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Stage Managers Association Australia
- Jands Sell JVE
- Jeff Shoesmith joins MadisonAV

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- Jenny Barrett covers New Zealand
- John O'Brien's Backstage
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L-R - Rod McKinnon, Glen Croker, Tim Buchholz, Ian Evans, Jeff Bolt



Vale Jeffrey David Bolt 1964 - 2021

Some people fill a room with their presence. Industry legend Jeff Bolt did it to every damn room, bringing a shambolic energy as he sought the numbers. And numbers mattered when you were the greatest salesman, shifting PA systems, microphones, and lights.

Aged 57, he passed away on Sunday 10th October, unintentionally devastating his family and confounding thousands of people in the professional entertainment technology industry around the world. "Bolt dead? But, but..." How could this be? He sure as hell didn't plan it, but then again, the man lived his life to the fullest. Animated discussion and a VB in hand were a certainty with Jeff.

Jeff knew everyone who mattered. He had a disarming charm, a cheeky face, a head full of hair, and a come-back for every arrow. He was amazingly adept at wrangling a deal, knew who to push in his supply chain, and knew what needed to move. 'Sell available merchandise' was his mantra.

He lived in Sydney's leafy upper north shore, and was the secretary and honourable life member of the Lindfield District Cricket Club. The constant about Jeff was: What You Saw Is What You Got. The WYSIWYG guy. He would tell you proudly how his family were going; wife Janet, kids Annalise, Jono, and Henry. Now all adults, but too young to lose a dad like Jeff.

People don't work in our industry for money. They work for the vibe, they have passion, and we are all connected from some stage somewhere where we got the passion of

performance. We tech types love the roar of the greasepaint and the smell of the crowds. Jeff found his calling and completed an audio course at SAE.

He hustled and hired with Les Jones. So many things started with Les, who 'discovered' INXS and toured their first PA. Jeff saw an advert for a sales guy at Jands in 1988, didn't think he would get the gig, but did. He built what was and is the greatest retail network for things people buy in shops. Shure microphones walked out the door. JBL PA systems. Soundcraft mixers. Gig cases. Stuff.

He evolved into becoming a sales manager which – I warn – in our industry is a short career choice if you change the format, close the channels, trash the marketing, and commodify the product. Seen it done before bad, and Jeff knew how to do it good. He was the longest serving sales manager in our industry anywhere.

In 2018 he moved on and found his new home at Bose Professional, a firm that always hired well. His team of six coalesced and started kicking goals. He was frighteningly effective, did the numbers, and had everything to look forward to.

I last spoke to Bolt in early lockdown 2020 when he reached out to a lot of people on

Zoom. Just to say hello. Which leads to this: his colleagues.

Steve Devine remembers a fresh kid, fresh meat. "We first met when you walked in my office in Canberra early 1988. A new sales monkey from Jands. I think it was your second day with them. They sent the newbies to me as a kind of rite of passage. After they left, I would call and rate them out of 10, and if they cried or not. Bucket and mop the office floor."

"Over the next five years you sold me nothing. You did, however, help me purchase about a million dollars' worth of crap that I didn't need. Your regular visits set the benchmark for what I imagined to be something I could aspire to, but never achieve. You emptied my wallet and put a smile on my dial."

Jodie Steele worked alongside for many years. "My boss, my mentor, my work husband, my friend. The best professional teammate I could've asked for. Our mantra was 'you make me look good; I make you look good'. We argued, we collaborated, we trusted each other to the core, and we backed each other, always."

"You were a disrupter, a force of nature. You took up all the space, but always made sure everyone was included. You brought people together, and you loved to hold court. Give the man a microphone and a captive audience, and you could've been there for hours."

"You cared deeply about our industry, and those in it. You also loved a good gossip and would hate it when I knew anything before you or could guess what was going on."

"People needed to earn your respect, but once they did, you were loyal for life."

David Bell was a major executive at Bose, and then at Jands. He has perspective.



Jeff Bolt

that took responsibility for the forecasted profit figure as well as the top line sales number.”

“Bose Corporation will miss his passion, integrity, and drive.”

“Jeff’s early departure has ripped a tear in the tapestry that depicts the Australian and International Professional Product market. A rent that will take some time to heal.”

“My prayer is that the Universe reaches down and wraps the Bolt family in its arms and provides the strength and love required to get them through this, the darkest of times.”

Jeff wasn’t ‘just’ a salesman. He was invested in and connected to our industry. Ours is a cottage industry of passionate people supporting actors, musicians, movie stars and corporates. We live and breathe

for performance, for the close of the curtain and the happy departure of the perfumed masses. Jeff’s people wore black at work backstage. Jeff’s people wore black at his funeral. And they loved him.

- Julius Grafton, a friend

“Janet has always stood with him in support of his career and did more than her fair share of the heavy lifting in the successful development of their three high achieving children. Jeff was devoted to, and very proud of them all. He spoke of them often and all his friends and business associates were aware

of Janet, Annalise, Jono and Henry.”

“Jeff had that innate ability to juggle a fierce loyalty to his customers and a dogged determination to attain and or exceed his employer’s annual growth goals. He is one of only two Sales Managers I have worked with in 35 years’ experience on three continents

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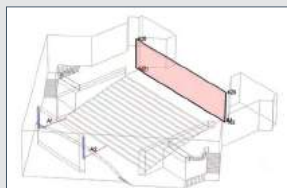
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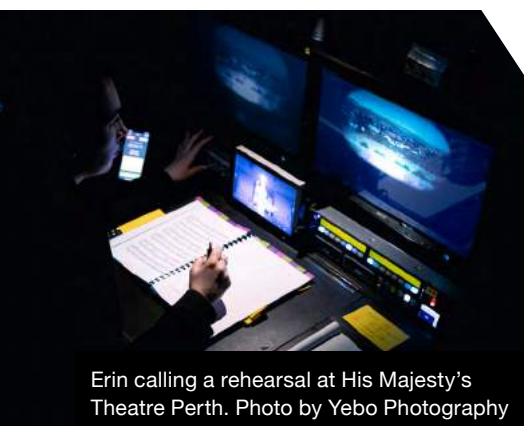
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Stage Manager Darren Kowacki on tour in Beijing with School of Rock. Photo by Cindy Xu



WA Stage Manager Erin Coubrough. Photo by Jessica Gethin



Erin calling a rehearsal at His Majesty's Theatre Perth. Photo by Yebo Photography



Darren preparing for performance at MCG Melbourne

Australian Theatre Makers Call “Go” On New Stage Managers Association

On 10th October 2021, a date recognised as International Stage Management Day, a group of professional theatre practitioners across Australia launched the Stage Managers Association Australia Ltd (SMA AU).

The vision of the association is to create a connected, open and inclusive community of stage management practitioners that actively engage in and have access to programs and initiatives for talent development, wellbeing and support, and to advocate best practice in all sectors and genres of their work across Australia. An association for stage managers, by stage managers.

COVID-19, and the consequential lockdowns left the live entertainment industry struggling. During the height of the 2020 nationwide lockdowns, a working group of 13 stage managers, across six Australian states

and territories, who work professionally across a range of genres, came together to assess the viability of creating a national stage management association. After a year of industry research and input, the working group, headed by Kate Middleton-Olliver, successfully incorporated the Stage Managers Association Australia Ltd (SMA AU).

“During the 2020 shutdown, stage management organisations overseas offered support and engaging content to their newly unemployed members. I sat wondering what we were doing here to support our community,” said Middleton-Olliver.

“This launch isn’t our opening night. It’s more like day one of a workshop. We have a great vision for what this organisation can be in the future, but we’ve got to start small. We’re ready to test some concepts, find new ideas

and bring the vision to life,” she continued.

With the focus now being to recruit members, SMA AU aim to continuously include members in the development of support, resource and advocacy programs. Objectives include promoting diversity and accessibility for all people interested or engaged in the practice of stage management.

The organisation is a not-for-profit and is run by a volunteer Board of Directors. The Directors are Kate Middleton-Olliver (Chair - NSW), Adam J Lowe (Secretary & Public Officer - VIC), Ingrid Rahlén (Treasurer - TAS), Erin Coubrough (WA), Will Lewis (VIC), Carly O’Neill (QLD), Melanie Selwood (SA) and Lillian Hannah U (NSW, currently overseas).

Membership applications can be made through the Stage Managers Association Australia Ltd website at stagemanagers.org.au



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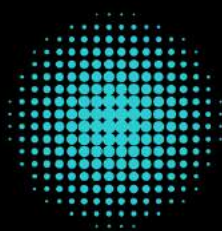
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JANDS SELL JVE TO HME

Jands announced in early October they have entered into an agreement to sell Jands Venue Engineering (JVE), a pioneering manufacturer and installer of staging and venue technology solutions throughout Australia and New Zealand, to HME Services Pty Ltd.

This move is the conclusion of a five-year business plan that focused on developing and expanding Jands' distribution operations. This has seen Jands sell their audio rental, lighting manufacturing and now their Venue Engineering businesses to associated market leaders. During this period Jands also reviewed and made changes to their distribution operations which resulted in

onboarding additional tier one audio and lighting brands into their portfolio.

"Having invested over forty years building JVE into a staging powerhouse I can think of no better person than Glenn Harris to continue the growth while retaining the legacy. Glenn joined Jands straight out of university and is still the best engineer to have worked at Jands. As I grew to know Glenn, it was obvious his entrepreneurial flair coupled with business smarts would inevitably result in him starting his own business. Eighteen years later and having overcome considerable adversity, not of his own making, he now has a truly world class stage machinery business,"

commented Paul Mulholland, Chairman of Jands.

"I am very honoured to have been chosen by Jands as the new owner of JVE," said Glenn Harris. "Jands Theatre Projects, as it was known then, was my full-time job as a mechanical engineer and set the course for my passion for Stage Engineering. The combining of two strong entities creates a new opportunity to provide an unprecedented level of innovation, product range and service to our market. I am excited to continue and build on the legacy of excellence that Jands and JVE represents."



Jeff Shoosmith joins MadisonAV

MadisonAV has welcomed Jeff Shoosmith to the role of National Business Development Manager. Jeff brings with him a wealth of experience and knowledge, having worked with Audio Brands Australia, The P.A. People, Jands, and Hills SVL during his 25-plus years in the industry.

Robert Lackey, National Sales Manager of MadisonAV commented; "I am very excited to have Jeff join MadisonAV. Since taking on the HARMAN portfolio we have been developing a really strong team from both a technical and account management level, and Jeff will add further strength and capability to our expanded national team. Jeff puts the customer at the centre of everything he does".

Jeff will be managing MadisonAV's Consultant and End User relationships and supporting Integrator Partners in delivering successful outcomes on collaborative projects. He'll also

be working closely with their Technical Sales Support Team, who provide MadisonAV's customers with specification, modelling and design assistance.

"I'm thrilled to be joining the MadisonAV team," says Jeff. "Whilst only a recent addition, I already feel the Madison company culture to be very kind and people-focused, and that culture filters right through to the way they support their customers, and their customers' customers. There's a real sense of integrity and a 'we care about you' attitude, which is a rare thing to find in business these days, particularly businesses of this size, and with an ANZ footprint. I look forward to connecting, and re-connecting with Madison's vast customer base and providing them with a high level of care, product knowledge and technical assistance."



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Powersoft's "Dynamic Music Distribution" Explained

by Jason Allen

Never let a good tagline get in the way of the message. The recent announcement of Powersoft's Dynamic Music Distribution platform has left some system integrators scratching their head as to what it actually means. As is often the way with technical innovations that have little to no precedent, they can be hard to find the words to explain. Allow us to clear the air:

Powersoft have developed a range of wall mount controllers, along with a web interface and built-in network connections that mean that you can install routable, controllable multi-source, multi-zone audio in an installation using only their simple install amplifiers. No additional mixer amps, mixers, DSP, or network switches required.

To put it in real world terms:

You're fitting out audio in a multi-zone hospitality venue. Where you previously would have had to buy DSP, amps, switching, and wall mount controllers, all you need to buy now are amps and wall mount controllers. Or just the amps and app control for free, if you and the client prefer.

Using a 4-channel Powersoft Mezzo amp, you could drive four independent zones with four independent inputs. Via Dante, with network switching built-in to the amps, any connected inputs are available on every other device on the network. Using either Powersoft's WM Touch touchscreen wall controllers, or the simpler WN Panel controllers, staff in the venue can select sources from anywhere else in the venue and control the volume. They can also be set up to do this via Powersoft's SYS Control App on their phones. If you choose the app control option, all you're buying is the amps.

That's it – multizone audio with an embarrassment of control options, with built-in network switching. All you buy is the amps.

Savvy? We think so.

Powersoft Case Study: Matches Sports Bar, Grill & Social, Kent, UK

Two Mezzo 604 ADs, Powersoft's four-channel, 600W compact amplifier, are powering the entirety of the 250-capacity Matches Sports Bar, Grill & Social, forming the core of a unique hospitality venue incorporating multiple distinct audio zones and spaces. Tucked away behind the counter, a single 4.3" wall-mounted Powersoft WM Touch screen gives complete control of the entire DMD system, including Mezzo's embedded dynamic routing capabilities.

"By using Powersoft's Dynamic Music Distribution solution, we were able to keep our design simple all the way through, from designing the project to handing it over to the client," explains Ashley Bond, managing director of system designer and installer MADE Worldwide. "The client is then left with a powerful start-to-finish solution from a single industry leading manufacturer, providing them with a safe and secure audio system that's really going to push through."

Matches Sports Bar, located at Elwick Place in Ashford, around 95km south of London, opened in June and has been doing roaring business ever since, its food and drink, live sports and evening entertainment proving popular with both locals and Eurostar passengers. Jon Shephard, Matches' owner,



and stylish way of routing audio around venues like this. Here, we need small amounts of power going to smaller zones, like the toilets or corridors, and a large amount of power to provide high-quality, pumping audio to get the atmosphere going in the bar area. This is where the Mezzo amplifier running the Dynamic Music Distribution system really shines.”

“The Powersoft amps have up to four channels running 600W, with full Power Sharing across all the channels. And the key here is that they can do low impedance and a 100V line on the same amplifier, all using the integral DSP, in a half RU space, so you can fit a heck of a lot of processing power in a really, really tiny space.”

Despite its high spec, the Powersoft system is so competitively priced that recommending it to MADE for the Matches project was very straightforward. In fact, so impressed were the MADE team by the system installed at Matches that the company is already spec'ing almost identical systems for several upcoming projects. “That’s off the back of how strongly it’s performed at Matches,” Bond continues. “It’s definitely become our go-to solution for hospitality projects, so much so that we even hold stock of it just to have it when we need it.”

www.pavt.com.au

says the concept for the venue is to combine “all the best bits of the bars I’ve been to throughout my life, all into one place” to create the “ultimate sports bar experience”.

With a single four-channel Mezzo amplifier now able to drive up to four independent zones of audio, thanks to Powersoft’s new ArmoniaPlus 2.2 software release, the DMD ecosystem was the natural choice to bring to life Shephard’s vision for the venue, with a “tailored sound experience in each individual area.”

Powersoft’s UK distributor, CUK Audio, supplied MADE with the Mezzos and WM Touch, as well as the AUDAC loudspeakers (ATEO wall-mounted speakers, CIRA ceiling speakers, and BASO10 and NOBA8 subwoofers) the amplifiers power. Its installed AV channel manager, Steve Barton, says multiple output options like those on the Mezzo 604 AD were essential for a venue like Matches, where a single amplifier is able to power both Lo- and Hi-Z loudspeakers.

“DMD was key here,” comments Barton, “because it provides a really cost-effective



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Photos Courtesy AV Events

Audio Visual Events Invests In More Astera

Audio Visual Events (AVE) is a live, hybrid and virtual event production services specialist based in Sydney, working across all industry sectors including corporate, commercial and entertainment.

Since 2019, and throughout the pandemic period, the company has invested steadily in Astera's range of battery powered wireless controlled LED lighting products. In the last three months alone, this has included the purchase of 80 Astera AX5 TriplePARs and 16 Hyperion Tubes, which, together with the 100+ Astera AX1 Pixel Tubes and AX3 LiteDrops already in stock, have been delivered by Astera's Australian distributor, ULA Group.

The National Rugby League has been a major client over the last year, with several events staged in their various stadiums around the country. Having the Asteras onboard and access to wireless operation has opened a whole universe of possibilities for AVE, especially where conventional trussing or rigging infrastructure is not available or possible. Being able to use Astera products in these and other improvised situations means they can still create the cool, slick corporate looks desired, even with little time and limited facilities.

Astera's onboard LumenRadio CRMX has proved "flawless" for the AVE team who often run up to 5 or 10 universes of wireless DMX. They like the App control, as it is hugely convenient to use a smartphone or tablet, and of course, the "outstanding" quality of light. "These fixtures have all been extremely well thought out," says AVE's general manager Paul Keating, adding that the IP 65 rating is the icing on the cake as they can work equally well indoors or outdoors. "With Astera, you simply get everything all at once!"

he declares.

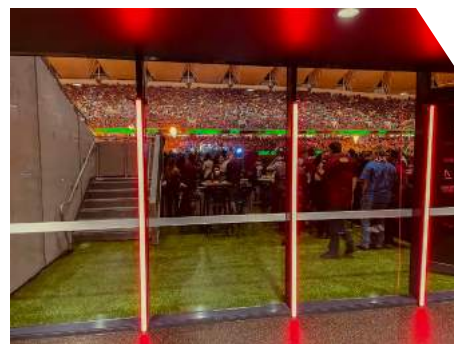
Crews and technicians love the array of ingenious bracketry, spigots, etc., and the compatibility with standard rigging kit and popular setups they frequently encounter on site. "Even the case layout is brilliant – so you can spot a missing item immediately," declares Paul.

Their enthusiasm for the brand and products is boosted by the relationship with ULA Group, which Paul underlines, "is really imperative to investing in a brand". The most recent purchase of the Hyperion Tubes was a great example.

They were acquired for the National Rugby League event at Queensland Country Bank Stadium, Townsville, just north of Brisbane which was rescheduled to this venue at the last minute. More kit was needed very rapidly on site when the Queensland Maroons unexpectedly decided they would use a function room area adjacent to their dressing room as part of their televised run-on!

