly the premium product of its type in the world today. And now, the touring version of UNITY, UNITOUR has been announced. The worldwide challenges of 2020 have not quelled the creativity and determination of the team at LSC.

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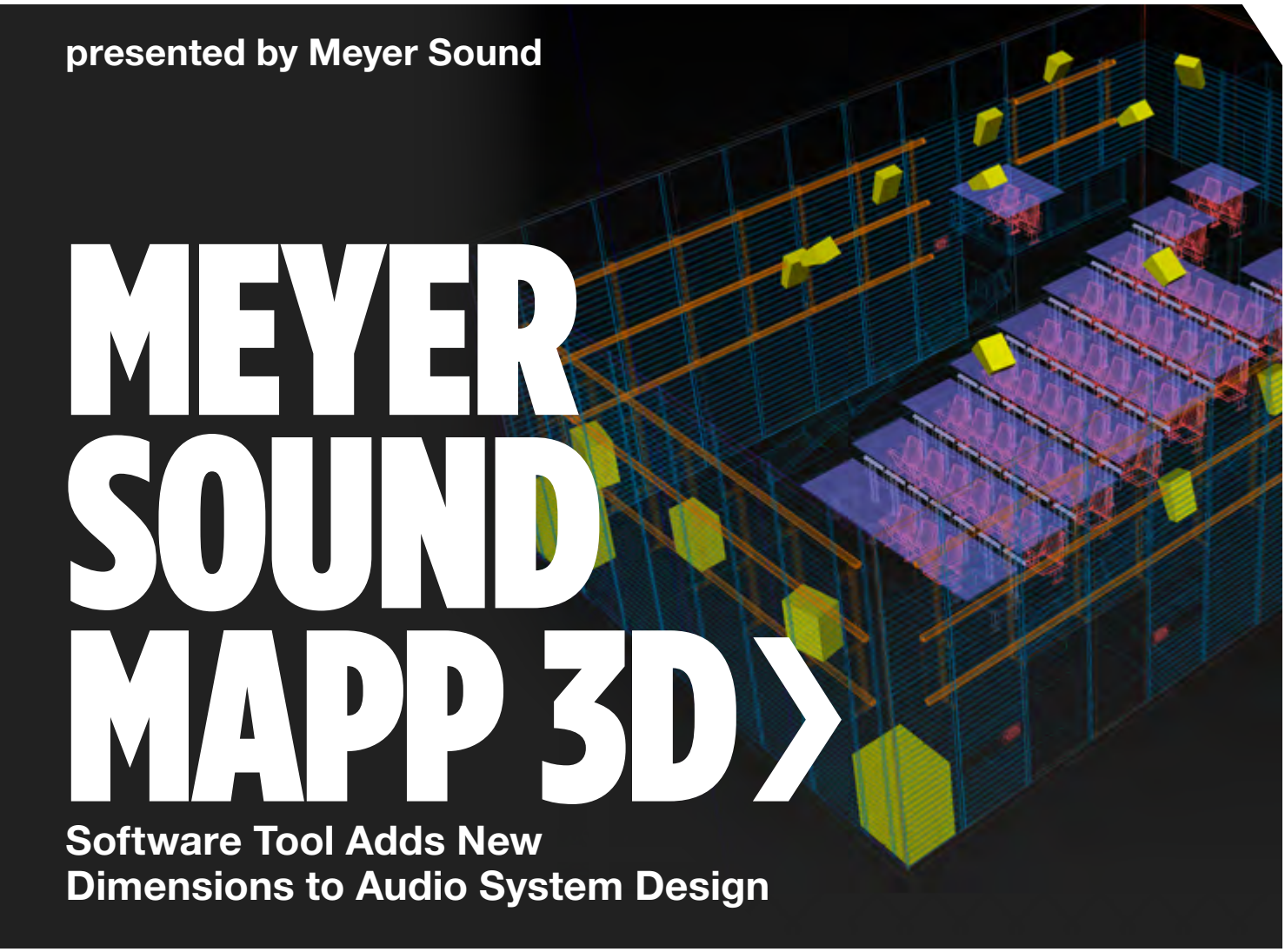


MEYER SOUND MAPP 3D

Software Tool Adds New Dimensions to Audio System Design

Meyer Sound has released MAPP 3D, the most extensive upgrade to its industry-standard system design tool since the original MAPP Online software program was introduced in 2001. MAPP 3D works on both Mac and Windows platforms, employs local processing (no Internet connection required) and is now available as a free download from the Meyer Sound website.

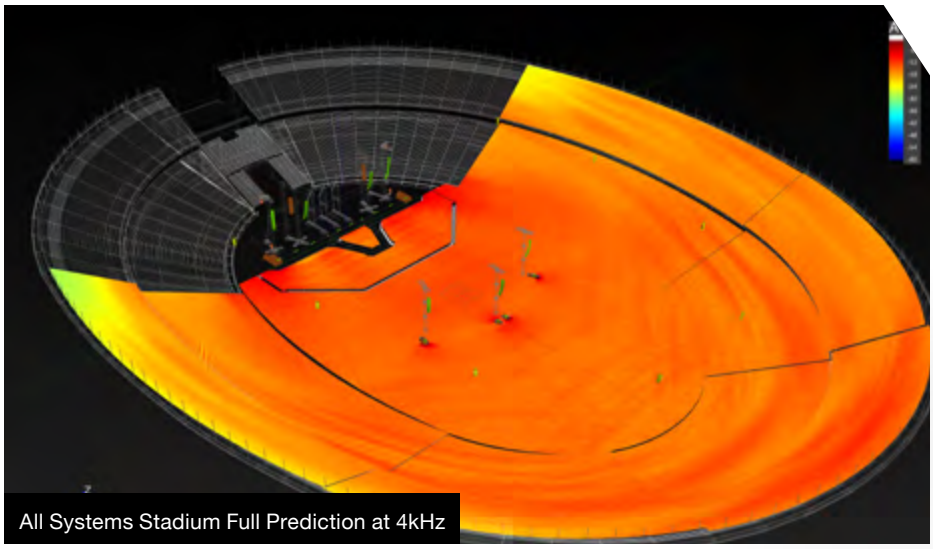
As the name implies, MAPP 3D provides highly accurate, three-dimensional renderings of predicted sound system performance within detailed, wire-frame venue drawings. Equally important, MAPP 3D now offers complete integration with the GALAXY Network Platform and Compass control software for a seamless workflow from initial design through on-site tuning. Comprehensive processing parameters for complex systems can be optimised using MAPP 3D predictions, with the resulting processor settings pushed directly into multiple GALAXY processors with the click of a mouse.

In addition to traditional calibration test signal sources, MAPP 3D supports M-Noise, an emerging industry standard to determine the maximum linear SPL for music. This combination provides the industry's most accurate prediction of a sound system's maximum capability when reproducing music.

"The release of MAPP 3D marks a milestone in the development of sound system design software, not only for Meyer Sound, but for the industry as a whole," says Perrin Meyer, Meyer Sound director of emerging technologies. "The detail in the renderings is spectacular and the flexibility of the user interface is unprecedented, but what really sets MAPP 3D apart is the extreme accuracy of the predictions. What you measure with MAPP 3D's virtual microphones is precisely what you will see in measurements from real microphones."

The combination of a streamlined, user-friendly interface and seamless integration with GALAXY processors, and easy import of SketchUp (SKP) and AutoCAD (DXF) files, will afford significant time and cost savings in both system design and on-site optimisation. With multiple views and fingertip control of a free-rotation tool, audience areas can be quickly defined, even within complex architecture. Line arrays can be quickly configured and automatically splayed for uniform coverage, and multiple system options can be evaluated simultaneously.

In addition, MAPP 3D enables system designers to perform virtual system optimisation in the design phase. MAPP 3D includes virtual GALAXY signal processors, allowing the designer to add and configure processors, view prediction results, and later synchronise these settings directly to the hardware processors on site. Complete output processing functions of all GALAXY processor models are available, and a copy and paste feature can be used to replicate



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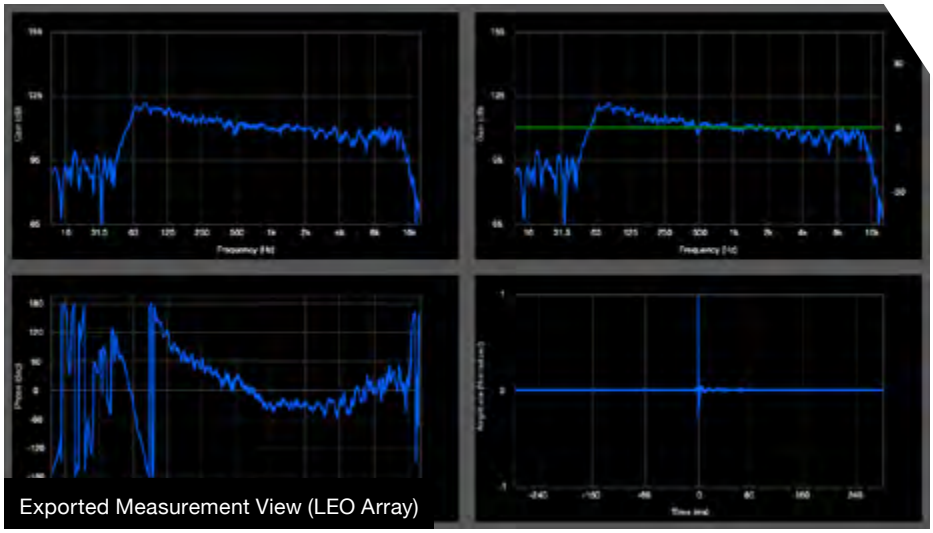


Exported Measurement View (LEO Array)

settings in one or more other processing channels.

Because MAPP 3D includes precise sensitivity data for all Meyer Sound loudspeakers, it can display predictions as real-world SPL as well as attenuation. The inclusion of sensitivity coupled with M-Noise compatibility also provides highly accurate predictions of system headroom. Accurate headroom predictions alleviate any tendency to overdesign systems, leading to greater cost efficiencies in the final specification.

MAPP 3D loudspeaker performance is based on more than 65,000 three-dimensional measurement points, taken in 1/48th-octave resolution in the Meyer Sound anechoic chamber. Also, MAPP 3D predictions are accurate across the full bandwidth of all loudspeakers, including as low as 12.5 Hz for the VLFC very low-frequency control element.

MAPP 3D also leverages the inherent advantages of working with loudspeakers that are self-powered and manufactured to extremely tight tolerances for uniformity of performance.

“When working with predictions in MAPP 3D, you can be confident that your virtual loudspeakers will behave exactly as the physical models tested in the anechoic chamber,” says Todd Meier, Meyer Sound director of product management, “as will the loudspeakers in the final installed system. In addition, self-powering eliminates variables associated with external powering, such as amplifier type, amplifier output configuration and loudspeaker cable length — all of which add complexity and introduce a potential for error in other proprietary prediction tools.”

The upgraded, high-resolution graphics and flexible user interface in MAPP 3D provide an array of options for design and performance analysis. System designers can insert simple 3D geometry to reveal array behaviour outside the audience area. Layers can be turned on and off to speed workflow. Prediction planes are quickly created from imported drawings with a “Snapping” tool. In addition, multiple prediction planes in large venues with symmetrical sections can be created quickly using linear and angular extrusion in combination with the “Mirror” and “Align” tools.

MAPP 3D is compatible with most recent computers running either Windows 10 or Mac OS versions 10.5.6 Catalina or later. A quad-core processor and at least 8 GB of RAM are recommended as well.

What are the differences between MAPP 3D and EASE?

- MAPP 3D is the most accurate tool available for predicting Meyer Sound loudspeaker performance in any venue design.
- MAPP 3D is the world’s only prediction tool to use M-noise, therefore is the only truly accurate way to predict a system’s performance with music content. EASE does not do this.
- EASE does not predict low frequencies, MAPP 3D does.
- EASE can predict acoustic performance since it does include the acoustics and materials of the venue. MAPP 3D does not do this, so as to reduce inaccuracies from within a model. EASE models must be built with very high levels of acoustic and materials accuracy to provide accurate acoustic performance prediction.
- All of the loudspeaker data used in EASE is provided by the manufacturers themselves (including Meyer Sound). There is no verification if this data is correct, therefore the predictions in EASE rely on the honesty of the loudspeaker manufacturers. All predictions and measurements in MAPP 3D can be field verified for accuracy.
- MAPP 3D interfaces with GALAXY processors creating a powerful workflow integration for system tuning and alignment. This is not possible with EASE.

The Best of HARMAN

by Peter Moses and Graham Barrett

At HARMAN, we're proud of our stable of brands and our vast product range.

CX Magazine challenged us to pick our stand-out 'Premium' products for this issue and justify why we think they're the best. While we may be a little biased, we stand by our choices, and invite integrators and end-users to experience 'The Best of HARMAN' for themselves.

Crown DCi DA Series Amplifiers

Features: Famous Crown quality and reliability, Dante and analogue inputs, plus separate configurable outputs. All analogue inputs double as Dante on-ramps.

Why it's the best: Crown DCi DA Series Amplifiers are the backbone of any serious install. Based on HARMAN's patented DriveCore technology, the DCi range delivers powerful, accurate sound without the heavy power requirements. Onboard DSP, EN 54-16 compliant for life safety applications and configurable outputs for 2 to 16 Ohm or 70/100V are just some of the features that make the Crown DCi the best.

crown®

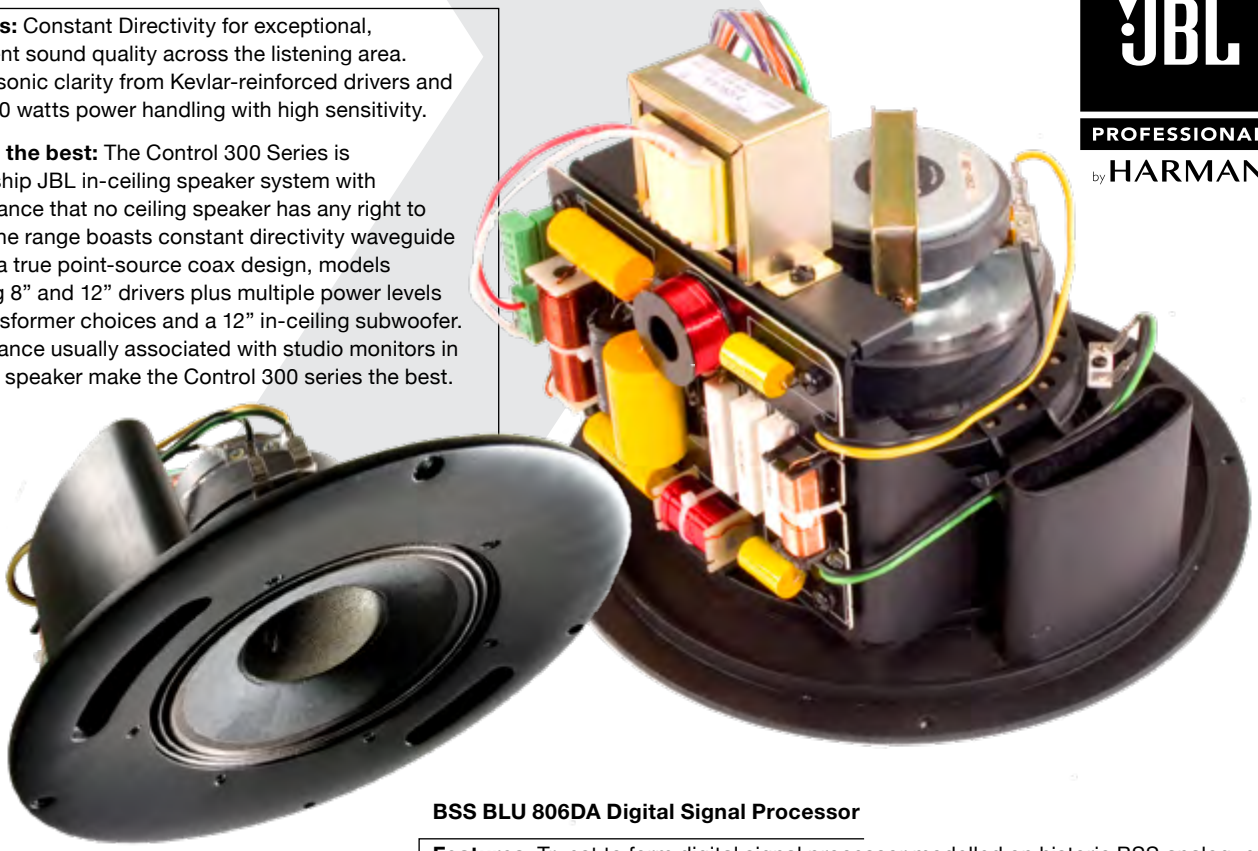
Sometimes it all gets too much....