An urgent call to ULA asked them to send "Whatever Asteras they had in stock," and shortly after the Hyperions arrived on site. The crew set up the shot which featured light dramatically chasing and flickering through the tubes during the run on, adding excitement and depth to the footage as the players powered through, looking amazing both on camera and in reality. Another six hospitality rooms at the same event were filled with AX1s.

When not in use on AVE's own shows, there



is no shortage of dry hire demand for all their Astera products which also include AX5s which are regularly used for up-lighters for rooms and scenery.

"It's obvious that Astera's R 'n' D team is listening to those working on the ground in film, TV and live events sectors, and they just keep on improving and innovating the products. This is a manufacturer invested in a long-term future for its brand," concludes Paul.

NEW GEAR



EAW AC6

The AC6 2-Way full range ADAPTive column is capable of generating a max SPL of 143db and 120° of horizontal nominal beamwidth. It's targeted at installations, houses of worship and small performing arts centres. Managed via EAW's Resolution 2 software, the AC6 can compensate for coverage and directivity with its Adaptive Performance technology. By integrating all factors and aspects of the loudspeaker, the AC6

can produce three-dimensional coverage in any venue, making it perfect for even the most acoustically challenged room.

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ArKaos MediaMaster 6

This MediaMaster release provides a brand-new user interface and offers 50% more performance, power, and speed compared to previous versions. The brand-new Remote Player is a network-based media player allowing the control of multiple servers from a single point on the network. Version 6 also brings compatibility with Elgato Stream Deck and adds two new DMX fixture profiles - Layer Extended 2.0 and Layer Full 2.0 - which can control up to 112 DMX parameters per layer, available with the MediaMaster Pro licence.

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AUDIOropa CROSS:TALK

AUDIOropa's CROSS:TALK and CROSS:TALK COMFORT are for use in areas where glass partition panes or hygiene barriers are installed, and where excellent audio understanding between the communicating parties plays a central role. Ideally suited to customer service, consultation and information service environments, the CROSS:TALK system is a perfect solution when clear communication is needed, including in bank, post office or transport counter areas, hotel receptions, medical facilities, sales or customer service counters and visiting rooms in prison facilities.

NEW Australian Distributor: MadisonAV
madisonav.com.au or 1800 00 77 80

NEW New Zealand Distributor: MadisonAV
madisontech.co.nz or 0508 78 88 89



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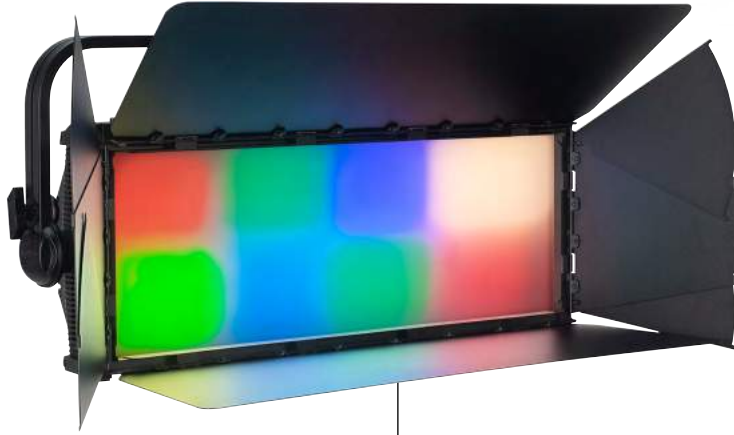
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Universal Audio Volt

The Volt series are a new range of five affordable USB audio interfaces from Universal Audio. All units and packs come bundled with an essential suite of audio and music software from Ableton, Melodyne, UJAM, Marshall, and Ampeg, and each include Vintage Mic Preamp mode for rich tube-style sound. Models range from 1 in, 2 out, up to 4 in, 4 out, with the 176, 276 and 476 also including wooden side panels and UAD's 76 Compressor for studio-quality clarity and punch.

Australia: CMI Music & Audio cmi.com.au or (03) 9315 2244
New Zealand: Music Link www.musiclinknz.co.nz or (09) 250 0068



Elation Professional KL Panel XL

Using a highly efficient 544W RGBW + Lime + Cyan LED array, the KL Panel XL produces soft white or full-colour washes up to 44,000 field lumens at a 100° half-peak angle. Colour reproduction is extremely accurate with a CRI of 95, while colour temperature is adjustable from 2,000 to 10,000K. Additional colour tuning is possible through a green-shift adjustment and virtual gel library to more precisely match the white balance for the camera. The KL Panel XL's LED array includes multi-zone control for dynamic colour access, visually interesting eye-candy and realistic reproduction of effects like fire, lightning, emergency vehicle flashes or a variety of strobe effects.

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

Highlite Infinity SideKick

New to the Infinity Chimp Console range, the SideKick is a Chimp OnPC console that allows you to quickly prepare your shows from anywhere. With USB bus power and lightweight design, the SideKick is perfect for portable for use on the train, in the car, at home, or outside. When connected via USB to a laptop running Chimp OnPC, the SideKick gives you a fully powered programmer wing at a fraction of the size and weight of an actual console. Two universes (Art-Net and sACN) are activated once you connect the SideKick to your OnPC software, which can then be used as input for your visualisation software.

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



Xilica Sonia

Xilica Sonia is a range of networked amplifiers and ceiling speakers for IT-friendly collaboration spaces. The initial Xilica Sonia series includes the Sonia C5, a compact 5.25" in-ceiling speaker with a wide, even dispersion pattern powered by Xilica's new Sonia Amp, a PoE+ enabled four channel amplifier with integrated network switch that can power up to eight Sonia C5 speakers in daisy-chain. Sonia C5 and Sonia Amp are Plenum-rated and feature integrated mounting capabilities that allow Sonia Amp to be affixed to the rear of a Sonia C5 speaker, eliminating the need for external amplifier racks.

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



JBL LCT 81C/TM

The JBL LCT 81C/TM is a full-range ceiling speaker designed to lay into a 600 mm x 600 mm metric suspended grid ceiling, with no cutting of ceiling tiles required. With a depth of only 103 mm, the LCT 81C/TM fits in locations where deeper loudspeakers do not. It includes a 200 mm dual-cone driver with 96 dB sensitivity. The driver features a 25 mm diameter voice coil with a Kapton coil-former and high-temperature wire for better power dissipation and long-term reliability. The speaker's built-in 10W transformer provides versatility by allowing use on 100V or 70V distributed loudspeaker lines, as well as at 8 ohms.

Australia: MadisonAV madisonav.com.au or 1800 00 77 80
New Zealand: JPRO www.jpro.co.nz or (09) 275 8710



JBL EON ONE MK2

The JBL EON ONE MK2 portable column PA includes a 5-channel digital mixer, comprehensive Lexicon and dbx DSP, Bluetooth 5.0 functions and full app control into a lightweight, rechargeable battery system that weighs just 19 kg. Its geometrically optimised C-shaped array of eight 2-inch tweeters works in combination with a 10-inch woofer to deliver even response down to 37 Hz. This C-shaped array provides wide horizontal dispersion and deep vertical throw that ensure loud, clear sound anywhere in the room.

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

GEAR



Green Hippo Hippotizer V4+ MK2 hardware

With five new hardware platforms, including the debut Hippotizer Mayon+ MK2, these tour-ready and install-proof systems are designed to deliver for even the most demanding productions, with up to 100% more processing power for seriously enhanced generative performance, 3D Mapping and Visualisation. With the ability to drive up to 32x 4K clips, the next generation hardware is optimised for generative playback, smooth visualization, and up to 100% improved performance with no compromise on control. Delivering on highly requested hardware features, V4+ MK2 is designed for new and emerging workflows that depend on flexibility, generative, and quality playback performance. Offering industry standard DP1.2 or HDMI 2.0 outputs and HDMI 2.0 live capture, V4+ MK2 integrates perfectly with existing and future 4K infrastructure.

Australia and New Zealand: Corsair Solutions
www.corsairsolutions.com.au
or +61 (0) 3 9005 9861

Hytera PD6 L Series

The PD6 series includes three two-way radios, the PD602, PD662, and PD682. A cost effective 'Lite' version of its highly popular PD6 series DMR radios, the L Series is 20% cheaper than a standard PD6, making it perfect for customers who don't require the Tier III connectivity of the full line. The L Series is a cost-effective commercial grade radio suitable for all types of AV and live production work.

Australia: D2N Technology Solutions
www.d2n.com.au or (02) 9837 6748



Photo Credit: AFL



BEST ON GROUND: THE 2021 AFL GRAND FINAL

by Jason Allen

The Mighty Dees weren't the only ones breaking a drought on AFL Grand Final day on September 25. The live production industry, including many techs from the locked-down Eastern states, got to lace up their boots and kick a few goals themselves.

In a first for the AFL, the creative, entertainment and tech for the Final was handled by Mushroom Group's Creative and Events division, headed by the team of Creative Producer Tom Macdonald, and Producer and Production Designer Travis Hogan along with Production Manager and Lighting Designer Simon Johnson. It was truly a national event, with companies, gear, staff and expertise supplied from both within WA and around Australia, all handled out of the AFL's spiritual home in Melbourne.

And Mushroom put on a spectacular pre-show, with Abbe May belting out AC/DC's Thunderstruck from the roof of Optus Stadium. Baker Boy gave us a Kylie mashup, and John Butler and guests the Icehouse classic Great Southern Land. Local heroes Eskimo Joe took to the stage to perform their hit Black Fingernails, Red Wine before covering INXS's Kick. Colin Hay from Men At Work beamed in from LA for Land Down

Under and Amy Manford got the honour of singing the national anthem.

The halftime show, now performed just as the sun set, saw Birds of Tokyo belt out three tracks with the Western Australian Symphony Orchestra. There were, literally, fireworks, and the famous lights cladding Optus Stadium got to show off all their colours.

So let's give credit where credit's due and get everyone involved to take a bow:

Lighting

The Grand Finals' lighting design was by Mushroom's Travis Hogan and Simon Johnson, with Andrew Krenske operating the grandMA on the day. "We needed to cater for both daylight and sunset performances, so the rig needed to be adaptable," explains Travis. "With this in mind, we curated fixtures from various companies including PRG, Novatech, and Showscreens. The flown rig was made up of 10 trusses in the roof. There

were an additional four trusses positioned as front light in the northern stands, four trusses as back light in the southern stand, and four trusses for field light. We also had some wheeled elements that were used in different positions for pre-game and halftime, which consisted of three strobe dollies and two 40 foot trusses of Robe Mega Pointes."

Lighting Rig

From PRG

12 x Bad Boy HP with colour correction wheels

From Novatech

12 x Claypaky Unico

48 x Claypaky Sharpy

4 x Tour Base Hase

From Showscreens

40 x Robe Megapoint

20 x Claypaky Sharpy

20 x Robe BMFL

36 x Claypaky Stormy

16 x GLP JDC1

16 x Elation Six bar

4 x Robert Juliat Lancelot Followspot

1 x MA Lighting grandMA2 fullsize



Photo Credit: Jarrad Seng - Mushroom Creative House



- 1 x MA Lighting grandMA2 lite
- 3 x MA Lighting grandMA NPU
- 4 x Antari F7 smazer
- plus all rigging and cabling.

Pyro

Pyro was provided by ShowFX Australia and Cardile International Fireworks with Show FX's Allan Spiegel skilfully hitting the cues. The pre-game entertainment used 21 positions for flames on the field, and 18 positions for pyro loaded with approximately 400 shots. When the players ran on, 12 positions of pyro blasted 250 shots into the air. Eight positions for flames and pyro handled the half time show, and the spectacular fireworks ending Birds of Tokyo's set were fired off of two barges in the Swan River unleashing 200 shells. Oh, and there was 20kg of confetti shot into the air during the post-game presentations.

Video

Mushroom created a large visual canvas on the field by arraying eight 6x6 metre and eight 3x3 metre ROE LED screens on the field, facing the sky. Supplied by Big Picture, the 3x3s were built from ROE MC7 panels, and the 6x6 from ROE CB5. A stage skirt was created with ROBE CB5 mounted on 45° angle.

"One of the challenges facing the video department was seamlessly integrating the built-in LED striping around the ground," adds Travis Hogan. "They had to ensure all video sources arrived at their destinations at the same time, regardless of what processing was in-line. The venue required the in-house Daktronics system to handle their advertising commitments, but the pre-game and halftime entertainment packages required disguise to take the reins. This needed to be seamless with redundant failover, so a dual Barco E2 system was installed



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in-line which tied together both systems effortlessly and reliably. disguise also looked after some playout packages going to both the house and broadcast simultaneously, requiring some fine-tuned multiple outputs to handle the delay requirements between camera and screen.”

Video

disguise media servers provided by Novatech and operated by Caleb Restall

All content created by Dave Hase from Hase Productions

Video panels, venue LED integration: Big Picture, Creative Technology

Video staging elements: Pro Stage Victoria

Audio

Optus Stadium's gigantic in-house Nexo rig was more than capable of revving the crowd up, and James 'Oysters' Kilpatrick was at the helm of the mix on an AVID S6L, going out to the crowd and to broadcast. Lewis Paton-Ryan handled monitors on a DiGiCo SD10, with a massive 164 in-ear monitor packs on the field, supplied by both local company Audio Technik and JPJ Audio.

Audio Crew

Team Leader/System Tech: Andy Walters

2IC: Clancy Travers

FOH and Broadcast Mix: James 'Oysters' Kilpatrick

Monitor Engineer: Lewis Paton-Ryan

Stadium System Tech: John Kerns

RF Coordinator: Scott Jennings

RF Wrangler: Jacob Gray

Comms Mixer: Rob Knowles

Patch Tech: Charles Logan

Stagehand/Roof guy: Ben Tarbard

Companies On the Ground in Perth

Video panels, venue LED integration: Big Picture, Creative Technology

Video staging elements: Pro Stage Victoria

Media servers, lighting fixtures, comms: Novatech

Staging, lighting fixtures: PRG

Pyro, Fireworks: ShowFX Australia, Cardile International Fireworks

Lighting, rigging, lighting control: Show Screens, CCP

Staging: Corprahire

Backline: Lounge Backline

Broadcast and on-field audio: Audio Technic

Audio performer monitoring and audio infrastructure: JPJ Audio

Content: Hase Productions, Dave Hase

East Coast Crew

Creative Producer: Tom Macdonald

Producer and Production Designer: Travis Hogan

Talent Producer: Anna Toman

Choreographer: Yvette Lee

Musical Director: Chong Lim

Production Director: Nick Pitts

Production Manager and Lighting Designer: Simon Johnson

Audio Director: James 'Oysters' Kilpatrick

Pyro Designer: Allan Spiegel

Stage Manager: Jeremy Nolan

Head of Video: Dan Aulich

Video Crew Chief: Matt Downs

Adelaide Crew

Lighting Director: Andrew Krenske

Media Server Operator: Caleb Restall

RF Tech: Rowan Lee

Comms techs: Leko Novakovic, Michael Wickens

Perth Local Crew

Assistant Production Manager: Leon Kneebone

Site Manager: Glenn Watson

Playback Tech: Andy Walters

Monitor Operator: Lewis Ryan

Lighting Crew Chief: Justin Twible



Photo Credit: Daniel Njegich - Mushroom Creative House



Demolition

Full Reconstructive Surgery for Epworth Hospital Richmond's Auditorium

by Jason Allen

There's something incredibly satisfying in being let loose to totally renovate an existing space, with permission, nay a requirement, to completely gut the thing and start again from scratch. This is what the team at Melbourne's JAK Audio Visual got to do with Richmond's

Epworth Hospital auditorium, which was suffering from a serious case of 1980s-itis.

The grand piano-shaped auditorium is an important space for the Hospital, being utilised for video conferencing, team meetings, and all-important fundraising

and donor special occasions. It was one of Epworth's donors that spurred the renovation. They weren't happy with the aging space's 80s vibes and funded the renovation with the simple observation that; "It looks terrible. Fix it."

"It was quite tired," relates JAK Audio Visual's Director, Kyle Hoppitt. "Apart from the colour palette, there were electric projection screens that didn't wind up anymore, and an AV system that had been added to and Frankenstein-ised over a couple of decades. While parts of it were new enough to re-use, like its Crestron DM-MD16X16 video matrix, the bulk of the room and its AV system needed to be ripped out and replaced."

The biggest change was removing a solid dividing wall and replacing it with retractable bifold doors, removing the old catering and storage area and effectively creating an entirely new meeting space. With this done, the auditorium can be used as one big space, or two meeting rooms. The main meeting space, effectively the 'keyboard end' of the grand piano shape, has the main screen and bigger sound system, and the secondary meeting space at the other end of the piano shape operates at right-angles to the main space.

Epson EB-L1505UHNL laser source projectors were installed at either end of the room, one for the main screen and another for the secondary. Five Sony LCD screens were mounted on the walls in between, covering everyone in the room who might need to see video, especially when the auditorium is in fundraising dinner function mode.

"The client brief was that the space had to be very flexible," outlines Kyle. "It's a true multipurpose room, not just a straight lecture hall or VC room. Aesthetics were very important as it's the Hospital's public



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INSTALLATION



Before



Before



Before

face, so it had to look impressive. Another consideration was user-friendliness. This was actually the start of Epworth’s conversion to Microsoft Teams. We worked on the project with Qtec Systems – they look after the Teams side, and we look after the AV.”

The Teams conferencing audio is handled via three Shure MXA910 ceiling tile mics, covering the entire space. Teams audio is routed to Crestron ceiling speakers driven by a Crown DC14X300DA four channel amp. Presentation audio input is from a hardwired mic in the lectern or four channels of Shure QLX-D radio mics. Audio processing is handled by a Biamp TesiraFORTÉ DSP. A Crestron control system administers every aspect of the room, with Crestron being JAK’s control system of choice.

The left-right speakers for the main and secondary presentation screens were chosen for both their full range performance and customisable aesthetics. “On the primary screen, we have a pair of Fohhn Scale-2, and on the secondary screen, Fohhn Scale-1,”

explains Kyle. “As the speech audio is routed through the ceiling speakers, the purpose of the Fohhns is playback, presentation, and media audio. We wanted high quality audio with solid low end that was also controllable. Through Fohhn’s Australian distributor, CMI Music & Audio, we got these speakers produced with RAL colour matching, so they totally blend into the wall. It was also important that their amp connect to the TesiraFORTÉ via Dante. I’m glad we went with Fohhn, as music sounds much better on the Fohhns than through comparable products, and the results needed to be sonically and aesthetically impressive.”