The *Support Act Wellbeing Helpline* is a free, confidential counselling service that is available to anyone working in Australian music who needs to talk to someone about any aspect of their wellbeing.

JBL Professional Control 300 Series Large-Format Ceiling Speakers

Features: Constant Directivity for exceptional, consistent sound quality across the listening area. Superb sonic clarity from Kevlar-reinforced drivers and up to 300 watts power handling with high sensitivity.

Why it's the best: The Control 300 Series is the flagship JBL in-ceiling speaker system with performance that no ceiling speaker has any right to claim. The range boasts constant directivity waveguide design, a true point-source coax design, models featuring 8" and 12" drivers plus multiple power levels and transformer choices and a 12" in-ceiling subwoofer. Performance usually associated with studio monitors in a ceiling speaker make the Control 300 series the best.



BSS BLU 806DA Digital Signal Processor

Features: Truest to form digital signal processor modelled on historic BSS analogue circuits. Widely acknowledged as the best sounding DSPs on the market.

Why it's the best: BSS's BLU 806DA offers configurable I/O, configurable signal processing, Dante / AES67 audio and a high bandwidth, fault tolerant digital audio bus whilst HARMAN's Audio Architect program is renowned for its ability to rapidly develop, deploy and control a DSP audio system. The BSS range also incorporates some of the industry's most used and trusted DSP algorithms for EQ, compression and switching. Providing a complete DSP solution that puts audio first makes the BSS's BLU 806DA the best.

AMX 4K DVX Presentation Switchers

Features: The latest 4K video switching and distribution combined with best of HARMAN's iconic control and audio brands plus Dante in a powerful yet easy-to-configure system.

Why it's the best: In unheard-of audio capability for an all-in-one presentation switcher, the new AMX 4K DVX combines a powerful 120 watt Crown DriveCore amplifier, renowned BSS mixing, EQ, compression/limiting and ducking, dbx AFS2 Advanced Feedback Suppression and Dante with AMX 4K video and NetLinx control. The AMX 4K DVX was recognised as the best in the InfoComm 2020 Best of Show awards.

2020 BEST OF SHOW InfoComm SPECIAL EDITION Winner

WILDFLOWER

Premium Audio for Premium Dining

by Jason Allen

It doesn't get any more premium than Perth's The Treasury COMO, a 48-room contemporary luxury hotel in the middle of the CBD with commanding views over the Swan River. Taking full advantage of the view is their Wildflower restaurant, perched on the rooftop, with both indoor and outdoor seating options.

Wildflower pays respect to the traditional owners of the land, the Whadjuk Noongar people, and bases its dishes around the indigenous ethos of six seasons, with farmer and forager-driven menus. Head Chef Matthew Sartori joined Wildflower's opening team in 2015, having previously worked at some of Western Australia's most iconic restaurants. Winner of the Reader's Choice Award for Fine Dining in the 2020 WA Restaurant Awards held by the Australian Good Food Guide, Wildflower is a premium destination for foodies seeking the best of WA.

Fine dining is as much about the ambience as the food, and Wildflower's managers recently undertook a renovation of the outside deck and function area. Part of the refit included a new outdoor sound system, and integrators PAV Sales & Installations were brought in to do the job.

The Brief

"Wildflower is just one of several premium hospitality spaces in The Treasury COMO," illustrates Carl Blewett, Sales Manager at PAV. "They're all excellent, but Wildflower is one of not just WA's, but Australia's, best restaurants. We were asked to provide a premium quality sound system that was as invisible as possible, while robust enough to weather the elements outside on the deck, which can be totally open when the roof is retracted."

With PAV totally responsible for system design and product selection, they surveyed all major manufacturers for a loudspeaker solution. "We were looking for a product that was small, subtle, and as premium as the venue. It also needed to be IP rated. The view from the outdoor area is very picturesque; you've got St Georges Terrace on one side and the Swan River on the other, but you're seven stories up and exposed to wind and weather. The main purpose of the system is for BGM, but as the deck is also an event space, it needed to have the ability to get a bit louder for cocktail parties and the like."

The Solution

A unique venue required a unique solution. K-Array, headquartered in Florence, Italy, were the brand for the job; their motto is literally 'Unique Audio Solutions.' "Our hire department has stock of K-Array's portable stick systems, and they were the originator of that style of product. They're still the smallest and best sounding in that sector. Our research showed that the K-Array Tornado-KT2 2" surface mount speaker would likely be exactly what we needed at Wildflower. Australian distributor NAS lent us a system for evaluation, which we also took on-site for the client to hear. The client himself is quite the audiophile, and he was very happy, so we had a winner!"

Carl and the team installed six Tornado-KT2Ws around the venue, subtly hidden in corners while placed to give complete coverage. Their stainless steel fixings made them easy to screw into the ceiling, while simultaneously protecting from rust and weathering. The Tornado-KT2's proprietary 2" high-efficiency drive unit delivers an impressive maximum peak SPL of 107 dB, and reproduces from 150 Hz to 18 kHz with very low distortion.

Augmenting the Tornado-KT2Ws are two very well-hidden Rumble-KU26 subwoofers. Measuring a ridiculously economical 350 x 180 x 118 mm (WxHxD), they're powered by one 6" neodymium magnet woofer and one 6" passive radiator. "The Rumble-KU26s are very small, but have a very big impact," relates Carl. "With their form-factor presenting a bit larger than an A4 piece of paper, I was initially concerned that subs that small could fill the space, but they do it very well."

The Rumble-KU26 is an extremely powerful bass element engineered for maximum linear excursion and minimum residual noise. The woofer has a dual voice coil (16+16 Ω) for selectable impedance settings (8/32 Ω) allowing users to run up to eight KU26 units on one amplifier channel. The KU26 is made entirely of stainless steel, giving it an IP rating of IP64.

Powering and processing the whole system is a four channel, 1000W K-Array Kommander-KA14 DSP amplifier. Taking up just 2RU, the KA14 features two XLR and RCA inputs to four fully independent and configurable output channels (4 x 250W @ 4Ω). The on-board DSP includes a mixer, delay up to 12 ms, and four full parametric IIR filters, all easily controllable from the integrated touch screen.

www.k-array.com

www.pav.com.au

nas.solutions

Photo Credit: Steve Parkins

Augmented Reality, Augmented Arrays

Perth's Magnet House

by Jason Allen

Previously known as Capitol, Globe, and Pinocchio's, the nightclub at 393 Murray Street, Perth is home to DJs, bands, late nights and early mornings, and has been central to Perth's nightlife for a decade. March 2020 was to see it re-open after a three-month refit as Magnet House, sporting a multi-million dollar production and lighting refit headed by Technical Alliance and BHO Interiors.

While timing may not have gone to plan, Magnet House opened up to punters June 27, who got to experience Australia's first-ever Pixel Kinetic Ceiling, which includes a 54 piece floating triangle 'Happy Tube' rig hoisted by 162 individually controlled motors. With screens and pixel strips everywhere, lucky VJs get to address 240,000 pixels and 34 square meters of LED. But what's a nightclub without a PA? CCA Productions, who've looked after the premises' audio needs for years, have installed a banging new d&b audiotechnik A-Series augmented array rig, also the first of its kind in Australia.

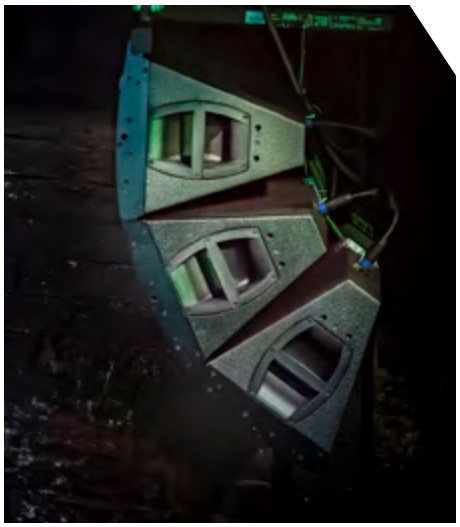
"This was a full venue refit for the visuals with a brief of 'sensory overload'," comments Luke Willott, Director of CCA Productions. "We wanted to install a PA that matched that brief. It needed to be sonically upfront and in-your-face, but not visually. We needed it to look discrete while still being able to hit the SPLs needed for EDM and bands. On top of this, Maggie's is a funny shaped room, with lots of weird angles and glass surfaces. We've had both line arrays and point source in there, which have done their job, but d&b's new augmented array seems to really work for the venue."

d&b posit the A-Series as being "as flexible as a point source cluster, as controllable as a line array". They're basically constant curvature boxes, but with the added magic of being able to be processed as a line array by d&b's ArrayProcessing. They also include a new processing function run from the amps known as Midrange Directivity Control (MDC). Variable splay angles allow for arrays of up to four A-Series loudspeakers.

"I think of d&b's augmented arrays as 'point and/or line'," explains Luke. "They look and fly like an array, but it behaves as constant curvature point source. With A-Series, we could do things in the venue that would break line array theory, like keeping it square to the room or not J-curving it in, because it's not a line array. There were limitations imposed by line array physics that would have been impractical in this space, so A-Series was the perfect solution, enabling us to focus acoustic energy where we needed it away from where we didn't."

CCA installed a system based on hangs of

Since re-opening, Magnet House has seen lines out the door and has been packed every weekend.



three AL90s a side. The AL90s contain two 10" LF drivers and a 1.4" exit compression driver with 3" coil. Their dispersion is 90° x 30°, and they produce a more than respectable max SPL of 139 dB. Under the stage, a sub array of both J-Infra and V-Series with cardioid pattern control takes care of the all-important low end while keeping peace with the neighbours. Infill is from a pair of d&b 10s from the xS-Series, with three 5S from the same range dotted around the club as fill. Up on the balcony, d&b Y-Series point source make sure everyone is having the same sonic experience, and a re-deployed T-Series rig on the mezzanine can be matrixed in when the venue is at capacity. The system is all controlled and monitored via d&b's R1 software, and is powered by d&b D Series amps, with the new 40D set to go in soon. With the venue normally hosting bands on the national touring circuit, CCA have provided a full production spec, including a monitor package running off a Midas M32 desk.

"The coverage from the A-Series main PA is comprehensive, but there are screens everywhere in Perspex boxes that are audio obstructions, so we needed some fill for the dark spots," adds Luke. "We really wanted consistent SPL over the entire listening plane in very area, and we've achieved that."

What did Luke make of d&b's augmented array concept going into the design phase? "I have to say, I was initially confused by the idea of applying ArrayProcessing to a point source," admits Luke. "But then I did the d&b training, got into R1, designed and modelled the system, and it all made sense."

And what about the all-important sonic results? "There's a lot of low mid; it's fat and chunky," offers Luke. "The bass is extremely coherent. Both the bands and the EDM crowd have been very happy with the sound. I think the A-Series are going to be the next big 'pub box'. If it wasn't for COVID, I think they'd already be everywhere. They make a great main PA, but could also really shine as fill in bigger systems. Because you can run them with ArrayProcessing, they can complement a main array and just become part of the gang. It's the first time d&b has done this, and it works."

Since re-opening, Magnet House has seen lines out the door and has been packed every weekend. Still awaiting the rest of the country to open up, Luke relates the difficulties of installation during a pandemic. "Magnet House spent a lot on this fit-out, with the PA just one piece of the puzzle," Luke observes. "I think the hardest thing about doing an install in lockdown is trying to hype a new PA when no one can come and listen to it! I'm really looking forward to the day when national touring opens up again, and we get to see some great bands and engineers coming through. I think they're going to love it!"

www.dbaudio.com

https://nas.solutions

www.ccaproductions.com.au

Pixel Strips and Dots – Buyer Beware!

by VJ Suriya

In lighting, as with anything else, we have cheap gear, middling quality, and the primo stuff. A lot of you readers have been in this game long enough to tell the difference, and some of that experience has been earned quite painfully through poor experiences with cheaper gear.

It can be a bit harder to pick out the quality differences in pixel lighting. I should clarify that I'm not talking about pixel bars here – these are similar enough to LED bars that you probably already know what to look out for. What I'm referring to is lighting fixtures such as dots or pixel strips. They may not be your bread and butter, but may come up on a few jobs, so why not learn about them and add some more knowledge to your skillset?

When dealing with pixel strip lighting, you're bombarded with different options. On the one hand you have really cheap options available through places like AliExpress, Amazon, eBay and all the rest. On the other hand, you have more costly options from local suppliers like ENTTEC. Putting them side by side you would almost be forgiven for thinking they are interchangeable …almost!

The width is about the same; they are both 12V; I can see a similar control chip on both; datasheets both report a similar output, so what is the difference here? Why wouldn't I just go for the cheaper one and pocket the difference? Well, there are a number of things to seriously consider.

First off, the thickness of the copper strip it's made from. This is not something that is apparent when simply comparing pictures and datasheets, but it is noticeable when you have the product in your hands in front of you. Cheap pixel strip is made using thin copper to keep costs down. Not only does this mean the strip is less robust, a thinner strip of copper is also less conductive, therefore voltage will drop off faster, meaning more power injections and more wiring for your project. So what you save in material cost you may well lose in additional power supplies and labour.

Next, while not a feature of the product itself, comes something you all know to be quite critical: support. One of the major reasons that many overseas vendors manage to stay cheap is by not offering any product support. So, if you run into trouble, you're not going to have anyone to call up and ask why your tape is flickering, or why it's not turning on at all. You won't have someone to help you with specifying controllers or to walk you through how to configure yours. Saving a few bucks on a product becomes a false economy when you're forced to spend hours learning, troubleshooting and installing all by yourself. Likewise, you're not going to see much warranty support either. Most online vendors list a warranty period of at least two or three years, but this warranty usually involves you needing to ship your faulty tape/controllers back to them first. Shipping something back within the country to a local supplier for RMA might cost you $20 bucks or so, but returning something back to China, or elsewhere overseas? You'd be lucky if you could send something for less than $60 for an express service. And if you don't send it express, then with the current backlogs, you might as well forget about it.

Lastly – although there's plenty more that we're leaving out – is trust and reputation. Many segments of the lighting industry are regulated. Peak bodies like the IES put out standards that manufacturers must adhere to. If a decoder is compliant with DMX512, you can be sure that it will respond to a DMX signal from any DMX source you care to provide. However, things are a bit muggier with pixel lighting.

When controlling pixels, you want to make sure the protocol of your pixel strip is supported by your controller. This 'protocol' is essentially just a model of control chip released by a manufacturer. For example, the WS protocols come from WorldSemi. Since pixel lighting is not standardised, there is nothing stopping a manufacturer from creating a new variant of their chip, and then publishing it as the same 'protocol' as before. And when this is done, there is no way to distinguish between a 2018 version chip or a 2019 chip, since they'll both say they're WS_ _ _ _ or SK _ _ _ _ etc.

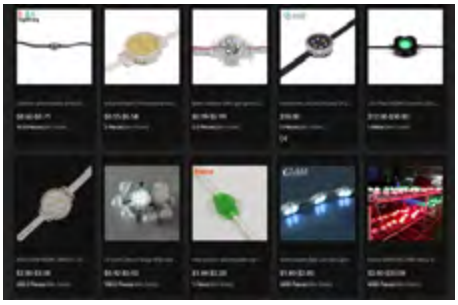
As you can guess, this can create all sorts of havoc, including LEDs flickering or otherwise not responding properly. If this is a hobby installation in your rumpus room, you might not care so much, but if this is part of a larger lighting rig in a theatre or studio where hundreds or even thousands of people might be watching, it becomes a lot more important.