JAK chose a wheelchair-friendly, height adjustable lectern, which needed to be able to run from two positions, each side of the main screen. The challenge was to get minimum cabling into two separate floor boxes, and automate lighting and control as it moved. With the Crestron video matrix running HDBaseT, JAK used the video sync on two of its inputs to detect which position

the lectern is plugged into. The control system and a Crestron dimmer then fades up one of two ETC Source4 Fresnels as appropriate, ensuring the presenter has good light for VC. Dante handles the lectern microphone via a Shure A/D converter and Dante adapter, and USB over IP is included for presenters and video conferencers to utilise their BYOD functionality if they don’t want to use Teams.

Finished off with multiple Crestron touch screens dotted around the space and in the lecterns, Screen Techniks projector lifts, and side-tensioned electric screens, the Epworth Hospital Richmond’s auditorium has made a full recovery from its reconstructive surgery, and will be hosting, educating, and fundraising for years to come.



After



After



After



VISIONARY SOLUTION

The 2,000 Endpoint AVoIP Installation at Resorts World Las Vegas

Resorts World Las Vegas is more than just the first ground-up resort to be built on the Las Vegas Strip in over a decade; it marks the beginning of a new era for a constantly evolving city. The near 88-acre property sits on the grounds of the former Stardust Resort and Casino, boasting 3,506 guest rooms and suites in three distinct hotels, over 40 world-class food and beverage outlets, a 5,000-capacity theatre, a two-story dining and retail promenade and state-of-the-art connectivity with an AVoIP system featuring Visionary-powered networked audio and video.

“Resorts World Las Vegas has built what is probably the largest AV-over-IP network of its kind,” reports Scott Freshman, chief operating officer for Visionary. “It encompasses almost every portion of the property, with more than 2,000 end points and growing. The size and

scope of the project brought together multiple AV integrators, each of whom took on specific areas of the massive venture. It’s unique to have this many integrators who were once competitors coming together to put this wonderful project together.”

Technology West Group of Las Vegas was selected to oversee the project, including designing and implementing the overall AV system and property-wide network specifications. Richard Reisig, vice president for Technology West Group, worked directly with Resorts World Las Vegas to facilitate the design of the low-rise section (known as “the podium”), the west tower, The District and all outdoor areas. “A critical component in a network AV system is the network. The network at Resorts World Las Vegas includes over 2,000 PacketAV endpoints and 2,000 Q-LAN channels,” said Reisig. “The number of endpoints continues to grow as we build out the system. It’s a very large, purpose-built network designed to supply one gigabit of non-blocking bandwidth, end to end, to any location on the property with less than a millisecond of latency.”

“Technology West Group was chosen for the design phase and, at the time, the project was very fluid,” noted Reisig. “The final piece in the design was selecting a video solution. We chose a network-based video solution because Resorts World Las Vegas wanted to connect anything on the property to any location. Ultimately, we selected Visionary because they provided us with a reliable solution that filled each of the gaps. A key

INTERNATIONAL

reason we selected Visionary was because of their robust network capabilities.”

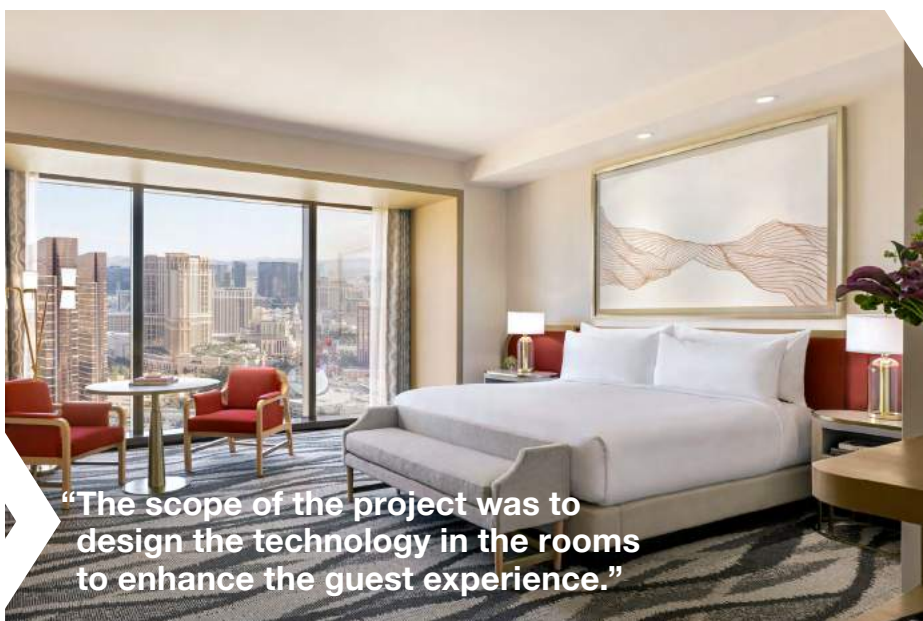
Unique to Visionary, the PacketAV endpoints offer internal device VLAN tagging. Due to the complexity of the network and the different protocols, including video, Q-LAN, Dante, AES67, DMX and control, it becomes critical to segregate the traffic for effective network management. Reisig added, “With the size and complexity of the network, VLAN tagging was critical for us. Especially at the scale that we’re hitting, you can’t have 2,000 devices on a single VLAN network and just hope it works.”

In another significant milestone for the project, Visionary rose to the occasion to create an innovative Bluetooth-enabled wall plate encoder implemented throughout the system. Reisig explains, “Visionary had an HDMI wall plate encoder with VLAN tagging. We reached out to Visionary and said, ‘that’s great, but we don’t need analog audio; instead, we need Bluetooth.’ Visionary was very collaborative; they jumped in and offered to make us a custom wall plate that incorporated Bluetooth audio. Their flexibility changed the game for us. It enabled us to reduce port counts, switches, power consumption and overall costs by integrating two distinct products into one.”

Visionary’s PacketAV Duet Wall Plate Encoder with Bluetooth is the first of its kind. The Duet Wall Plate Encoder combines powerful 4K UHD video and Dante/AES67 audio embedding and de-embedding over a single gigabit Ethernet port. Using Bluetooth 5.0 for extended range, faster data throughput and reliable connections, the Duet Wall Plate Encoder supports bi-directional smartphone connectivity for soft-codec web conferencing AV integration to eliminate the need for separate bridging hardware.

The new \$4.3 billion property was developed to bring an elevated experience to the modern Las Vegas traveller seeking luxury, value and variety. To provide unparalleled connectivity, Resorts World Las Vegas was designed as one of the largest AV integrations on the Strip. Resorts World Las Vegas can transmit a signal from anywhere on the premises and distribute it to the 100,000-square-foot LED screen (recognized as one of the largest LED building displays in the United States), the theatre, the casino or anywhere else on the property, and vice-versa. All this making the guest experience at Resorts World Las Vegas the most technologically advanced offered anywhere.

Each guest room in the resort’s three hotel brands — Las Vegas Hilton, Conrad Las Vegas and Crockfords Las Vegas — features an intuitive AV system designed by One Touch Living. “The scope of the project was to design the technology in the rooms to enhance the guest experience,” said Corey Brushia, president of One Touch Living. “Our goal was to create an environment that enables guests to interact with the rooms and



“The scope of the project was to design the technology in the rooms to enhance the guest experience.”

the property. Visionary eliminated the need for a conventional HDBaseT matrix. Visionary allowed us to network from anywhere to anywhere. For example, we can take content from an executive suite, connect it with a meeting room or ballroom, or stream a special event into a villa. The possibilities are endless.”

National Technology Associates, a Las Vegas-based technology integrator, was selected for the integration in the resort’s first-floor common areas, including the hotel lobbies, registration, casino and gaming areas and underground levels. Shane Snell, project manager for National Technology Associates, said, “One of the largest challenges of this project was the scale. The property has nearly 2,000 video end points and thousands of loudspeaker channels. I’m not sure it’s possible to distribute those components in any way other than networking. Every system can now reach each other because the audio and video integration are on the same network. We’ve standardised Visionary and QSC to streamline the communication

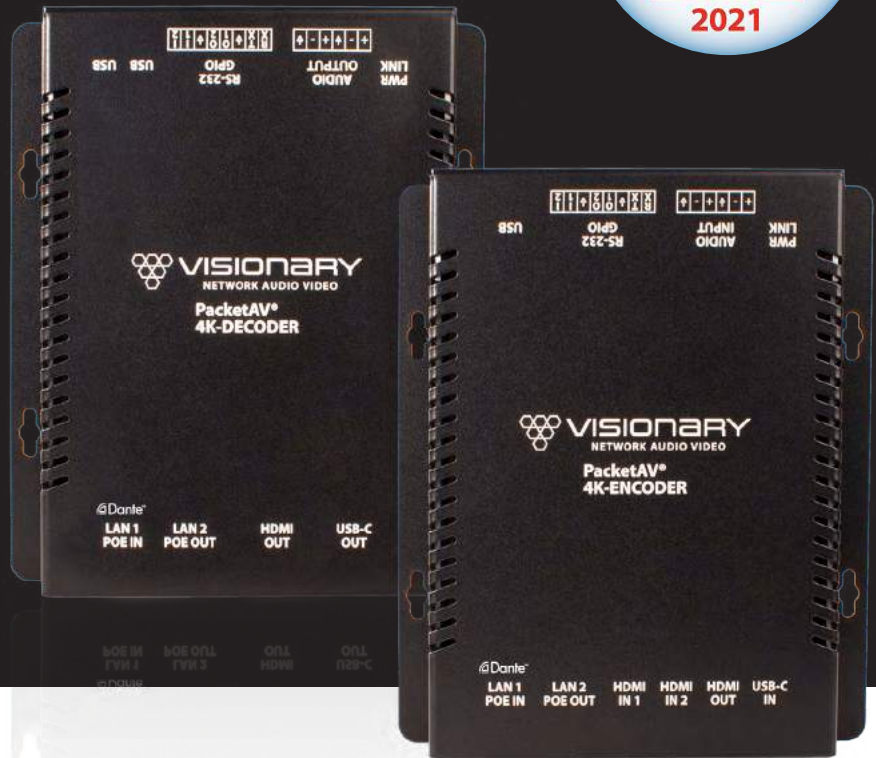
between the technology components.”

Resorts World Las Vegas features a state-of-the-art, 5,000-capacity immersive theatre. Global music stars Celine Dion, Carrie Underwood, Katy Perry and Luke Bryan will become the founding headliners for the venue. Scéno Plus, a Montreal-based theatre design firm, was enlisted to create the design, and Solotech was selected for the technology integration. François Blais, vice president of technology and specialised equipment for Scéno Plus, said, “We have worked for 35 years to build theatres around the world. As theatre designers, our job is to make sure that everything is coordinated. We want artists to perform in this venue and say to us, ‘This is one of the finest venues we’ve ever played, and we want to return again.’ Visionary enabled us to rapidly and efficiently manage this large-scale installation.”

Sébastien Larose, AV designer for Scéno Plus, adds “We have over 150 televisions in the theatres. The ability to put the content onto the network and run a single CAT5 cable allows us to simplify the system. We

Duet 2 Encoder & Decoder

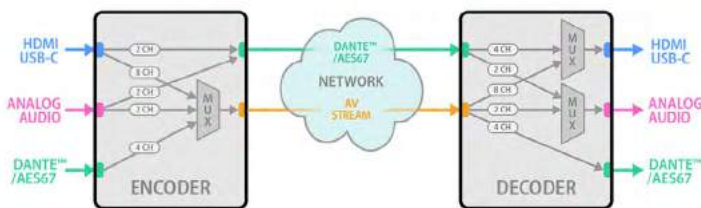
POE, 4K UHD over IP cinema quality ultra-low latency visually lossless switch matrix routable encoder and decoder with Dante™/AES67 audio & USB-C Connectivity



How it works

An encoder is connected to an AV source signal [HDMI], [a camera, STB, media player, PC or Server, BluRay player, or digital signage player, etc.]. The signal is converted into a packetized network stream that's compatible with off-the-shelf IGMP enabled Gigabit Ethernet [GbE] switches. Using existing Cat5e/6 infrastructure, users can connect Cat5e/6 to any decoder anywhere on the same GbE network. The decoder takes the IP packets received over Cat5e/6 cables, converts them back into an HDMI signal connecting directly to a display, delivering visually lossless video along with RS232 controls. Any signal from any encoder can be sent to any decoder on the same network.

DUET 2 Audio Workflow



Control

- 3rd Party Control Drivers Crestron, QSC, Symetrix, RTI, etc.
- API providing access to the full range of features on the encoders and decoders offered to qualified System Integrators



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have Visionary endpoints almost everywhere because Visionary allows us to take a signal from any location and transmit it to anywhere on the property.”

Solotech was selected for the design-build for Resorts World Las Vegas’s Zouk Nightclub, Ayu Dayclub and the accompanying restaurants and lounges. “We have a mixture of displays throughout the restaurants, cabanas and bungalows in the dayclub and nightclub. We’ve integrated Visionary’s endpoints in all of those areas to enable simplified control for the guest to choose between sources and have content delivered to those endpoints,” explained Aaron Beck, business development manager for Solotech. “The overall capability for Visionary to deliver the technology for these endpoints to be connected on one global network is incredibly impressive.”

Visionary’s efficient endpoints use standard PoE power. This distinguishing feature ties directly into Resorts World Las Vegas’s sustainability initiatives. “Resorts World Las Vegas is focused on corporate social responsibility efforts that allow both the community and the environment to win,” noted Reisig. “We can use fewer products with Visionary’s Duet Wall Plate Encoder because it integrates multiple solutions into one. The solution also utilises significantly less power than the competition because it runs off standard PoE.”

Snell added, “From a design and engineering perspective, standard PoE makes things very easy, whereas things that require PoE+ or even PoE++ makes it very difficult to work with. It adds an additional layer of cost and maintenance.” By integrating standard PoE power, Resorts World Las Vegas can reduce energy consumption and the correlated environmental impacts along with the added benefit of saving tens of thousands of dollars per year, for the life of the project.

Being the first resort built on the Strip in over a decade, Resorts World Las Vegas has a natural advantage to create the most technologically advanced resort experience in the city. Visionary’s AV-over-IP technology has enabled Resorts World Las Vegas to achieve total flexibility to perform any video and audio routing. Visionary’s standard PoE, a technology unavailable ten years ago, has enabled Resorts World Las Vegas to deploy this immense networked AV matrix at a fraction of the cost of traditional AV distribution methods. There are no matrix switchers anywhere on the property - they do not exist at Resorts World.

For more information on Visionary, please visit vsicam.com

Distributor Australia and New Zealand: www.pavt.com.au





An Evening with Michael Bublé Tour. Photo credit: Jay Blakesberg

Spacemap Go Makes for Smooth Moves by Michael Bublé

The North American leg of ‘An Evening with Michael Bublé’ tour resumed in August, enthraling fans with 23 shows in A-level arenas through late October. The tour continues to rely on a Meyer Sound reinforcement system as provided by global production company Solotech, and once again the massive system is deployed in a novel ‘dual hybrid’ configuration comprising both typical end-stage arrays as well as centre-hung arrays over the B-stage that essentially function as an in-the-round system.

What’s new this time around is the introduction of the Spacemap Go spatial sound design and live mixing tool, which smoothly and transparently tracks Bublé’s voice as he strolls between the two stages, maintaining precise aural localisation at all seats with synchronised, incremental changes in level and delay across multiple loudspeaker arrays.

“We came up with the basic solution late in 2018 because Michael wanted to eliminate the distracting delay between his in-ear monitors and the main arrays when he moved out to the B-stage,” explains tour FOH Engineer Craig Doubet. “Spacemap Go was still in development at the time, so working with Meyer Sound we pieced together an interim solution using custom hardware and

software. It worked, but now with Spacemap Go it is easier to use and the imaging is more consistent as Michael moves down the catwalk.”

Spacemap Go employs a free iPad app for wireless access to all level and delay functions of the GALAXY Network Platform. Working with an intuitive touchscreen interface, users can dynamically move sounds in three dimensions, with spatial sound mapping scalable from recording studios up to large arenas.

“With Spacemap Go, everything has been streamlined, which enables us to have more customisation of the process,” continues Doubet. “For example, now the delay functions are fully integrated with the panning. Before, we had to do a manual switch when Michael moved along the catwalk. Now we have incrementally stepped delay changes following the level panning as Michael moves toward the B-stage, all under real-time fingertip control.”

The power of Spacemap Go ensures that the aural imaging will translate accurately in all seating areas, as explained by Meyer Sound Technical Support Specialist Josh Dorn-Fehrmann, who assisted in the programming.

“Craig wanted to make sure the audience at the extreme sides would experience

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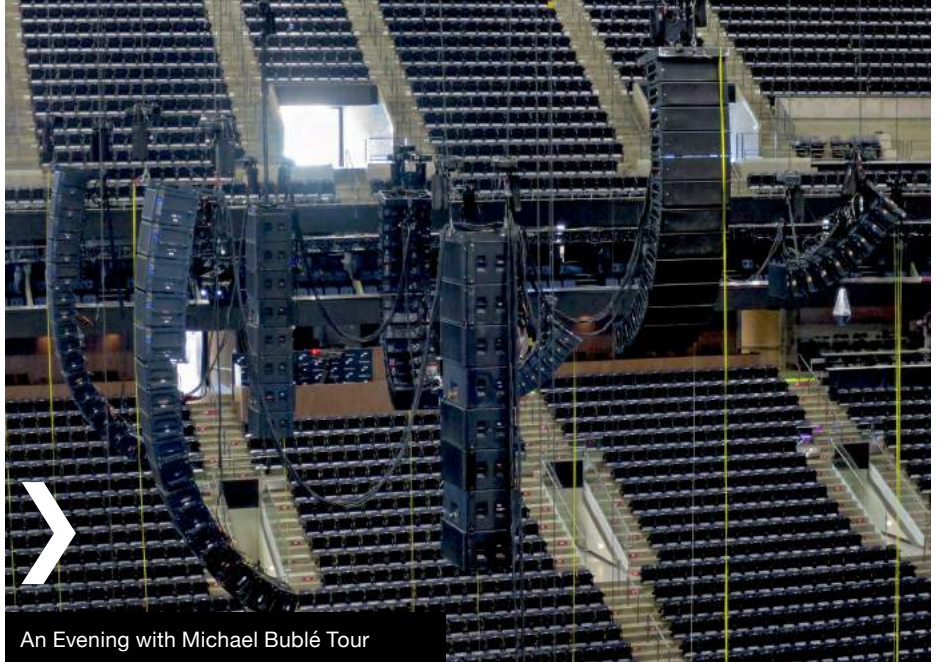
this effect. So as Michael walks toward the B-stage we use Spacemap Go to crossfade across five different GALAXY outputs with varying delay times. The delay times change smoothly without artifacts and allow the audience covered by the side fills of the main stage to accurately image Michael's voice as he moves away."