So, this is when you turn to the premium pixel strip. Not only are you buying a better product, but you're also buying reputation and peace of mind. You're getting exactly what's on the datasheet, and you have someone to talk to if you're stuck.

What about with pixel dots?

With pixel dots the quality difference can be even more drastic, though less visible. When looking into quoting up a pixel project involving dots, you're again bombarded with options from online vendors like Alibaba. Doing a simple search for "Pixel dots" on Alibaba for example yields pages of results:

And the prices seem quite low too; there are



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*typically self employed

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Over $500K	15%

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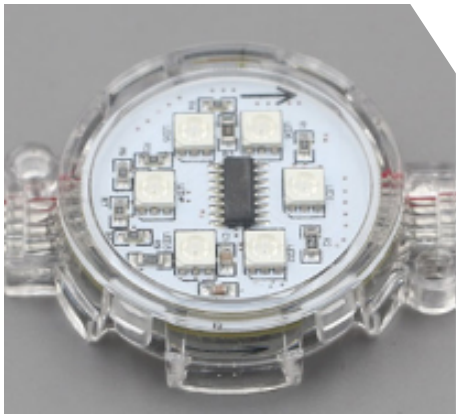
options there listed for under $1 each. When you compare this against local, higher-end options which may be somewhere between $15-$20 each, it can be hard to justify choosing the local option. However, there are a few things you should keep in mind.

Firstly, the price you see on the website is often a ploy to get you interested and talking to them. In our own 'experiment' we saw that while the price on the website was $0.30, once you begin a dialogue, you quickly find out that the website product is 'discontinued' or otherwise unavailable – so the actual quoted price came to $6.50 per dot, for a 24V dot with six RGB LEDs on it. Still a lot less than the local options, right? Well, when you consider that it's $6.50 USD per dot, which currently comes to nearly $9 AUD, you start to see the price difference narrow dramatically.

"That's fine!" you say. "Even after all this, it's still half the price!"

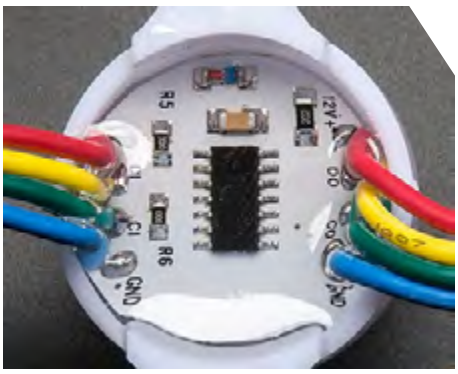
Well, let's get more scientific and compare the dot surfaces between an overseas product and a local, Australian-made one - ENTTEC's SMART PXL 40.



Both have the components covered with a clear epoxy or PU resin to ensure they are waterproof. As you may know if you've left plastic deckchairs outdoors for long periods, polymers can degrade over time, especially when they have the sun beating down on them. In fact, a lot of resins will yellow over time with UV exposure. It stands to reason then, that a cheap, plastic-body product will degrade from UV exposure and have its resin discolour, thereby skewing the colour of your dots. The ENTTEC dots, however, are made with a more expensive UV-resistant, optically clear polyurethane resin. This helps the product resist yellowing over time as well as keeping the resin somewhat flexible so it doesn't go brittle and crack from repeated thermal cycling over the years.

Let's look at how these dots are constructed. This isn't something you can generally see just by looking superficially at the dot but is something you can see once opening it up or dismantling it.

First let's look at a cheaper option:



What we can see here is that the wires are simply soldered onto the PCB pads, and the whole assembly then encapsulated. If you've done much soldering at all you'll know that even a good cable-pad solder joint is still relatively weak. Tension may not break the solder joint immediately but can easily pull the pad clean off the board. This is stabilised by the resin somewhat but is still a weaker joint that could more easily give way over time after temperature and load cycles.

Now let's have a look at how the ENTTEC dot differs. Power connections – VCC and ground aren't simply soldered to a pad. Instead the thick copper cable is crimped into a Molex crimp connector which has prongs that pierce through corresponding holes in the PCB. This makes for a sturdy mechanical connection even before solder is applied.

This is all then assembled into a solid machined aluminium body, where the polymer over-mould fits snugly into its machined recess. Finally, the whole assembly is potted in UV-resistant, optically clear, PU resin. Strain on the cables whether it's from handling during installation, or cyclic strain from wind, is borne by the over-mould, spreading that strain across the solid body. The PU resin helps to absorb some of that as well, and finally the electrical connections feature a strong physical connection to the PCB. All of this ensures that you get a product that stands up to harsh conditions and keeps operating solidly throughout years of continuous operation.

That's a lot of engineering just for a pixel dot – so why is it necessary? Well, in the long run, it makes more sense to opt for the primo product, because it means less maintenance. Yes, you could buy two sets of the cheaper dots for the same price, but then you also need to factor in the costs associated with maintenance and replacement. First, you have to partially or totally shut down the area – which could be difficult if it's a popular public outdoor area. Then you have to factor in labour and time to replace the strings, not to mention any specialised equipment like cherry pickers to get up into difficult places. Then of course there is the inconvenience and lost productivity – if you're stuck maintaining a job, that's one less opportunity you could be out on a new job.

Pixel lighting is growing in popularity and with that, we're seeing more and more options appear using different types of gear. It can be a bit difficult to spot meaningful differences sometimes, but we hope this rundown can give you some tips on what to look out for.

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L-ACOUSTICS HELPS SOUNDGIRLS EDUCATE AND EMPOWER WOMEN IN AUDIO

Carolina Antón, Kim Watson, and El Ashwood each awarded grants for L-Acoustics training courses

Continuing to deepen its commitment to education, L-Acoustics recently announced a partnership with SoundGirls, kicking off an annual training grant program to support the organisation's mission to empower women in audio. Following a thorough panel review of numerous applications submitted by SoundGirls members, L-Acoustics is pleased to officially congratulate the three recipients of its 2020 SoundGirls Training Grants: Carolina Antón was awarded the L-ISA Grant, Kim Watson the Advanced Grant, and Eluned "El" Ashwood the Starter Grant.

"We were overwhelmed by the interest and response that we received from the SoundGirls community regarding these training grants," says Etienne Corteel, L-Acoustics Director of Education and Scientific Outreach, making the announcement. "In addition to supplying their CVs, each candidate submitted two essays on why they were applying for these grants and how they would benefit from them. Although it was a challenge for the SoundGirls board to narrow down only three winners from such a well-qualified and deserving group, Carolina, Kim, and El all clearly demonstrated their drive and zeal for audio excellence and are, in our eyes, inspiring champions for diversity in this industry."

Carolina Antón of Mexico City has been named as the L-ISA Grant recipient, and will participate in a three-day L-ISA training curriculum covering one of two available

L-ISA Grant recipient Carolina Antón

Advanced Grant recipient Kim Watson (photo credit: Christopher L Proctor)

Starter Grant recipient El Ashwood

tracks: System, for systems engineers, or Mixing, for mix engineers. Serving as an FOH and/or monitor engineer on more than 20 tours for artists including Kool & The Gang, Gloria Gaynor, Natalia Lafourcade, MexFutura, Mon Laferte, and Leon Larregui, Antón has passion and experience creating immersive live mixes and system designs.

As a system tech, monitor engineer and FOH engineer for two decades, Newcastle Upon Tyne, UK-based Kim Watson is the recipient of the Advanced Grant and will complete the manufacturer's Level 2 Variable Curvature Line Source (VCLS) and Loudspeaker System Calibration (LSC) modules. Having toured as a monitor engineer for The Subways and system fly tech for Blondie, Watson previously completed four modules from the Level 1 course to prepare her for Level 2 training as she progresses toward earning the K Systems Engineer (KSE) designation, following additional field work.