"For the audience it's a beautiful thing," says Craig Doubet. "When Michael is moving, his voice tracks his position, and when he's at the B-stage his voice is anchored there for everybody. That's important because Michael wants that sense of intimacy and presence to connect with his audience. You don't get that strange disconnect that happens when he's right in front of you and his voice is coming from far away arrays."

Two GALAXY 816 Network Platforms at the system's front-end control Spacemap Go functions, connecting via Milan AVB to nine GALAXY processors dedicated to loudspeaker processing.

The four main stage arrays deploy a total of 60 LEO and LYON line array loudspeakers along with 12 1100-LFC and four 900-LFC low-frequency control elements. Front fills are eight MINA and two JM-1P loudspeakers.

The centre-hung arrays function as a massive delay cluster when Bublé is on the main stage and becomes the primary system when he moves to the B-stage. This system comprises ten LEO and 52 MICA line array loudspeakers, plus stage-facing arrays with 16 LEOPARD



An Evening with Michael Bublé Tour

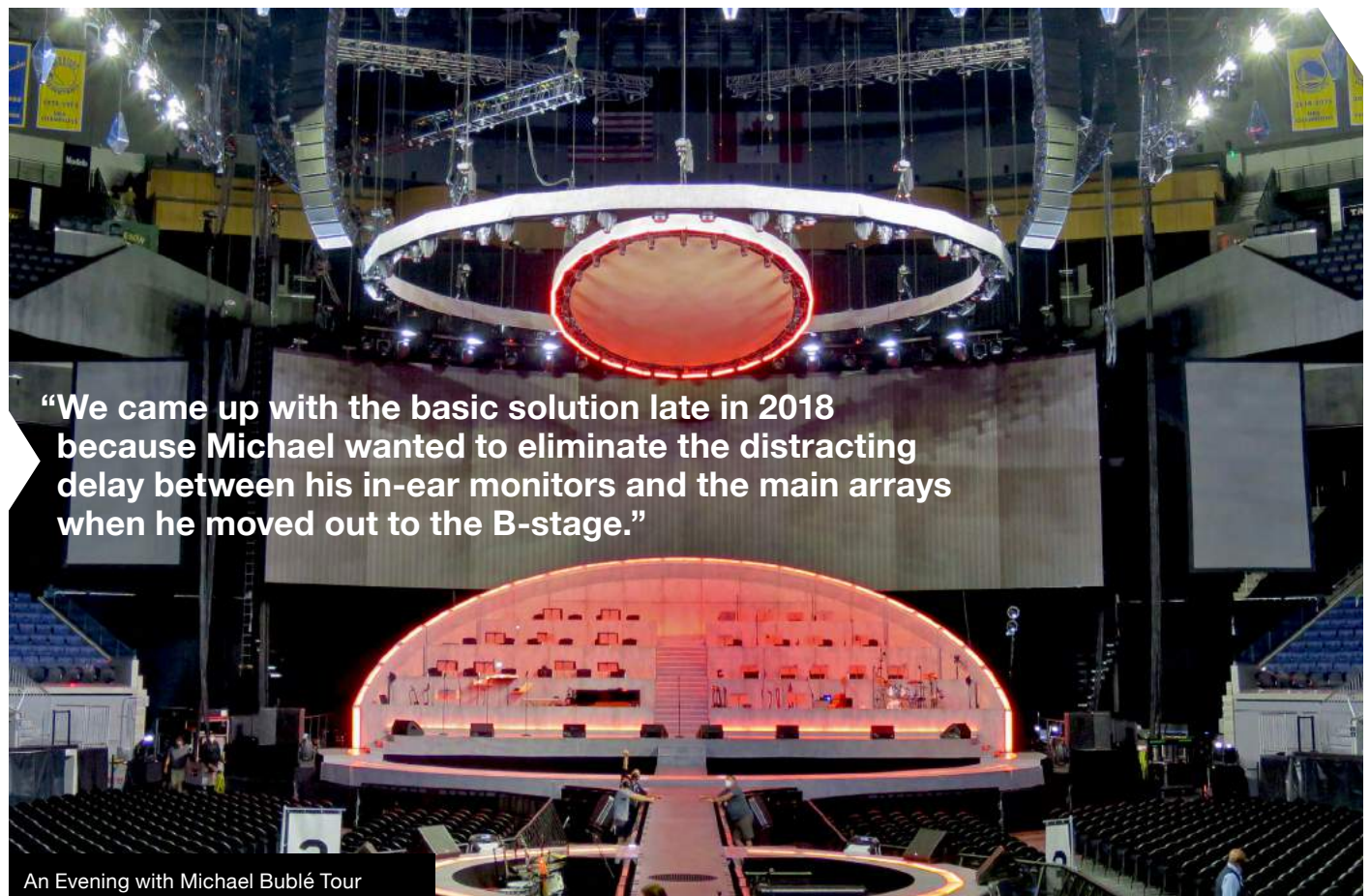
line array loudspeakers active only when Bublé is underneath on the B-stage. The B-stage system also includes 12 700-HP subwoofers, two 900-LFC elements and seven MINA loudspeakers for front fill. As has been the case for more than a decade, the Bublé tour system was supplied by Solotech.

"The Spacemap Go solution itself is extremely cost-effective," notes Doubet, "but in this application there's no way around the fact that we are carrying a lot more PA to make it work. I'm not sure to what extent other acts will adopt it, but Michael thinks it's worth it to have that intimate audience connection and annoyance-free monitoring everywhere he goes."

While Doubet focuses on his mix, operation of the Spacemap Go transitions is handled by Systems Engineer Fred Cantin. Other key team members are Production Manager Craig Finley and Monitor Engineers Marc Depratto and Renato Petruzzello.



Spacemap Go



"We came up with the basic solution late in 2018 because Michael wanted to eliminate the distracting delay between his in-ear monitors and the main arrays when he moved out to the B-stage."

An Evening with Michael Bublé Tour



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TENDERS, BROADER OUTCOMES AND SMES

Demonstrating how your business adds public value

by Jenny Barrett

If you have downloaded a request for tender (RFT) from a government body in the last few months from GETs, chances are you will have come across the term 'Broader Outcomes'. The Government Procurement Rules (4th edition) were released back in October 2019 and have gradually been adopted by Government agencies and more recently by regional and local councils. Today if you are tendering for a national, regional or local government project you should expect to be evaluated on your environmental, social, economic and cultural contribution to society, either as a percentage or in some cases as a simple Pass/Fail.

It may have been on your to do list back when it was announced, or it may have slipped your notice what with it being a pretty hairy year for small to medium sized businesses. Now as some of us are again twiddling our thumbs in various levels of lockdown, it could be a good time to put a 'Broader Outcomes' plan in place.

What are the 'Broader Outcomes'?

They might be extra work, but they are not bad for New Zealand business and may mark a step away from lowest conforming (cheapest wins). They stem from four priority

outcomes for government procurement defined back in 2018: to increase New Zealand businesses' access to Government procurement; to increase the size and skill of the domestic construction sector workforce and provide employment opportunities to targeted groups; to increase conditions for workers and future-proof the ability of New Zealand business to trade; to support the transition to a net zero emissions economy, and assist the Government to meet its goal of a significant reduction in waste by 2020.

Rather than solely looking at value for money as in previous editions of the Government

Procurement Rules, the Government is factoring in public value. When you open an RFT this usually appears under headings such as 'broader outcomes' or 'social procurement' and is divided further into environmental, sustainable, economic, social and cultural, varying from one agency to another as to what exactly each means and encompasses.

Environmental/sustainable

Whatever the heading you can expect requests for environmental certificates such as ISO14001 or environmental policies, nothing new there. However increasingly you will also see requests for sustainability credentials not only for your business but for your products and services, even copies of product labels. Depending on the type of tender you can also see requests for initiatives around product composition or end of life disposal options. You will also be expected to provide information on any carbon reduction initiatives to reduce emissions or the carbon intensity of your products. For example, Auckland Council's targets are halving emissions by 2030 and reaching net zero emissions by 2050 and zero waste by 2040, and in their RFTs they want to know how you will contribute to that. Now is the time to identify what you as a business are doing and importantly how you are measuring your progress. Being able to add in statistics such as numbers of vehicles converted to hybrid etc. provides hard evidence and will score you points over well intentioned waffle. Also contact your suppliers and collate their policies and targets for carbon reduction and waste minimization to demonstrate your commitment further down the supply chain.

Economic: employing targeted workers

There's a couple of new information requests appearing under the heading 'economic'. Firstly, they want to know what you are doing about employing targeted workers. Two new rules were added effective 1 October 2021, "When procuring goods, services or works, agencies must consider how they can create quality employment opportunities, particularly for displaced workers and groups with traditionally high rates of unemployment or low labour force participation (specifically women, Māori, Pacific peoples, disabled people and youth)." The other rule called for monitoring and reporting on the creation of these quality employment opportunities.

Possible responses could include details of any Equal Opportunities Policy you adhere to, if you have won any awards for diversity, the breakdown of your staff by ethnicity and gender, and any targets you may have or initiatives you are implementing for improving diversity such as adapting recruitment procedures. Again statistics count. For smaller businesses, highlight a story. For example, talk about an apprentice from a targeted group who you have supported into permanent employment. Use names, photos and a quote and it will stand out amongst the generic blurb that your competitors are copy and pasting.

Economic: support for local business

The other new focus that appears under the heading 'economic' is support for local businesses. Different agencies want very different outcomes here. Some local councils or agencies may be tapping into the Provincial Growth Fund or similar, so are looking for any trickle down to local businesses. Include in your Response any spend on fuel, accommodation, hire equipment, or other local services that you may utilize in the course of delivering the project. Also list any local subcontractors you will use and any long-term benefits to that company, such as upskilling their staff in the course of the project delivery.

Other agencies may be specifically looking for Māori and Pasifika businesses, or businesses who work with Māori and Pasifika companies. Auckland Council, for example, has two targets to encourage diversity: 5% of the value of all direct contracts to be awarded to diverse suppliers and 15% of the total subcontract value to be awarded to Māori and/or Pasifika businesses or social enterprises. If your organisation is 50% Māori or Pasifika owned you should apply for certification through Amotai, an intermediary that links buyers with Māori and Pasifika suppliers. If your business wants to grow its diversity, again access Amotai to find appropriate suppliers and subcontractors that you could work with on the project. If you have done anything to support a Māori or Pasifika business such as upskilling a subcontractor, document it and evidence your commitment.

Social and Cultural

Here the tenderer is looking for evidence that the business / project demonstrates good social and cultural practices. There have been requests for evidence of how an organisation gives back to a community for the last few years, and companies have cited sponsorship and community service. Now the waters are a bit muddier with tenderers using these headings to ask for information on employee health and well-being programmes or the use of Te Reo or Tikanga on the proposed project. As always, hard evidence counts over unsubstantiated claims, so photos of social activities, step challenges, activities to promote mental health awareness week, Te Reo signage or Maori customs being observed should be collated.

Scoring highly on Broader Outcomes is no different to getting points for Relevant Experience, Track Record or Key Personnel. It is all about ongoing collation of information and not leaving it until the day after you see an opportunity with your name on it pop up on GETS. Start compiling today.

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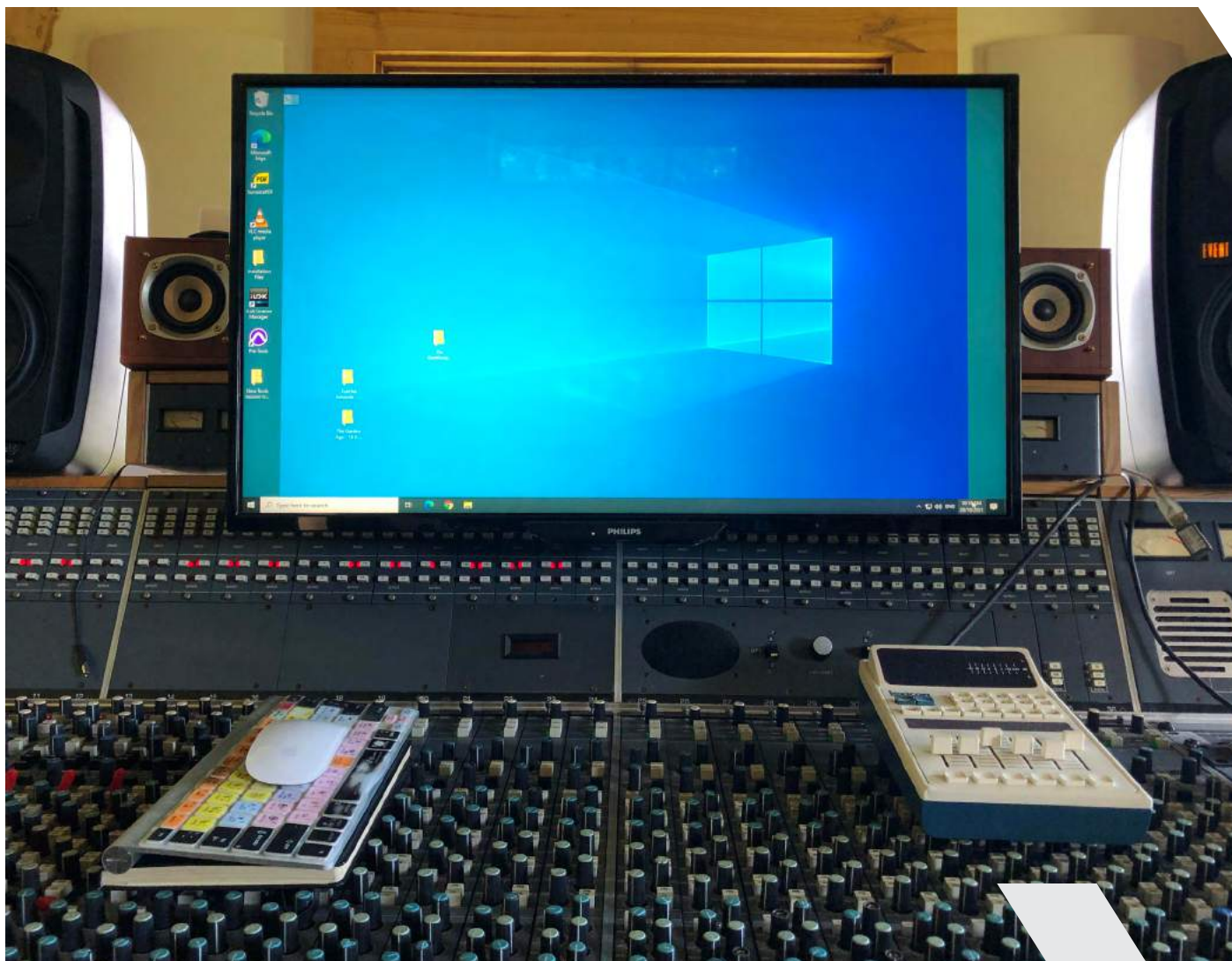
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CAN'T LIVE WITH IT, CAN'T LIVE WITHOUT IT

by Andy Stewart

If ever there was something we have a love-hate relationship with, it's software. One minute it's the saviour of our audio productions, the next it's the digital pariah come to destroy everything we hold dear. Like the rest of our audio equipment, we just want our software to work, seamlessly and without complaint. When it does that, it's incredible. But when it doesn't...

There's one word that trumps all others when it comes to audio, and that's 'reliability.' We want the things we use every day to work predictably and flawlessly, every time. Sure, we also want everything to sound incredible, and if something sounds like crap here at The Mill, I'm the first person to put it in the studio's proprietary slingshot and launch it down the paddock into the dam... or just sell it on Marketplace.

But the same rule applies when something is unreliable. If a piece of gear gives me grief during a recording, mixing or mastering session, especially when there are clients present, it's straight to the slingshot we go.

Soft To The Core

And of all the key components that form the basis of our recording, mixing and mastering studios, possibly the most critically important and potentially fraught element is the computer and its attendant software. The same is true of most PA setups, which typically have a computer running the show... often cunningly disguised as a mixing console.

When something goes awry in the digital domain in any of these audio environments, it usually has a catastrophic impact on the gig. If a mic gets noisy or a stand falls apart the world doesn't end. The show goes on and we swap it out in no time flat. But a computer crashing repeatedly or a console going down? That is always the epitome of a bad day at the office.

It's for this reason that I've generally been someone who prefers to 'freeze' my studio's computer (OS and audio software) the moment I'm happy with the setup. I want reliability first and foremost, so the moment I feel happy with how my DAW is behaving (which for me is Pro Tools), I'll generally stick with it for a while (too long, many would say) until circumstances force my hand. I'm not a computer expert, not by a long shot. So, if my studio computer is working reliably, I don't want me, or anyone else for that matter, changing it!

The downside of this approach has always been that because computer software and hardware tend to date like white bread, things grow old fast, and compatibility issues with the outside world inevitably creep in.

Out With The Old

A perfect example of this has been my studio's main computer, which coincidentally was only replaced last week. Up until then I'd been running an old Mac, an old version of Pro Tools, Izotope's RX Advanced, the occasional session via Abelton, Logic or Reaper and a small mountain of software plug-ins. It's no exaggeration to say that I've almost literally run this computer into the ground! The only significant upgrades the machine has enjoyed were new SSD hard drives, which kept the machine viable for another couple of years.