Recently completing the L-Acoustics Systems Fundamentals online session in July as part of her Starter Grant, Eluned Ashwood of Manchester, UK will soon finish up the Level 1 course and earn the official status of Systems Technician (ST) after attending her choice of two K Series modules (K1, K2, Kara, Kiva II). Ashwood's resumé includes a broad range of festival tech gigs with SSE Audio Group and Wigwam Acoustics, numerous A2 roles at Manchester's Royal Exchange Theatre, and stage/PA tech work for Lionel Richie's UK tour.

"We are so excited to be working with L-Acoustics, recognised as one of the leaders in concert sound, to provide these grants to our members," shares SoundGirls Co-Founder Karrie Keyes. "L-Acoustics is dedicated to innovation and design excellence, and is a leader in helping to diversify the industry."

"It's been our privilege to partner with the SoundGirls community by creating this annual grant program and taking an active step in helping fulfill their mission of educating and empowering women in audio," Corteel adds in closing. "We're proud of what each of our three new L-Acoustics family members have already accomplished so far, and we look forward to celebrating their achievements as they continue to make names for themselves in this wonderfully evolving business."

SoundGirls can be found online at www.soundgirls.org. For more details on L-Acoustics training, visit www.l-acoustics.com/en/training/program.

ALLEN & HEATH AVANTIS

by Jimmy Den-Ouden

I really like this console. While that's my review, it doesn't make for very exciting reading. So this is the story of why…

I like lots of consoles, but this one makes me feel especially good because I remember when A&H began in the digital console realm (OG iLive!) and I can see how much work, R&D and effort has gone into renewing and improving their digital platform.

The dLive platform has gained serious market traction and with good reason. It's a favourite among several 'power users' I know, because it sounds good, it's very versatile, and does a crazy amount of stuff. Likely with this in mind, the dLive family has a welcome new addition in the form of Avantis. It's not a full dLive, but it's much more than half of one.

The overall design is stellar and it looks wicked cool – next to the Avantis, dLive looks a bit industrial, so you can see the design progression toward a friendly, approachable form. Someone put a lot of time into making sure there are enough of all the right buttons and knobs in the right places. Ergonomically it gets a big green tick.

The processing on this console is solely contained within – it's not just a remote for a mix rack. You can connect a bunch of different IO boxes ranging from the DX32 modular expander with analog or even PRIME input/output cards, all the way to a basic entry level AR84 box. Add in a DX hub and you can connect 8 IO boxes (that's good for up to 256 patchable inputs).

The console has some local IO on the back panel, which is convenient and in my mind quite necessary. 12 analog inputs and outputs, stereo AES in and two stereo AES out populate the back panel, all on XLR. Two IO ports allow for a range of different cards to be fitted – a choice of Dante, Waves, MADI, Fiber, and AES cards let you plug the Avantis into pretty well anything you like. It's very polite in that regard. Another nice feature is that you can route signals from one IO thing to another without taking up a processing path in the console.

Let's talk about architecture. 64 inputs plus 12 stereo effect returns into 42 mix busses – these include things like mains, monitors and headphones. Stereo mixes count for two. I didn't run into any limits to the configuration of these – matrix, aux, subgroup, whatever. Seems like as long as you keep the number of busses at 42 or below, open mix architecture means just that. The Avantis runs at 96kHz and latency through the console is 0.7mS – this is thanks to the XCVI FPGA core. In practical terms it means latency is so low it may as well be zero.

My test console came with the dPack option which includes 16 Dyn8 engines (deployable as inserts or effects), plus some cool channel compressors. I played with these but don't feel like I quite got the hang of them. Perhaps a bit more time required or perhaps a look at one of the excellent YouTube videos. The effects are solid, and the default allocation is well thought out and immediately useable. The compressor emulations look and sound good, and give things some character. I was a bit devo that I couldn't find my beloved Infra sub-harmonic synthesizer effect on my demo Avantis. Perhaps too many people blew up their subs with it?

The included automatic mic mixer is an absolute knockout, supporting up to 64 channels across three zones. When you mute a channel, it takes that channel's bit of shared gain and distributes it among the remaining unmuted channels. This is VERY cool because it's exactly how a gain sharing auto mixer should work.

Avantis has an onboard recorder which writes to a drive inside the console, the thinking here being that the recording is not going to fail due to poor write speeds on some cheapo USB stick. Transferring the recorded files over is simple and reliable even to said cheapo USB stick.

Speaking of recording, if you want to do some multitrack recording and playback that's all pretty simple via the Dante or Waves card and the virtual patch bay. Important note about that patchbay – you can patch a run of multiple channels quickly by simply dragging your finger across the grid. Patching functions that are limited to single channel at a time have always been a massive pain, so I like the Avantis patching system very much. Back on the multitrack thing – there's a virtual soundcheck mode too.

On to the interface. The dual 15.6" HD capacitive touch screens work well despite my quite blunt fingers. I can tap around the

Allen & Heath Avantis – The Specs

- 96kHz 64 channel / 42 bus digital mixer
- XCVI FPGA core with ultra-low latency (0.7ms)
- Fully configurable mix bus architecture
- Super-tough, full metal chassis
- Continuity UI seamlessly connects physical and touchscreen controls for the fastest, most intuitive workflows
- dPack option adds dLive processing, including 16 Dyn8 engines, plus per-channel zero-latency DEEP Compressors and Dual-Stage Valve preamp
- 12 RackExtra FX slots with dedicated stereo returns
- 16 DCAs
- Dual 15.6" Full HD capacitive touchscreens with gesture control
- AMM (Automatic Mic Mixer) up to 64 channels across 1, 2 or 4 zones
- Fully assignable layout
- 144 fader strips (24 faders, 6 layers) with optional dedicated master section
- SLink port for connection to Remote I/O Expanders and the ME Personal Mixing System
- 12 analogue XLR Inputs/12 analogue XLR Outputs
- 1 Stereo AES In / 2 Stereo AES Out
- 2 I/O Ports, both capable of 128x128 operation at 96kHz – for optional cards inc. Dante, MADI and gigaACE
- User configurable rotary controls
- 24 assignable SoftKeys
- Comprehensive metering with multi-point peak detection
- Internal storage for stereo playback and recording
- USB stereo playback
- BNC Word Clock

console pretty quickly and aside from the odd typo when naming things, I otherwise always hit the button I want. I'm usually pretty anti-touch screen because I find the combination of inaccuracy and tiny buttons frustrating. This was quite refreshing – again good groundwork has gone into the interface design. The screens are pretty responsive and there's no annoying lag waiting for things to happen.

The two banks of 12 motorised faders are completely configurable however you want – just go into strip setup then drag and drop. Switching between layers is fast and I really like how the faders physically feel. Tactile feeling is important to me, and these are just really good faders. Again, I've observed a generational improvement here.

A big change is that there are no physical channel select buttons – you select a channel by tapping the strip on the screen. You can tap directly into any particular processing element – input, dynamics, EQ or inserts. So it's fast to get to the things you need. A swath of user keys all over the surface really let you build your show to work however you want it to. It's pretty great, as are the definable encoders.

I like the copy / paste and especially reset functions. You can hold these buttons down then perform said operation on any part of any channel strip on the screen. Copy a HPF from one channel to four others? No problem. Want a fader at unity? Hold reset and flick it upward, and the fader magically jumps to unity. Flicking down sends it to off. Magic!

Like everything now, the Avantis is network enabled and you can run it remotely via an iPad app. But on top of this, you can use the Custom Control app and create your own user interfaces which are stored inside the console! Prime example of this being useful would be a solo app for an RF tech – you could put images of cast members on their solo buttons. Access to Custom Control can even be setup with different users allowed access to different elements. It's really clever and it's just built in right there.

Since I didn't have any gigs on to take it to I was stuck doing this Road Test in the office. Instead I jammed some nice multitracks into the Avantis via Dante, plugged in a set of studio monitors, and just spent some time having a mix. It was this simple action that cemented in my head how good this console sounds. It sounds great.

So that's the story of why the Avantis is good. Normally it would end here, but on this occasion it doesn't. Just to validate my own office-based musings I took an unusual step and invited some industry peers to come over and spend some time with the Avantis.

Keith Cooper and Stephen Askins have both been around the block enough times to know what's what, so in this story you get three qualified opinions for the price of one.