Apart from that, essentially the machine has been frozen in time since the Jurassic period, primarily due to my obsession with reliability, but then later, because things had grown so old that new software was no longer even compatible with my OS. So even if I had wanted to upgrade certain key software elements, I couldn't. Well, not easily at least. Too much time had elapsed.

Software and hardware incompatibility is like fast-paced continental drift; you don't see it occurring, but it's relentless and unstoppable, further exacerbated by the fact that software generally grows more unreliable along the way. Eventually that once-rock-solid machine

that you took so much pride in and protected like your progeny from external, corrupting influences, becomes an idiosyncratic has-been. I guess, eventually, we all do.

So recently the dam finally broke. The pressure to upgrade my system to accommodate the increasingly long list of things I'd resisted buying for months - Pro Tools 2021, the new RX 9, and a host of new plug-ins - was finally too much for me to bear. Not to mention that my DAW, several browsers, 1000 plug-ins, and even Dropbox were telling me that I couldn't upgrade anything until I'd updated my OS!

To put it mildly, the change had been long overdue.

The Divorce

So, there I was (about 12 months ago now), confronted with the reality of buying another new Mac from a company that frankly I've grown to viscerally loathe over the last decade or so. Apple cares not one jot about me or my business it seems, or yours for that matter, as its specs, prices and attitude to standards of connectivity self-evidently prove.

At the same time as this, I was made acutely aware of the potential benefits of transferring my allegiance to the other mob; PC. The arguments for this change, from colleagues for whom I had the utmost respect, were compelling to say the least. Speed, storage, and cost were all vastly superior when compared to the latest Mac.

So, in a perverse exercise designed to help me 'break up' with Apple once and for all, I went to that company's site and spec'd out a new studio machine. I chose the various components from its Mac Pro feature list to suit my future requirements without going too overboard on hard drive sizes or RAM upgrades, but nor did I try to cut corners off the machine's fundamental capacity. The price: \$63,500! Just ridiculous.

So after some very patient handholding from a couple of friends, for whom a PC fits like an old pair of boots, and upon whose help I was utterly reliant, I took the plunge.

I am now the proud owner of a stonkingly fast AMD Ryzen 9-based PC running Windows 10, Pro Tools 2021.7 Ultimate (which is just fantastic), and a host of new plug-ins.

The third-party plug-ins list is sure to grow, but the key brands I've already installed are familiar to me (since I use them every day): the Ultimate Pro Tools Suite, FabFilter, Soundtoys, NUGEN Audio, Lexicon, McDSP and a host of others too long to list here. Many others that I've previously owned on the Mac will probably be lost, I suspect, in the migration across to PC, unless I make a concerted effort to chase down the upgrades. Whether I get to them all remains to be seen. In some ways I'm more concerned with chasing new stuff; Valhalla, Clearmountain's Domain, and Universal Audio (which I used to own), than reinstating a mountain of old stuff,

many products among which I barely knew I even had, let alone used.

Migration Path

A word on the changeover from Mac to PC is probably worthwhile here before I sign off.

This was something I debated endlessly over the last 12 months, wringing my hands over it nightly, thinking the exercise would be tedious at best, or a total nightmare at worst. Instead, the whole exercise has been a bit like the Millennium Bug (if anyone remembers that) - a complete non-issue. The changeover has been a piece of cake. With help from mates, of course.

Working on the PC instead of the Mac involves only a few very basic rudimentary changes to your workflow and key commands, which anyone can understand in about five minutes. After that it's pretty much an identical process. I had envisaged endless roadblocks and a maze of confusion from the Windows platform; lost folders, missing files, that sort of thing, none of which has been borne out. It's been a complete non-event. I only wish I'd realised that four years ago!

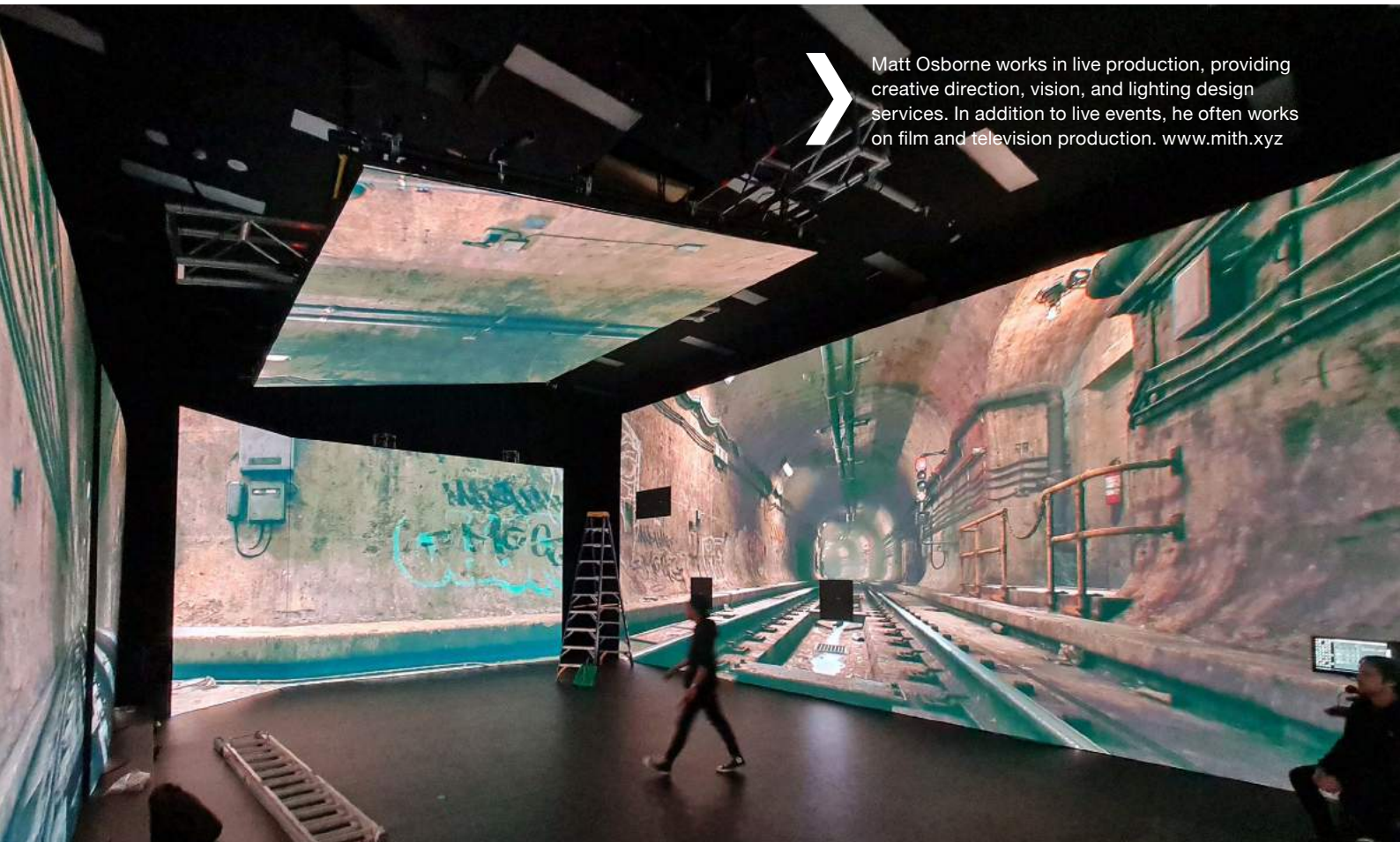
So, if you're a Mac guy limping along with an old Mac Pro, trying to squeeze every last drop out of your decade-old machine, do yourself a favour and ditch it once and for all. The very idea that you need to maintain such an old clunker should be evidence enough of how unsupportive Apple are of the work you do. Worrying about the prospect of going over to the Dark Side is a pointless exercise; don't let it trouble you. The new PCs are like greased lightning. They're about 10 times better value for money in the first place, then endlessly upgradable so you never have to feel like a dinosaur again. All around you are support mechanisms and options galore, and after you cross over, if you're like me, you'll wonder what the hell you were doing staying loyal to a company like Apple.

While the switch might seem brave, or even foolhardy beforehand, in truth it's an economically rational, technically superior choice that you won't regret.

Good luck!



Andy Stewart owns and operates The Mill studio in Victoria, a world-class production, mixing and mastering facility. He's happy to respond to any pleas for pro audio help... contact him at: andy@themillstudio.com.au or visit: www.themillstudio.com.au



Matt Osborne works in live production, providing creative direction, vision, and lighting design services. In addition to live events, he often works on film and television production. www.mith.xyz

THE UNREAL TRUTH

by Matt Osborne

Part 1 – The Illusion

Like a lot of people in the live events industry with nothing better to do during the pandemic, I dived head-first into the real-time virtual production world. It's been well over a year now, as I reflect back on my experiences.

Virtual production and real-time graphics have been around for a long time, but the rapid increase in GPU power has helped this grow exponentially over the past few years. Real-time rendering is the backbone of live video, media servers, and VJ software. The sudden boom was a perfect storm created by two industry giants, Disney and Unreal Engine (Epic Games), combined with the sudden pause of live events, leaving mountains of LED screens idle, and technicians with nothing better to do.

By now, almost everyone has seen the behind-the-scenes videos from *The Mandalorian*. I'm sure anyone else who has actually worked in Unreal Engine will agree, the promotional videos are very well produced marketing videos, and the actual experience is far from the magic insinuated. That's not to say it's not amazing. Unreal Engine is incredible and by far the leader in real-time realistic rendering, and very close to magic. But it doesn't 'just work'. There is a lot involved in getting it running smoothly, and even then there will still be hiccups.

I think we have reached a strange tipping point where people's expectations have exceeded current computer's actual abilities. Computers are light years ahead of their capabilities compared to 10 years ago, but with all the attention around AI, machine learning and real-time rendering, many people now assume computers can perform any task instantly, especially those magical machines in the cloud that can produce answers in milliseconds. However, that is far from true. In fact, computing limitations are the only reason we have any security online.

Anyone working in the 3D rendering world will agree the new generation of render engines are game-changing. The problem is the people who have suddenly entered this space who have not had to suffer through hours of rendering for a couple of frames. There was a sudden influx of people who thought they understood this world because they have worked in film, thanks to the videos they had seen. They are very familiar with video editing tools like Final Cut and After Effects, and so for many this was their expectation of Unreal as a software, not understanding that Unreal

is a development environment and not an end-user application like traditional editors.

I had been playing with Notch and a virtual set system for a few years and Unreal had always been in the back of my mind, but I hadn't really looked into it, as the thought of learning yet another system was daunting. But I was approached when lockdowns became serious and offered free reign over a large amount of LED, a studio space, and some pretty powerful computers. So along with a rag-tag group of live events orphans, we began playing with Unreal Engine, and surprisingly we got some good results very quickly.

We had Unreal driving the LED volume with some basic environments and camera tracking working with a Vive VR system which we hacked to send position data to Unreal. This was early on, and we felt like we were on top of the world. We were solving problems rapidly and although the environments were basic, everything was working in principle. It was an amazing proof of concept.

This is the honeymoon period where you get over the first hurdle of seeing Unreal as a foreign new system, and develop a sound understanding very quickly. And just before you realise just how deep of a rabbit hole Unreal actually is. Then things slow down, and I'm sure many others went through a similar form of Unreal depression after their initial high.

We also met a lot of Unreal experts from the game development world who quickly realised there was a whole side of Unreal they hadn't encountered. They tried to open projects they had spent weeks working on only to find they didn't work with nDisplay, Unreal's system for distributed rendering for LED screens. This was met with frustration, as they looked to us to fix the issues, but they were far more experienced with Unreal. When it came to their projects, we had no idea where to begin, whilst they had never even heard of nDisplay or any of the virtual production tools in Unreal.

A few people came to check out what we were playing with, and this is where our path really changed. There were two people in particular. One had spent decades in the film industry but never really found his place. He sees himself as a director, cinematographer, acting coach, and sound engineer. Let's call him Jack.

And another who is constantly trying to launch the next big start up. He knows all the tech buzz words and can drop enough jargon to sound like he knows something. With a track record of abandoned websites filled with marketing slogans and stock images, he seemed to have a lot of projects on the go, but it became apparent these were all the same. He'd talk about quantum networking, Python, and skunkworks, as long as he kept talking he'd create the illusion of progress. Let's call him Mark.

Once these two got involved our dynamic changed. Our open collaborative team was

suddenly given direction. For some this was exciting. All of a sudden, Mark showed up with a presentation about the new company we all were apparently now operating under and how things were going to be big, venture capital seed funding, blah blah...

Mark mentioned at some point there would be NDAs imposed. A very clever ploy on his part. By not actually imposing them as signed contracts but by alluding to them in the future, he was able to get us to work under a shield of secrecy without any formal agreement, which means he could slip out of any future threat of ownership or financial responsibility.

Jack treated this as his way to finally make it big in the film world he had spent most of his life struggling to find his place in. He was able to book meetings with big players who had never heard of him, and they actually listened to him because he was involved in the next big thing.

These two became a toxic combination. Mark saw Unreal as something he could white label as custom software and sell off as a proprietary system. His technical understanding saw it as a programming language which you could write into a custom application.

Jack saw Unreal as something like After Effects; a piece of software for film editing with real time abilities, similar to chroma keying. He expected it to just work, and if there was a glitch, you can just restart the program. Unreal exists somewhere between these two paradigms, and doesn't fit into either mind-set.

Despite my attempts to explain this, neither were actually interested in Unreal Engine. I sent them countless videos and tried to show them. But The Mandalorian demo was all they needed to go out into the industry and pretend they knew what they were talking about. Neither of them ever took the time to look at how the system actually worked, yet believed themselves more than qualified to educate the industry.

We continued to work for free, as having access to these toys was still exciting. And despite the frustrations of 'upper management' we enjoyed working with each other and saw some potential in what we were doing.

But their constant pressure and outlandish promises really started to affect us. They were booking a constant stream of industry demos and we would sit there in silence as they rattled off meaningless jargon and impossible promises.

They were lucky masks were mandatory as none of us could keep a poker face through their insane promises and gross misunderstanding of the technology. "You can be anywhere in the world instantly. You want Paris, we can give you Paris in seconds. This is the end of green screen. We've done the math, this saves productions 75%. You can shoot a whole feature film here. You don't need lighting anymore, it all comes from the screens. You can buy any environment you need from the marketplace and create a full world without the usual team of 3D artists."

They really didn't understand the limitations, and they were constantly pushing to have all the features shown in The Mandalorian promos, a lot of which at the time were not publicly released. Given all these promises of leading edge technology, we were still running on a shoestring with hacked together tech, not using proper tracking or media servers. We were under enormous pressure, and constantly trying to meet expectations. We built demo environments, but as we upgraded and added features some would no longer work or certain functions would break. They expected us to be constantly developing to meet their expectations whilst remaining able to perform an industry demonstration at a moment's notice.

And if they looked foolish in front of their clients because the system would crash or take too long to load, or the mountain we could move on cue last week wasn't working, they would blame us and tell the clients "Sorry, this never happens". YES! Yes it does, I would tell them, and try to convince them that such promises would cause us major problems if anything amounted to a real paying project. I was terrified that we may actually get a real job and I would be left alone trying to load the system with a full cast and crew on the clock waiting for me.

Mark knew a bit about software development and didn't understand why we weren't working in a traditional dev style build/production environment. We tried to explain that this wasn't as simple. We had multiple machines networked to work in unison. Everything was just holding together, and as we tried to progress we had to change networking, how the systems linked, where files were stored. There was no way to ensure a project from last week would always work.

Jack didn't understand the amount of work involved in creating worlds. He would come

“I think Unreal will continue to shake up our industry in other ways. It is by far the gold standard when it comes to realistic rendering and for a good reason.”

in with his camera and want to spend the day shooting ad-hoc. “Let’s explore and find somewhere to shoot. Give me another world, maybe something with snow. Make the cars drive. Make it look like I’m riding the motorbike. Give me a virtual person to interact with.”

He clearly didn’t understand the fundamentals of VFX and the size of the teams usually involved creating environments for movies, let alone that those aren’t full environments you can just ‘explore’ and find somewhere nice to shoot. I tried to explain that it takes time. You can’t just snap your fingers and go to Paris. He would then say, “OK I’ll give you a list of places, and we can try them tomorrow.” It was a sickening feeling and we felt like frauds pretending to be VFX experts in a world we

had just stumbled into. I found myself trying to explain VFX fundamentals to someone who was in the industry and really should know more than me.

We had lost our way and abandoned our core values. We were a small team of tech lovers with time on our hands who had somehow ended up working for free on a project we didn’t really believe in and weren’t even allowed to talk about it. We couldn’t share any footage, so we were also isolated from the community who were openly working in this field as well.

At one point we had the opportunity to talk with the Unreal team. This was a huge opportunity and very exciting. This meeting was hijacked by Jack and Mark, who big-

noted themselves and tried to tell the Unreal team how things should be. We missed our chance at a dialogue. It was clear from their expressions that the Unreal team didn’t take us seriously. This was our only meeting, and we blew any chance of collaboration.

This didn’t stop Jack and Mark. They now had more spin and they told prospective clients they were in constant communication with Unreal, having weekly meetings with their developers. That they were now writing the handbook on virtual production for Unreal. That Unreal was directly backing this project.

As other teams began showing up, their pressure on us increased and their stories became more and more far-fetched. Our team fizzled out as some real events started



coming back as restrictions eased. Focus shifted to getting back to work.

We did make a few interesting projects in that time, but Jack and Mark's dream empire faded away, in part because I believe they had actually accumulated some financial responsibility they wished to avoid. Whilst the team has mostly disbanded, the test studio

continues to function and has completed several real projects. The gold rush around virtual production has eased, as it has become apparent things aren't quite as easy as they appear.

Despite the frustration, I am still grateful for the experience. I learned a lot, and met some very talented people along the way, whom I

will continue to find new and exciting ways to work with. Whilst I didn't agree with the direction, I do need to appreciate that without being given targets and deadlines, just being left to play most likely would have achieved far less.



Part 2: The Reality

The evolution of real-time rendering in virtual production is an exciting new tool in the film industry. Virtual production is not new, but has become far more sophisticated in the past few years. However, there is still a lot to consider. It can be very expensive, in actual hardware costs and flow-on costs as a result of changes in the way a production is created.