Stephen enjoyed the EQ, saying it was lovely to get around and so simple. He thought the automixer was good especially for corporate events, and the effects were easy to navigate. He was also a fan of the zoomable patch screen, and the way in which elements of the interface are colour coded - both helpful features if your eyesight isn't great.

Keith notes the physical footprint is appropriate and observes that the build quality seems good enough to withstand rugged environments and constant movement. He liked the effects and thinks the ability to flexibly assign DSP to suit your needs is a good thing. He notes that as a digital console it sums channels well and sounds good – he'd love to spend some time hearing it with mics on the preamps.

Did I mention that I really like this console?

Product Info:
www.allen-heath.com/avantis

Australia: www.tag.com.au

New Zealand: jansen.nz

James Jefford is the Director and Head Designer of Lux Productions, based in Auckland, New Zealand. James started his career in production at just 11 years old, operating theatre in the UK. After moving to New Zealand, James returned to live production after high school, starting Lux Productions at the age of 18. Since then, it has grown continuously and has just moved into its seventh warehouse. Lux's diverse client base includes corporate, cheerleading, high-end weddings, title fights, and one-off events.

LIVESOUND ROADCASES

by James Jefford

Lux Productions choose to use Livesound to manufacture our roadcases because we believe in supporting local NZ and family-owned business. Livesound are located in central Auckland, a location that most production and events companies in NZ can easily access and get timely service.

You get a more personal relationship with Livesound. You can walk in off the street and get met by Nate, the Livesound dog, who loves everyone. You can have a chat with Livesound's owners John and Ben Carter, who always go the extra mile to make sure your roadcase or other Pro AV equipment is personalised to your needs.

We rely on Livesound for anything that needs to be custom. They've made console, speaker, and motor cases for us, as well as lighting inserts, and rack panels. Their turnaround time is always at a minimum, and their customer service is exceptional. Lux have bought not just Livesound's roadcases, but also their design-your-own MyCaseBuilder.co.nz foam inserts, and CNC router cut and laser-engraved rack panels.

Livesound separate their roadcase offerings into two main categories. There's the premium Livesound 'Pro-Touring' range, which are made from high impact ABS sheets laminated to plywood, with solid, locally made Livesound extrusions, and Penn

"You can have a chat with Livesound's owners John and Ben Carter, who always go the extra mile to make sure your roadcase or other Pro AV equipment is personalised to your needs."

Elcom hardware. They're made to such a high standard you can still see 20-year-old Livesound cases out on gigs that don't have a dent in them.

Then, there's the affordable Kiwicase range, which is made from hexboard, have slightly smaller locally made extrusions, but still come with Penn Elcom hardware.

Livesound pivoted to the hexboard Kiwicase range in the face of competition with people importing cases direct from China. I've had my share of problems with bowing and dodgy wheels with cases from China. You get what you pay for. Once I took advantage of a shipment that had been ordered by another company from China which had been made with the wrong dimensions. I bought them at a discount and had Livesound make inserts for them. Even though they weren't their cases, they still did the job to the highest standard.

Livesound provide superior customer support even with their Kiwicase range. I bought the first foam insert they ever made via mycasebuilder.co.nz. I was messaging Ben directly about them on a Sunday night, and before I'd finished typing, he was replying. Nothing is ever a problem, too big, or too small. Livesound genuinely like working through design ideas with their customers.

For example, I bought eight chain motors, and had them shipped directly to Livesound. Ben went through eight versions of a case design for them. The whole time, I was next to him working through the different scenarios, and there was never a moment I didn't feel welcome.

They were truckpack 600x600 cases that needed to take the one-tonne motors. Initially they thought they wouldn't fit, but they not only made them fit, they made them useable! They asked questions of us, the end-user. How do we do this? How do we do that? I personally wanted the cases to have a hinged lid, and they said, "yeah, sure, we can do that, but, if we have a removable lid, you can get at all aspects of the motor, and you can operate at any angle that you want without a lid in your way that could also fall over and catch a cable." They brought this level of care and detail even with their budget Kiwicase range. On top of that, we added auto swivelling wheels, wheel dishes, and tour label dishes, all Penn Elcom.

When it got close to the day to pick up the finished cases, they warned me that there was no stock of the tour label dishes. They managed to them air freighted from Penn Elcom in Melbourne, just in time for pickup with two days' notice. Exceptional!

In production, I hate the word 'package'. We do dance parties and school balls, but none of them are quoted with off-the-shelf 'packages'. Each client has an individual budget, theme and venue. I don't like it when companies make their offering generic. Livesound have the same philosophy, and it's why I continue to shop there.

Product Info: www.livesound.co.nz, mycasebuilder.co.nz

David Springan-O'Rourke is a TV and Film audio specialist. With over 25 years' experience in the broader AV industry, having started out mixing bands, David moved into TV audio 15 years ago. He is based in Canberra.

CEDAR DNS2

by David Springan-O'Rourke

I became aware of Cedar's DNS dialogue noise suppression product when I saw the eight channel DNS 8 in a trade magazine. I immediately thought it was an interesting bit of kit. I then spotted the DNS 2 on the web and had to try it out. I spoke with Australian distributors CDA Pro Audio, who sent me a demo unit. I used it once and bought it immediately – it is that good.

In TV, regardless if it's a live interview on location, or you're in the studio with some control over the setting, noise happens. There can be noisy kids, road noise, running water, or air conditioning, and they're all outside of your control. You can't keep saying 'stop, we have to redo that' unless you have a Hollywood-sized budget and the ability to put the whole environment into lockdown.

Previously, there was no real way to achieve the results the DNS 2 gives me. With the DNS 2 I was instantly able to put it in-line with my kit and dial in the noise reduction. It was startlingly effective.

Application

The DNS 2 is designed for 'bag use', as we call it in location sound. My standard 'bag' includes my Sound Devices 664 mixer with an extender to give me six more inputs, half a dozen channels of Lectrosonics lapels or handhelds, and a radio boom. On location, and environments where I have reasonable control, I will put the DNS 2 on the boom channel and split the signal, so one channel is recorded unprocessed and the other channel with the DNS 2 noise supression. That gives the editor the option of using the raw recording or the processed version, and that's the workflow most editors prefer. They might want to use their own noise reduction, and I give them the option. The interesting thing is that in the 18 months I have used the DNS 2, not one editor has used the raw recorded file. Editors are notoriously hard to please, and now I use the DNS 2, I don't get as many complaints!

If I'm doing a live-to-air OB with multiple talent, I'll put a lapel on everyone on set (four talent and a host, for example) then I will use the DNS 2 over the master bus. This goes out to OB truck at line level, and works really well, though processing a group works slightly differently than processing a single channel.

Operation

Operating the DNS 2 is very simple; you choose between mic or line input, and line or AES out. There's one knob to dial in the amount of noise reduction you want. It's very intuitive. Most often in live broadcast, you don't get the luxury of time to be too critical, but I've never found myself putting too much noise reduction in. The big test of noise reduction for lapel mics in particular is to jangle a set of keys near them; they don't like the key test. It usually reveals a lot of clicking and companding. The DNS 2 passes this test with flying colours.

There's a 'Learn' button on each channel. When this is activated, the processing constantly adjusts to adapt to changing noise conditions. For example, if you're in a room with classic air conditioning noise, you could activate 'Learn', let the talent speak, get the levels, and then deactivate. The DNS 2 would then hold the same noise reduction settings through the shoot. I tend to keep the DNS 2 in Learn mode just in case the air conditioning noise changes or there are any unexpected surprises!

The Setup button on the front panel allows you to adjust the processing, and set the input level to mic or line. There's only two levels of menu, so you can't get lost. In addition to the audio I/O, there's also a mini USB port on the back for firmware updates and service.

Latency

At the stated 'less than 0.1 millisecond of latency', there's effectively no latency at all. An editor's eye is always looking very carefully

to make sure lip sync is maintained. A good editor will spot any delay straight away. No-one's ever spotted delay from the DNS 2 because it's totally imperceptible. That's the best testament of how quick and effective the DNS 2 is.

Physical

The build quality of the DNS 2 is excellent. It's rugged – the housing is clearly a piece of nice aluminium plate, yet it's still very light. The knobs and buttons feel good, and all of the ergonomic and tactile factors are addressed well.