Change of workflow

VFX for traditional green screen is a post process, usually close to the final steps in production. In that workflow, creative

decisions can still be made along the way, and budgets can be flexible. Scenes are often blocked out and tested in low quality before going through the full realistic treatment.

Changes can be made up until the last minute (almost). This has been evident in many films where the footage was shot but budget ran out when it came to post VFX.

LED volumes flip this workflow. All background layer effects need to be completed in final quality, as they are shot in-camera and are then near impossible to edit. This means VFX is now paid for upfront and cannot work on a sliding scale. Every decision needs to be finalised before shooting; the spaceship can't be designed later, it's been shot already.

A lot more work needs to be done before the first actor steps in front of a camera. Also, the system doesn't 'just work'. There is a lot going on under the hood, which means there is a lot to go wrong. Small changes can have huge consequences to the overall stability of the system. This is a very big single point of failure, so road testing is extremely important. The entire production can be on standby

while the system reboots or as you are trying to figure out why the last small change broke everything. Make sure you have tested as many scenarios as possible. An extra day of pre-production is far cheaper than a whole crew running overtime.

LED Volume Lighting

LED screens are incredible sources of light, but are not suitable as a standalone lighting source. They really only provide a diffused sky box, which creates some nice reflections and environment lighting, but you will still need traditional lighting especially for anything focused. Realistic lighting doesn't always look right on camera, especially when shooting at high speed.

The perfect LED volume

There is no one size fits all. LED volumes need to be designed for the production. Like the rest of a production schedule, the volume needs to be carefully considered to accommodate the required angles, paths and access.

Building the virtual world

Traditional set building should still come into play even in the digital space. Like lighting, real world specifications often don't look right. Objects need to be scaled or coloured differently to suit. It is far more important that things 'look right' in camera, and this can be hard to see until you have the whole setup running with actors in place.

Video game environments are designed for monitors and not camera lenses. They also aren't designed for running at multiples of 4k and generally have a ton of unnecessary props. Only build what you need. If you are shooting in a standard box set, just make the three walls. There is no need to have the computer work on processing the whole apartment building if it's not in shot.

Being immersed in the environment

There are huge benefits to LED volumes. The actors get a better feeling of the environment. It's much easier to 'believe' you are in the middle of a city, a jungle, or in space when the world surrounds you, rather than trying to imagine while inside a green box.

It is important to note the screens don't actually display correct positioning from the actor's point of view, as the images are rendered as a forced perspective for the camera. This is similar to those street art illusions that only look right from one spot. The space only has 2D walls to work with, so eye-lines generally do not translate correctly in camera. The tennis ball is still a better point of reference.

I spent whole days inside the LED volume, and it is exhausting being surrounded by that much light and heat confined in a box with limited air flow. This is a huge factor which needs to be considered especially for action scenes, as talent and crew can become fatigued far quicker.

Industry adoption

It surprised me how much an industry often caught up in nostalgia and hesitant about the digital take-over openly embraced this. The interesting thing is all this cutting edge technology actually enables film makers to take a step back to traditional techniques and even shoot on film. Compared to greenscreen, cinematographers really get to go back to the full potential of their craft, as they shoot the scene in camera and don't need to 'imagine' the missing elements. Using lens tracking, they can pull focus and have the virtual world respond accordingly. This allows in-the-moment creativity and experimentation that is not possible with green screen.

The end of green screen?

The term virtual production still includes green screen, and this is often a better system where shooting can take place with the benefits of real-time rendering to preview the final scene. Camera and lens tracking data can then be used in post with the full flexibility of green screen to continue to make changes. This is a much cheaper alternative and doesn't require anywhere near the computing power required to drive an LED volume, as only the camera's resolution need to be rendered and not all the pixels of an LED wall.

Major developments in AI, machine learning, and depth sensing are improving real-time keying of green screens, and even keying without clean screens. In comparison, the main benefits of LED volumes are the lighting, reflections, and complex keying situations like hair and transparent elements. Green screen is still a major component and not going anytime soon. LED is just a new tool added to the virtual production family.

Unreal Engine in the broader Entertainment industry

I think Unreal will continue to shake up our industry in other ways. It is by far the gold standard when it comes to realistic rendering and for a good reason. As this giant expands out of the gaming world, it's acquiring talent and resources. It is already being used for content in live events as a render node in media servers like disguise, Smode and Pixera. There are huge benefits to a cross industry platform.

Similar systems like Notch and TouchDesigner are amazing, but it's very difficult to find creators, and they come with some form of cost of entry; not for the software itself, but to actually use in production. There is a constant stream of Unreal creators and a growing marketplace, with creators able to swap between gaming, film, and live events.

The video side of our industry is obviously impacted and has been closely linked to development in the gaming world for a long time. I don't think we will see Unreal making waves in the audio world any time soon, but lighting is already seeing Unreal move in with the implementation of DMX now included

with the official build. And Unreal is already affecting CAD and lighting visualisation. The main software in this industry is very expensive and rightly so, as there is a lot of work that goes into accurately simulating lighting. But Unreal trumps what is currently available, and a lot of people have already started building their own for lighting and video simulations. The small teams behind currently developing visualisation render engines have nowhere near the resources of Unreal.

As real-time visualisation moves from what used to be a very niche industry and joins the more mainstream gaming world, I think we will see either some of the current providers switching or a few new ones being created based on Unreal Engine. And with them no longer having to develop their own render engine they can focus their attention on the user experience.

Unreal's marketplace and ecosystem also means lighting fixture manufacturers could build their products as proprietary assets shared amongst all Unreal-based pre-vis. It would then be in the manufacturer's interest to provide detailed render models. They would only need to do this once, instead of providing different models to each software. It could help market their product, as you would be more inclined to buy a fixture which you can simulate well offline.

Only having to develop for one marketplace, with the peace-of-mind of IP security, pre-vis could be far more accurate and start to include features they wouldn't usually share, including proprietary fixture features like proper macro simulations.



LSC'S HOUSTON X

by Richie Mickan, Product Manager, LSC Control Systems

“Houston, we have a problem.” This iconic statement, made famous in numerous movies and memes, has become a catchcry for any situation where something goes wrong.

From a party running out of beer, to a major traffic jam on the freeway, everyone knows what it means. When a fault occurs in a TV studio, a theatre or on a major event that one sentence is enough to grab everyone’s attention and get them focussed on finding a solution – quickly!

LSC Control Systems took that concept and created a dedicated software package to allow the monitoring and configuration of their

Audio and Video power distribution products, as well as their lighting control products. If a circuit breaker trips, a phase of power is lost, or a cable is unplugged, HOUSTON X will let you know all about it.

Knowing about an issue is only half the solution. HOUSTON X also acts as Mission Control, allowing the user to remotely configure LSC products from any Windows computer (Mac OSX, Android and iOS tablet

versions coming in early 2022).

HOUSTON X uses industry standard protocols including RDM and TCP/IP Ethernet. Devices can be connected via wired or wireless infrastructure allowing HOUSTON X to be utilised in both new and existing installations as well as with portable and touring systems. When the software is installed on a laptop or tablet, the operator can be located anywhere within Wi-Fi range and still have complete control.

Multiple copies of HOUSTON X can be run in a single venue. The technical manager could run the software on a desktop computer, whilst the techs run it on their tablets as they move around the venue. Multi-space venues can run individual systems in each area, which only see and control the devices used in that space, as well as a Master system that

Interfaces	UNITOUR	MantraMini	MDR	LEDCV4	ALARMS	GenVI	APS	LSC					
LABEL		NAME	DMX ADDR	MODE	CURVE	MIN LVL	MAX LVL	IDENTIFY	APP VER	BOOT VER	RDM ADDRESS	LICENCED	HIDDEN
GenVI D011	[-]							IS ON	4.02	1.01	U20::4C73:1800D011	30 Nov 21	Hide
GenVI D011-C01		Chan01	1	DMX	Linear	000%	100%						
GenVI D011-C02		Chan02	2	DMX	TruPower	..	..				
GenVI D011-C03		Chan03	3	DMX	Linear	000%	100%						
GenVI D011-C04		Chan04	4	DMX	120V	000%	100%						
GenVI D011-C05		Chan05	5	DMX	TruPower	..	..				
GenVI D011-C06		Chan06	6	DMX	Linear	005%	095%						
GenVI D011-C07		Chan07	7	DMX	Linear	000%	100%						
GenVI D011-C08		Chan08	8	DMX	TruPower	..	..				
GenVI D011-C09		Chan09	9	DMX	Linear	000%	100%						
GenVI D011-C10		Chan10	10	DMX	Linear	000%	100%						
GenVI D011-C11		Chan11	11	DMX	Linear	000%	100%						
GenVI D011-C12		Chan12	12	DMX	Linear	000%	100%						
GEN6-26E4	[-]							IS OFF	4.02 rc7	2.00	U20::4C73:400026E4	30 Nov 21	Hide
Houston X Overview		Chan 01	1	DMX	Linear	000%	100%						
		Chan 02	..	Auto Power	..	..	..			

Interfaces	UNITOUR	MDR	GenVI	LSC							
LABEL	MODEL	8/16 bit	DMX ADDR	DMX STATE	TEMP	FAN %	IDENTIFY	APP VER	BOOT VER	RDM ADDRESS	
GenVI D011	[*]	12 CHN	8-bit	1	OK	27	0% A	IS ON	4.02	1.01	U20:4C73:1800D011
GEN6-26E4	[*]	12 CHN	8-bit	1	OK	23	0% A	IS OFF	4.02 rc7	2.00	U20:4C73:400026E4

Houston X - Filtered 1

Interfaces	MDR	LEDCV4	APS	MantraMini	LSC							
GPI 3	DMX 1	DMX 2	IP VOLTS	TEMP	FAN %	IP ADDRESS	WIFI ADDRESS	IDENTIFY	APP VER	IF VER	HIDDEN	
OFF	DMX OUT	DMX OUT	24.1V		20%	2.0.0.1	192.168.4.1	IS OFF	Ver: 3.00 Build:12367	1.01 rc7	Hide	

Houston X - Filtered 2

can see and monitor all devices throughout the entire venue. At a large event any number of techs could have their own copy of HOUSTON X running on their personal device to allow them to see the state of all or selected LSC devices in the rig.

In almost all venues the devices to be controlled are located remotely from the bio box. Older venues tend to have a single central location with all the power control and data distribution sharing a common space. Newer venues may have all the devices distributed around the building, located adjacent to the items that they control. This distributed approach makes it harder for the technicians to configure and monitor the individual items, as they must walk between each location. In many venues this is not as easy as it sounds. Devices located on each side of a theatre stage, may require a 'cut lunch and waterbag' trip to access. I have worked in venues where accessing an item of equipment required one of the following challenges.

- Climbing a ladder on the external wall of the venue and dropping down onto the grid through an external weatherproof roof hatch – not a lot of fun when it was raining.
- Using special access doors built into the main air-conditioning duct to allow traversing the full length of a catwalk in a theatre. The two items crossed over each other due to a design oversight, so they simply installed a door in each side to allow someone to crawl through.
- Using a hidden door in the entry of the ladie's toilets to access the dimmer room – rather embarrassing during interval when there were queues.

HOUSTON X allows the operator to instantly adjust parameters on any device, no matter where it is located, without leaving their seat. The improvements in efficiency alone can pay for the software in a matter of weeks. Add to this the reduction of OH&S issues that can arise from moving about in a venue and the software very quickly becomes a 'must have' item from a management perspective.

With all the devices located remotely, faults can occur without anyone noticing. Would you know if one of your dimmer racks was getting hotter than normal, or if the incoming mains voltage on Phase A was getting dangerously high?

The real-time monitoring of HOUSTON X shows this critical information for all connected devices. Users can see what is happening and detect potential issues before they become critical faults. Whether you are a one-person owner operator or part of a major events crew this information is invaluable to help prevent a mis-show failure.

Interfaces	MantraMini	MDR	LEDCV4	ALARMS	APS	GenVI	LSC							
LABEL	P1 V	P2 V	P3 V	P1 A	P2 A	P3 A	FREQ	IDENTIFY	APP VER	BOOT VER	RDM ADDRESS	LICENCED	HIDDEN	
APS A019	[*]	211	236	235	16	12	12	50	IS OFF	4.01 rc	1.00	U20:4C73:1600A019	30 Nov 21	Hide
LSC-APSTM	[*]	256	229	229	8	16	4	50	IS OFF	4.01 rc3	2.01 b	U20:4C73:40007F9E	30 Nov 21	Hide

Houston X - Volts and Currents

If a fault does occur mid show then you need to know the three Ws: what, when and where. The Alarms tab provides this information in a clear and concise manner. If any HOUSTON X enabled device has a fault, the red Alarm button is displayed and the user can immediately drill-down to see the details. The alarm shows the device name, channel name, time and date of the fault along with a text description of the issue, allowing the operator to respond immediately to rectify the issue. This feature is very popular at events where one person may be responsible for looking after multiple small stages, as they can now move between them whilst still being able to see what it is happening at the other locations. It is also ideal for single person gigs where you are both the operator and system tech.

DEVICES	MDR	LEDCV4	APS	MantraMini	GenVI	UNITOUR	ALARMS	LSC			
DEVICE TYPE	LABEL	ALARM	DATE/TIME	ADDRESS	ACK	HIDDEN					
LED-CV4		Channel 4 has no load	Fri Oct 15 13:23:25 2021	U200:4C73:080B0819		Hide					
UNITOUR	RnD #3	Phase 2 Error, Module A	Thu Oct 15 12:51:13 229	192.168.1.44		Hide					
UNITOUR	RnD #3	Phase 2 Error, Module B	Thu Oct 15 12:51:13 229	192.168.1.44		Hide					
UNITOUR	RnD #3	Phase 2 Error, Module C	Thu Oct 15 12:51:13 229	192.168.1.44		Hide					
UNITOUR	RnD #3	Phase 2 Error, Module D	Thu Oct 15 12:51:13 229	192.168.1.44		Hide					

Houston X - Alarms Tab

A common request a system tech gets is to power cycle an item in the rig. Sometimes a LED video panel, computer or moving light needs a hard reset, which can be achieved by power cycling the device. When used in

conjunction with LSC power control products such as the APS (Advanced Power System) or UNITOUR, HOUSTON X allows the operator to remotely turn channels off and on. This is ideal for hard power resets, as well as powering down items when they are not required. The APS and UNITOUR also report the current draw on each phase, allowing the tech to make sure that they are not about to trip the upstream circuit breaker. If the generator is being overloaded, they report the incoming voltage and/or phase variations to HOUSTON X for the operator to interpret and act upon before a major failure occurs.

The UNITOUR power distribution system takes this one step further allowing the operator to monitor the conventional and earth-leakage current on each individual output channel in real-time. Preset limits can be programmed that will issue an Alarm if exceeded. Operators can now see if any of the 48 individual channel RCBOs are getting

close to their ELC trip value and take action to mitigate the situation. In the event of a circuit breaker trip, an alarm is generated that includes the name of the channel, along with its location in the rack. More importantly, both the conventional and earth leakage current flow immediately prior to the trip are included, which is the vital information required to know whether the RCBO tripped from over-current or an ELC fault.

HOUSTON X also allows the operator to configure multiple individual products as one larger unit. A venue with 6 x 12 channel GENVI dimmer racks can now configure them as if they were one large 72-way dimmer rack. Select all the channels, enter a base DMX address and HOUSTON X will do the rest. Dimmer racks can also have the fade

curve, min/max levels and channel modes altered remotely. The simple spreadsheet grid allows the operator to sort the information by column type, allowing all the dimmers with a 120v dimmer curve to be grouped together,



Interfaces	MDR	LEDCV4	APS	MantraMini	GenVI	UNITOUR	ALARMS												
LABEL		NAME	LEVEL	SOURCE	DMX ADDR	MODE	CURVE	MIN LVL	MAX LVL	OFF	ON	P1 V	P2 V	P3 V	NEUT V	P1 A	P2 A		
RnD #3		[-]										248V	1V	233V	0V	0A	0A		
RnD #3:MA-C05		Subst1+2	0%	DMX	5	Auto	..	..	..	..	..			
RnD #3:MA-C08		Subst3+4	0%	DMX	8	Auto	..	..	..	..	..			
RnD #3:MA-C09		VideoWall1	0%	DMX	9	Auto	..	..	..	..	..			
RnD #3:MA-C10		VideoWall2	0%	DMX	10	Auto	..	..	..	..	..			
RnD #3:MA-C11		VideoWall3	0%	DMX	11	Auto	..	..	..	..	..			
RnD #3:MA-C12		VideoWall4	0%	DMX	12	Auto	..	..	..	..	..			
RnD #3:MB-C07		LEDpars1-6	0%	DMX	19	Auto	..	..	..	..	..			
RnD #3:MC-C10		LEDpars7-12	0%	DMX	34	Auto	..	..	..	..	..			
RnD #3:MC-C11		SideFill L	0%	DMX	35	Auto	..	..	..	..	..			
RnD #3:MC-C12		SideFill R	0%	DMX	36	Auto	..	..	..	..	..			
RnD #3:MA-C01		Bar1-Profile1+2	0%	DMX	1	Dimmer	Cube	0%	100%	..	..						
RnD #3:MA-C02		Bar1-Profile3+4	0%	DMX	2	Dimmer	Cube	0%	100%	..	..						
RnD #3:MA-C03		US Fresnel	0%	DMX	3	Dimmer	Linear	0%	100%	..	..						
RnD #3:MA-C04		Bar1-Profile5+6	0%	DMX	4	Dimmer	Linear	0%	100%	..	..						
RnD #3:MA-C06		DS Fresnel	0%	DMX	6	Dimmer	Linear	0%	100%	..	..						
RnD #3:MB-C01		BlueCyc	0%	DMX	13	Dimmer	Inv Sqr	0%	100%	..	..						
		Cyc	0%	DMX	14	Dimmer	Inv Sqr	0%	94%	..	..						
		Cyc	0%	DMX	15	Dimmer	Inv Sqr	0%	85%	..	..						

Houston X - Sorted Columns

even when they are spread across multiple dimmers in a venue.

Rental companies can use HOUSTON X to easily reconfigure items before and after a hire. Rather than having to manually reconfigure multiple devices by hand, HOUSTON X can reconfigure multiple devices simultaneously. Whether it be resetting them all to the factory defaults, or uploading a specific configuration file, the process is quicker and less prone to user error than the old-fashioned manual method.

TV stations and theatres use the show recall feature to quickly switch between different presets. At the end of the morning breakfast show a few mouse clicks is all that is required to recall the pre-programmed power, dimming and DMX data settings for the afternoon quiz

show or the evening panel programme.

The HOUSTON X software comes in two parts. The product license/s and the user software. Each product to be monitored and/or controlled requires a license to be installed before it can work with the free HOUSTON X software app. This approach means that even a 10 year old GENVI dimmer rack can work with HOUSTON X simply by buying a license for the unit. A venue with 12 dimmer racks requires twelve licenses, one per rack. The license is a simple subscription model and can be purchased online or via a local dealer.

The free HOUSTON X software can be downloaded by anyone from the LSC website (<https://www.lsccontrol.com.au/product/40/houston-x-/>). Once installed and connected to the system it will auto-discover

all the licensed LSC products. To prevent unauthorised access to the devices a PIN code is required to alter any of the device settings. Once this PIN is entered all the settings are displayed in the software and can be edited. All the devices on the network can be named for ease of identification, as can the individual channels, useful for labelling and identifying what is connected to the output.

HOUSTON X is made in Melbourne Australia by LSC Control Systems, a local manufacturer and R&D company with over 40 years' experience designing and manufacturing products for the entertainment industry.

info@lsccontrol.com.au

Are you concerned about your mate's mental health?

FACT: Most Australian tech crew and roadies have attempted or considered suicide¹!

Support those around you and register for free mental health training

www.entertainmentassist.org.au

Supporting the mental health of Australian entertainment industry workers

ENTERTAINMENT ASSIST

¹Passion, Pride, Pitfalls Dec 2014

Arkaos MediaMaster 6 – How To Work Directly with NovaStar SmartLCT

Arkaos MediaMaster 6 can now work directly with NovaStar LED mapping hardware and software. Mapping files from NovaStar SmartLCT can now be imported directly into the MediaMaster 6 Video Mapper with surfaces already created. Here's how:

First, we'll open NovaStar SmartLCT. This software is free for Mac and PC on the NovaStar website.

Step 1

We've created a simple configuration, one controller, an MCTRL4K, and three screens with different resolutions connected to outputs one, two, and three. For the purposes of this demo, we're doing that offline as we are not currently connected to a controller from NovaStar.

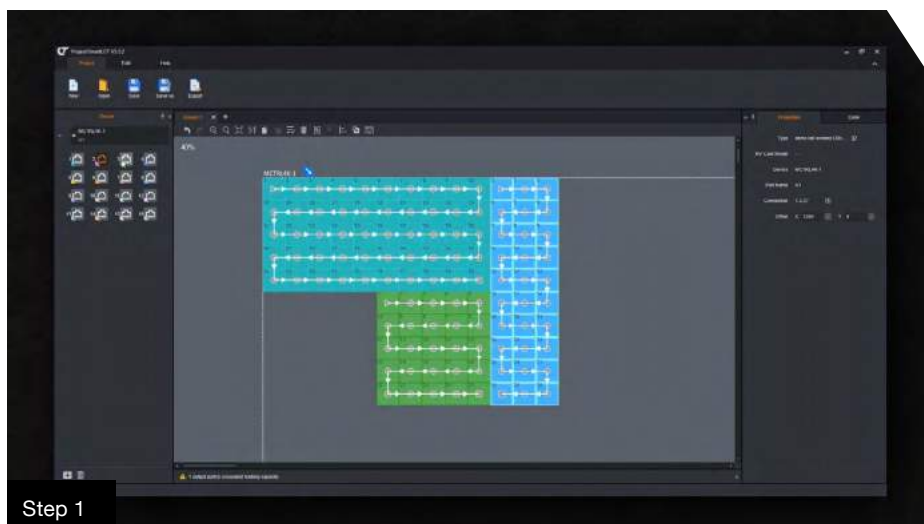
You can see that the name of the device is MCTRL4K, and we have output one, two and three. So we created those three screens. Once your mapping is complete, go to Save As and save the project.

Step 2

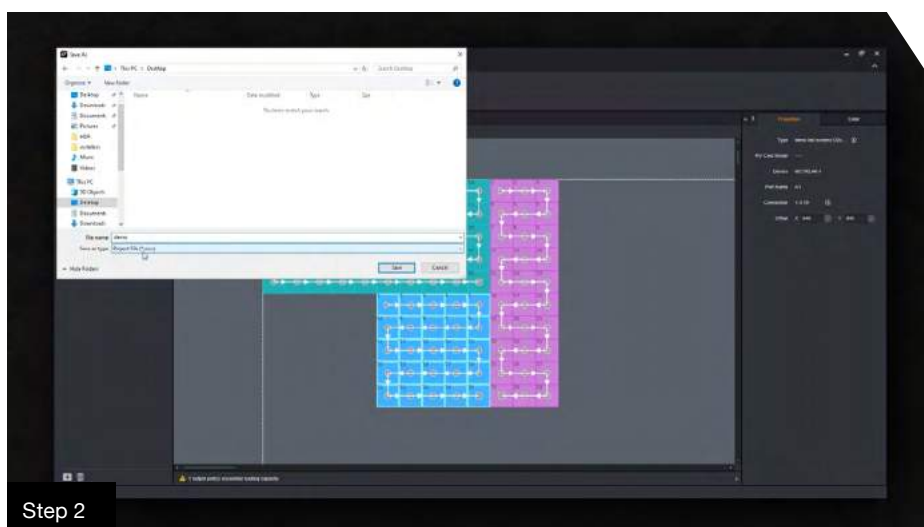
We'll save that on the desktop and call it 'Demo'. The file type is .srcx, which is the standard NovaStar project file. You can now close the NovaStar software.

Step 3

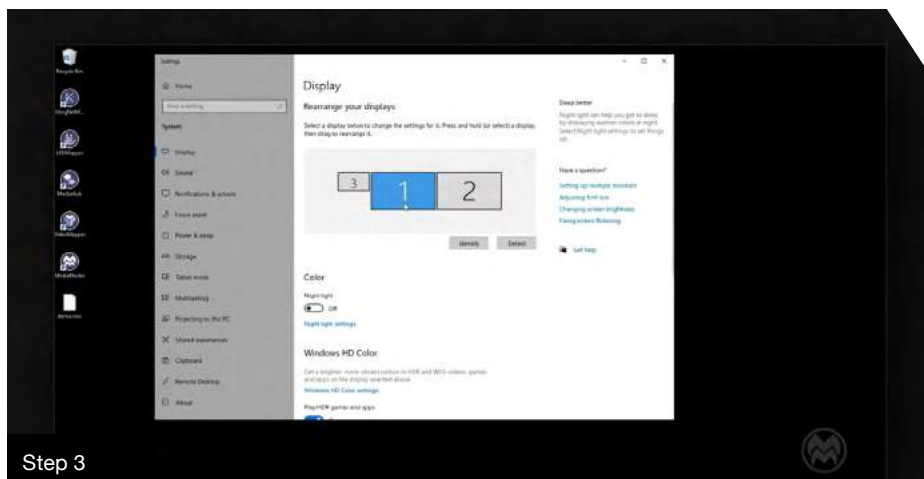
First, let's look at what we have connected to our system. We have several outputs connected. One is an HDR screen, and the other is an actual NovaStar processor, which is connected through HDMI.



Step 1



Step 2



Step 3

LIFETIME WARRANTY



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Cordial cables deliver **your** sound, plain and simple. No unwanted noise, artifacts, or buzz. Just exceptional German quality, hand-soldered Neutrik connectors, road-worthy jackets, and precision manufacturing—all backed by a **lifetime warranty**.

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Now in MediaMaster, let's open the Video Mapper by selecting Edit Video Mapper.

Step 4

Here, you can see we have a NovaStar controller and another screen. Now we'll go to File, import SmartLCT Project, navigate to the Desktop, select the Demo file and click open. A new window will open asking which controller should be attached to which screens.

Step 5

You can see that we have a few screens. From the NovaStar mapping file, MediaMaster found that we have one controller called A1MCTRL4k. That was the name of the controller in the NovaStar software. So that controller must be attached to the Nova HDMI.

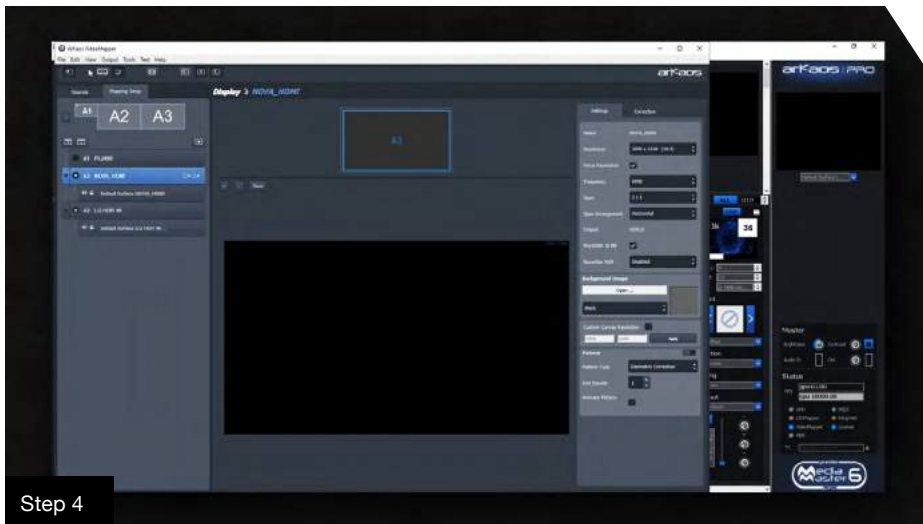
We'll select none for the A2 output. Select the controller for the A3 NovaStar HDMI output and press okay.

Step 6

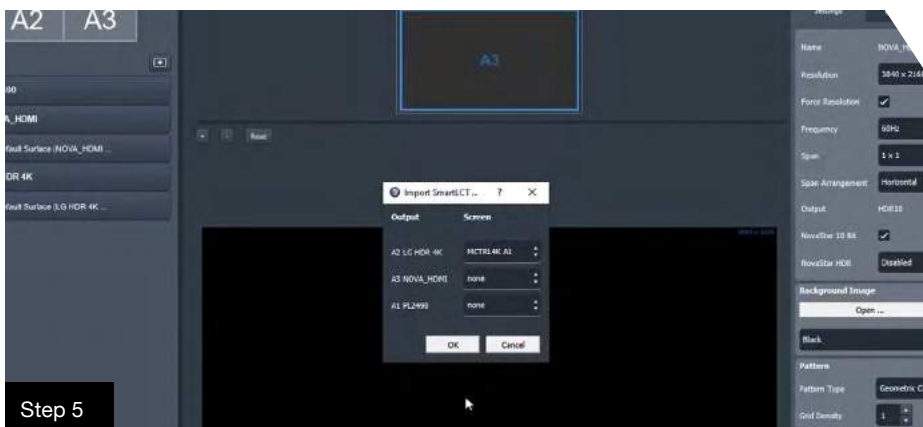
You can see that now three surfaces are generated. Each corresponds to the screens created earlier in the NovaStar software. The surfaces will automatically take the screen name and the number of the output of the LED controller. If we zoom in, you can see that we have a surface for the right screen, one for the small screen, and underneath everything, we have what is called a global surface.

Step 7

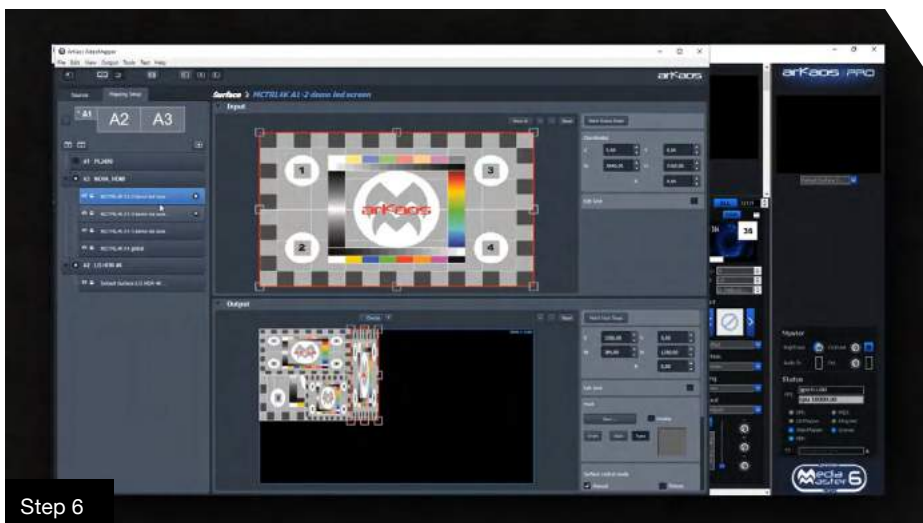
That global surface will take the whole output resolution of all the screens that are created together into the SmartLCT. All imported surfaces are, of course, still editable and new surfaces can be added.



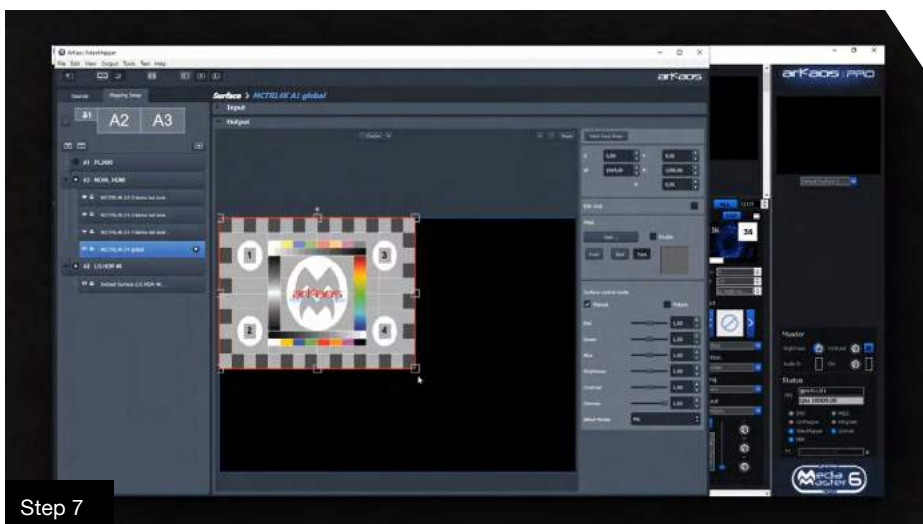
Step 4



Step 5



Step 6



Step 7

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.



THE SUPPORT ACT WELLBEING HELPLINE IS MADE POSSIBLE WITH THE SUPPORT OF:



ACOUSTIC MODELLING

Have a problem with the sound of an install? How a room sounds? Modelling can help you... strike a pose!

by Peter Moses, Senior Manager, Business Development (Asia Pacific) Install Audio at HARMAN International

Why model? (also known as: what happens when things go wrong!?!)

Effectively, modelling is the educated 'guesstimating' of where to place a loudspeaker for optimal sound performance. Used correctly, the process of modelling can help with superior sound performance, but that's only the tip of the iceberg. Recapturing key stakeholder's attention with a new way to discuss and communicate sound requirements, differentiating your comms

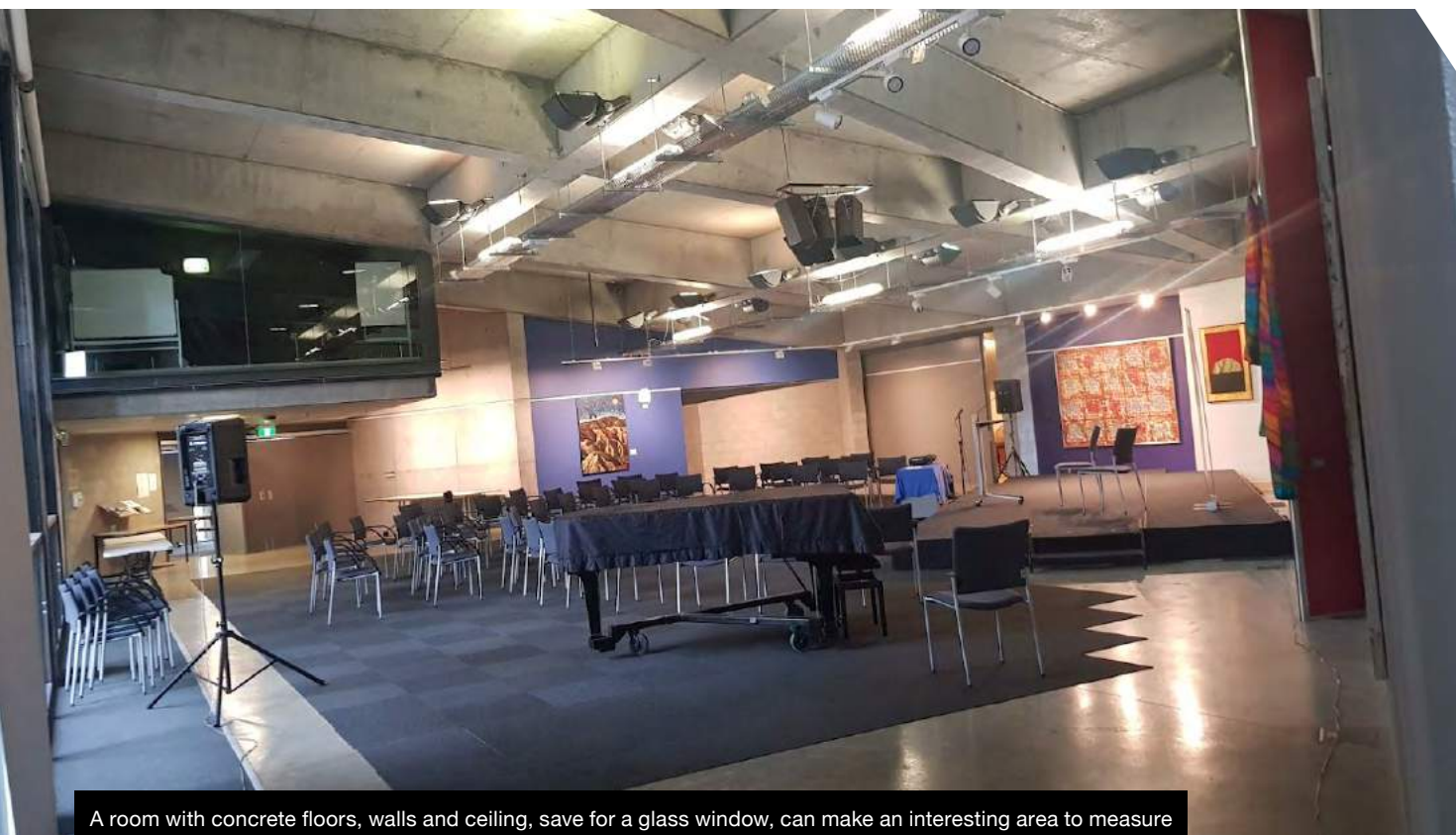
from the rest of the pack and bringing your (audio) beliefs to the forefront are all some of the benefits of acoustic modelling.