Conclusion

If I can have a device in my kit that makes me look better on the day, it's worth it. It puts some distance between me and tricky situations. For example, only a week ago, I was working on a commercial shot in a working hospital, so there was no control over the environment at all. It was a classic 'bathroom cavern' type acoustic to work in, but the DNS 2 cleaned up the noise and reverb straight away; I didn't even have to think about it. Devices like the DNS 2 are time-savers, and save you from getting in people's faces, saying it sounds bad and we have to stop – you can just do the job. It sounds like self-interest, but if a device can simplify workflow and produce a better result, I'm very happy. It just makes everything easier for everyone.

Product Info: www.cedar-audio.com/products/dns2/dns2.shtml

Australia: CDA Professional Audio www.cda-proaudio.com

New Zealand: Protel www.protel.co.nz

Cedar DNS 2 – The Specs

Number of channels: 2

Process type: CEDAR DNS with Learn

Analog Mic and line inputs: Balanced XLR3F

Phantom power on mic input: 48V ±4V, 10mA per mic

Analog Line output: Balanced XLR3M

Digital Input: AES3 or AES11 via balanced XLR3F

Digital Output: AES3 via balanced XLR3M

AD/DA resolution: 24-bit linear PCM

Process resolution: 40-bit, floating-point

Latency: <0.1ms

Size: 146mm x 110mm x 44mm

Weight: 540g

"There's a 'Learn' button on each channel. When this is activated, the processing constantly adjusts to adapt to changing noise conditions. For example, if you're in a room with classic air conditioning noise, you could activate 'Learn', let the talent speak, get the levels, and then deactivate. The DNS 2 would then hold the same noise reduction settings through the shoot."

GREAT MOVIE TUNES

by Duncan Fry

Don't worry, Ol' Dunk hasn't gone all show-tunes on you. I'm not talking about musicals per se, but films in which a particular song or piece of music plays an integral part in the enjoyment of the film. It might be over the opening or closing credits, or during the movie, but in a modern manner, not people suddenly bursting into song over the dinner table or while 'riding in the surrey with a fringe on top' (Oklahoma).

So, no South Pacific, My Fair Lady, Oklahoma, High Society and others that my parents used to bore the living tish out of me as a child by playing their soundtrack albums! As you might expect, it'll be a personal, some might say opinionated view, but (sigh) it's too late to change the habits of a lifetime now!

1. The Girl with the Dragon Tattoo - the Daniel Craig and Rooney Mara version

This movie was, as they say, "a little late to the party" since most people who liked the books had already watched the original Scandinavian version(s) on television, as I had. What made the movie for me though was Trent Reznor's stunning version of Led Zeppelin's 'Immigrant Song' playing over the opening credits. This version of such a great song updated the rhythm slightly, and when I first saw the movie at a THX theatre, the bottom end nearly blew me out of my seat. A fantastic, overpowering sound that got everybody's immediate attention in the theatre. The Zep were well aware of the impact of this song, and used it as an opening number when they toured Australia in 1972 (and on many concerts worldwide, judging by the large number of bootlegs). Luckily, I managed to record the Melbourne concert for posterity on my Philips cassette recorder so I can wallow in nostalgia whenever I feel like it!

2. Theme from Deliverance

Quite possibly the only instance of a banjo/guitar duet making it onto the charts...ever! "Dunga dung dung dung dung dung dung dung (to the tune of the plucked notes of a G major chord on a guitar)."

So popular that 'Dungers' became Aussie slang for hillbillies, thanks to Paul Hogan, I think. And also caused someone in every family on a trip to country areas to exclaim, "Is that banjos I hear?" and start humming the first few notes. Or maybe "Squeal like a pig, boy!" Hmmm. Depends on the family, I suppose.

3. Shaft - Isaac Hayes

Who can hear the distinctive "Wucka wucka wow wow chicka chucka" sound of an electric guitar and a WahWah pedal without saying in a deep voice "Shaft - can ya dig it?" Not me, that's for sure! An OK movie, but much more famous for its theme tune than for the actual film. Written by Isaac Hayes, who won an Academy Award for it, the trademark guitar riff was played by guitarist Charles 'Skip' Pitts. And – for trivia fans only – in 2011 Skip also starred in a video documentary called 'CryBaby: The Pedal that Rocks the World'.

4. Simon and Garfunkel - 'Mrs Robinson' from The Graduate

This is a tough one, as I was never really keen on The Graduate as a movie - I thought Dustin Hoffman played his role with all the enthusiasm of a stunned mullet. I was not alone either; legendary US movie critic Roger Ebert said, in reviewing it, The Graduate is a movie about a young man of limited interest, who gets a chance to sleep with the ranking babe in his neighborhood, and throws it away in order to marry her dorky daughter." However I was very keen on Mrs Robinson herself! Beautifully played by Anne Bancroft, she stole the show in every scene she was in. Also known as 'Mrs Mel Brooks', obviously Mel was punching above his weight when he met and married her! The song is great, too. When Paul Simon pitched it to producer Mike Nichols, it was only half-written, but Nichols loved it and wanted to keep the "dee-dee-dee" and "doo-doo-doo" words that were just there as placeholders. The rest is history!

5. The Doors 'The End' from Apocalypse Now

A depressing song in an over-long and eventually depressing movie, this song certainly captures the futility of the Vietnam war when overlaid over the film's grim visuals. Perhaps on second thoughts Creedence's

'Fortunate Son' might be a better one, with the timeless images of the 'Whump-whump-whump' explosions of the planes dropping their loads of Napalm, the clatter of the choppers, and Robert Duvall's Colonel Kilgore's classic quote "Smell that? That's Napalm." (sniffs ...)"There's nothing like it. I love the smell of Napalm in the morning!" Has to be one of the most famous movie quotes of all-time and a great soundtrack.

6. George Thorogood - 'B-B-B-Bad to the Bone' from Christine

Christine is an evil 1958 red and white Plymouth Fury that has a bad habit of killing anyone who gets between her and her owner, and the ability to rebuild herself every time she gets damaged. And if 'Immigrant Song' doesn't do it for you, then the opening credits for this movie should. In fact the opening riff of George Thorogood's 'Bad to the Bone' should set your feet a-tapping, and make you leap out of your seat playing air guitar! Well, it does for me anyway. A great song for a great film, with excellent effects for 1983. Still, as someone who has restored many cars, including a Plymouth, sometimes they do have a personality of their own, although none of mine have ever deliberately set out to murder anyone. But it is something to think about as you work underneath a two-tonne piece of Detroit classic steel, held up only by a couple of house bricks. So always be nice to your car!

7. Joe Meek - 'Telstar' from The Telstar Story

Joe Meek was a pioneering 1960s record producer who not only built his own equipment, but devised a lot of the music production techniques that we take for granted today – heavy compression, heavy EQ, big reverb and more. The movie was quite hard to find, but it's available online now and well worth watching. I got my DVD copy from a video store that was closing down. Joe Meek of course wrote and produced Telstar - the mega hit instrumental by his house band The Tornadoes.

If you want a 'warts and all' look at the 60's music scene, then this movie is for you. The re-creation of the era is excellent. Putting my pedantic hat on for a moment though, the only thing that isn't quite right is when Ritchie Blackmore gets thrown out, followed by his Vox AC30 amp, which bounces its way down the stairs behind him. Bounces? An AC30? As anyone who's had to lug one around would most certainly agree, an amp weighing 35 kilos amp doesn't bounce at all. It just lands with one almighty 'Thud!' and the expensive tinkle of valves shattering!

The huge success of 'Telstar' led the French composer Jean-Paul Jarre to accuse Joe of pinching his electronic music sounds to make the 'Telstar' record. The courts eventually threw out this claim, but Meek's career started a downward slide after that. He never recovered, and it all ended badly.

So there you go. That's my list of great movie tunes. There are any number of lists online but I tried to stay away from other obvious popular choices and write about my own. As they say, 'your mileage may vary' so if I've missed out one of your quirky favourites, email me - dunkworld@gmail.com - and let me know.

With strength and hope, you will prevail.

Stay strong, stay healthy
and take care of one another.

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