We model for a few reasons. One, it's a great way to take the guesswork out of things. No finished room will ever mirror the model 100%, however, without modelling, disappointment and an open cast of characters to star in the blame game all tend to come to the forefront. Modelling allows us all to get on the same page, discuss

outcomes and align our vision of what the room should sound like well before the first loudspeaker is ordered.

Sound Factors

One of the main factors contributing to a pleasant sounding room is how the air (sound) moves within the room, known as 'modes'. Modes are the movement of the sound waves that result in some frequencies being amplified while others seemingly just disappear. The two most relevant modes are Axial and Tangential. They can be identified audibly by most 'un-common' sound reactions within a space. Is a space too bass-y or bright? There is a chance that some form of Axial and Tangential phenomena is happening out of the normal tolerances.



A room with concrete floors, walls and ceiling, save for a glass window, can make an interesting area to measure

Which Mode?

Both! Axial modes refer to just two parallel surfaces and how air and sound interact with them. They are the most audible of acoustic phenomena in a square room, think a floor and ceiling, or two walls directly opposite each other in a fairly plain meeting room.

Tangential modes on the other hand, are four parallel surfaces organised into two sets, such as a floor and a ceiling, then perhaps two structural walls parallel to each other.

Axial modes are the most audible, with Tangentials about half the power of Axials (all things being equal), and a third mode, Oblique, half the power of the Tangential (but I'm already on track to smash my word limit, so let's just focus on Axial and Tangential).

Software Tools of the Trade

Now that we know how we can measure and quantify the resulting issues of questionable sounding rooms, we can look at fine tuning the culprits (speaker placement, wattage, and DSP) to minimise this.

Knowing what a room looks like is vital, i.e. 10 x 12 x 4, however, before we build our space, it's always vital to know what it is made from. The industry offers many wonderful software options for doing this:

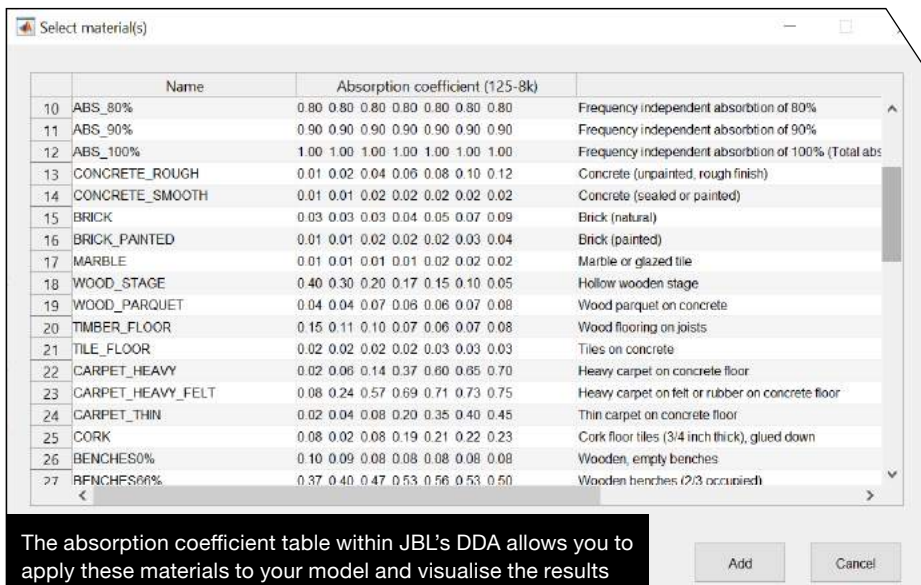
- AFMG's Reflex simulates reflections between surfaces, taking into account the actual reflection as well as diffusion and scattering of a sound wave (modes).
- AFMG's Soundflow expands on what Reflex does. It calculates the room material's ability to amplify or decrease volume of acoustic waves through absorption, reflections and transmission loss, as measured by material (gyprock, brick, glass, etc).
- AFMG's EASE allows you to plonk your favourite loudspeaker into an environment and observe how it will contribute to acoustics of the room; where the coverage patterns will stop, how audible speech will be (STI) and the frequency response of the area (bass-y or bright).

While AFMG are leaders in acoustic software, many manufacturers also provide a range of tools, mostly free of charge.

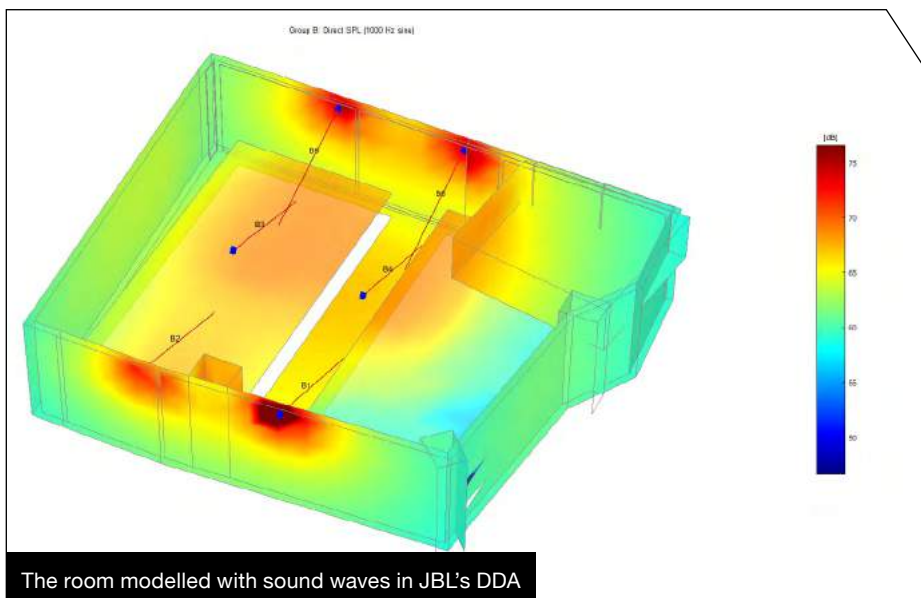
JBL's DDA is unique in its ability to allow you to model a room using an intuitive 2D drawing window that can then be exploded to 3D, along with allowing you to import a number of loudspeakers from all brands. If it's got a CLF - common loudspeaker file - it's in!

Built on the back of a Matlab number crunching system, DDA can help you set your speaker locations, set the temperature of the room (as sound travels at 343 metres per second in air at 20 degrees Celsius) and most importantly, observe what kind of acoustic phenomena is happening as a result of it.

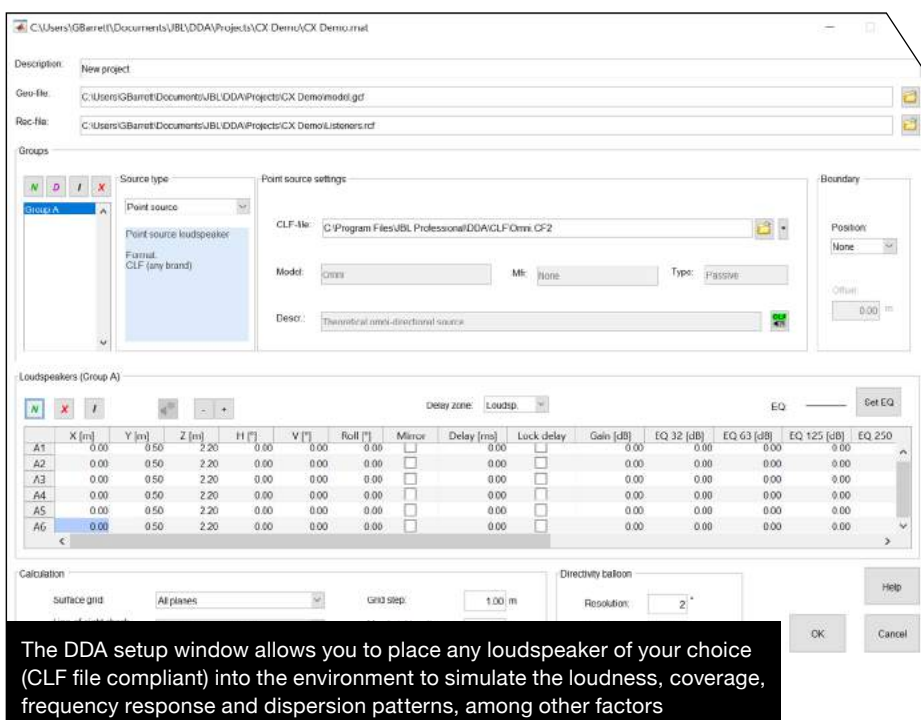
You can also add the all-important characteristics of your materials in DDA, with



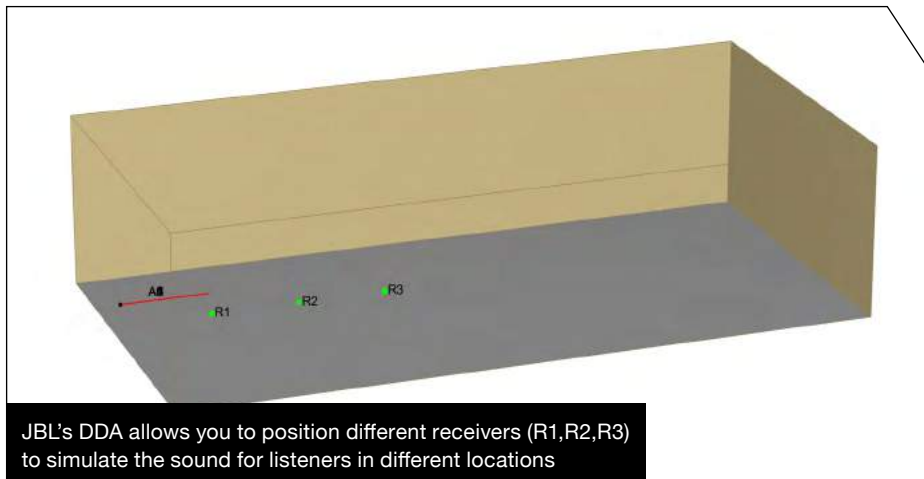
The absorption coefficient table within JBL's DDA allows you to apply these materials to your model and visualise the results



The room modelled with sound waves in JBL's DDA



The DDA setup window allows you to place any loudspeaker of your choice (CLF file compliant) into the environment to simulate the loudness, coverage, frequency response and dispersion patterns, among other factors



JBL's DDA allows you to position different receivers (R1,R2,R3) to simulate the sound for listeners in different locations

most common material's information right there for you.

You can take it one step further with DDA by utilising Trimble's SketchUp program; a free web version exists to get you started.

SketchUp takes many of the detailed tools used for CAD and simplifies them, allowing you to create to-scale drawings of your environment, including recess points, curves and bends and everyone's favourite, the hanging glass chandelier reflector.

By pairing SketchUp and DDA, you can come

up with a no-hassle workflow that is light on the budget and allows you to accurately model, simulate and prove your acoustic environment characteristics, ensuring that as the install begins, detailed drawings around speaker placement and angles can be observed and an optimal outcome is achieved.

Taking it further than modelling

Taking it one step further, DDA allows the user to export the model back into a 3D program such as SketchUp, where using a third-party render engine such as V-Ray or Lumion,

you can create super realistic images of the intended space along with how your speakers will look (and in some cases sound) in the space.

Putting this little bit of work in, especially in the early stages of a project, can really differentiate your communications from the rest of the pack with your key stakeholders, in particular, helping all parties 'visualise' what is happening with the acoustics in their space. This usually helps propel the sound conversation from an afterthought to a requirement, as most people can quite easily relate to an acoustic problem when it is visualised, rather than just explaining it verbally.

Conclusion

There are many acoustic and sound tools out there to help you achieve your goals, from basic modelling through to something that can help give you an edge when contributing to the discussion around sound performance of a space. What's important though is knowing. A little bit of knowledge can be dangerous, so take the journey along with some well written pieces on the above phenomena, or consult a friend or two who can help.

#	Name	Audience (*)	SPL [dB]	Weight	X1	X2	Z1	Z2
P1	Floor1	<input checked="" type="checkbox"/>	80.00	1.00	0.00	10.00	0.00	0.00
P2	Floor2	<input checked="" type="checkbox"/>	80.00	1.00	10.00	20.00	0.00	2.00
P3	Back wall	<input type="checkbox"/>	0.00	0.00	0.00	20.00	2.00	5.00

Geometry Builder within JBL's DDA software allows you to build complex 3D spaces with a few clicks

Not Your Predictable Prediction Software - Fohhn Designer

PA prediction and modelling software is essential for both install and live production projects, and German loudspeaker manufacturer Fohhn has brought something new to this field with Fohhn Designer. Like most modelling software, you can import the CAD of the venue you're going to work in, or create your own, and adjust loudspeaker models and settings to get the coverage you need. Unlike some other software, the workflow in Fohhn Designer is snapshot-based, so you can easily switch between different speaker models and configurations, and generate pdf proposals, quotes, and reports with a click.

Cleverly, Fohhn Designer is a web-based application and runs on Fohhn's servers. This means the incredibly processor-intensive calculations for acoustic simulation happen in Fohhn's server array and are not limited by the processing available in your laptop. This means faster, more accurate simulations, and makes Fohhn Designer a powerful sales tool for installation or live production companies, with professional-looking reports generated to be shared that can include pictures, screenshots, predictions, volume calculations, and costings.

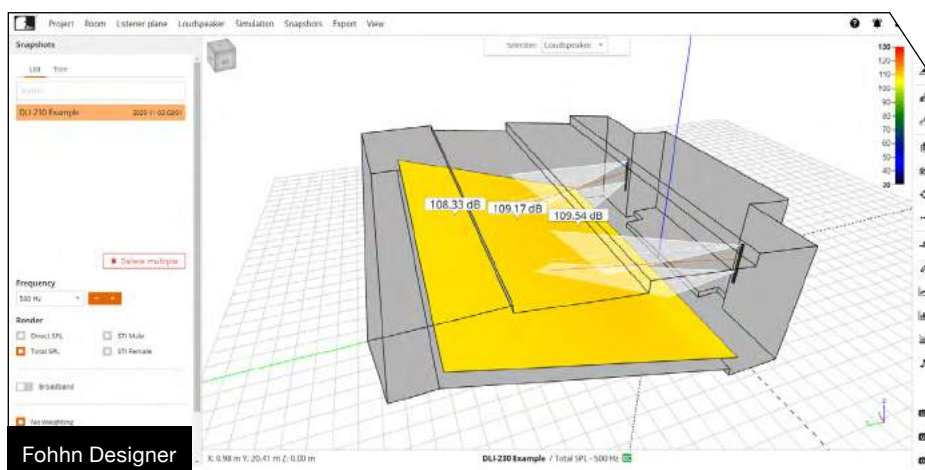
The experts at Fohhn have put over six years of development into the software that is now available not just for customers and AV planners, but also for Fohhn project support. Fohhn Designer is an enormously important tool for the future of Fohhn as it delivers better simulations significantly faster than traditional software.

Anyone familiar with room design and acoustic simulation tools will find Fohhn Designer has a very low learning curve. All you need to do to get designing is register for your free Fohhn Services Account at:

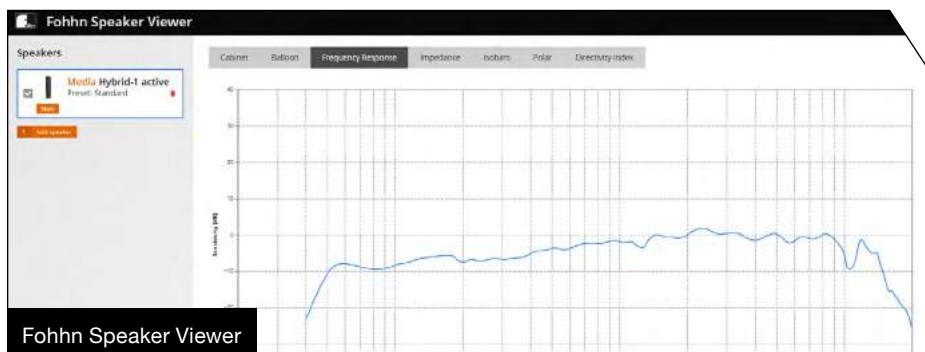
services.fohnn.com/dashboard/auth/welcome

Once you're in the Fohhn Services environment, you'll also find Fohhn Speaker Viewer, for viewing loudspeaker data, and an extensive help and training centre, including extensive tutorials on both Fohhn Designer and SketchUp, which you can use to create room models that can be imported directly into Fohhn Designer.

For more info, contact Australian Fohhn distributor CMI Music & Audio at cmi.com.au



Fohhn Designer



Fohhn Speaker Viewer



MCX & MCXEXT



MCXD



WBPX

Green-GO Version 5 – IP Comms Re-Imagined

Green-GO is an IP-based intercom system. Devices are connected using regular network switches with power typically supplied via PoE. Green-GO differs from most intercom systems on the market because it does not require a central processing unit or matrix while still providing true matrix capabilities. The peer-to-peer nature of Green-GO makes the system highly flexible and genuinely scalable, allowing for efficient setups. Even on existing network infrastructure.

Green-GO offers communication with very low latency (10 ms) and low network bandwidth (< 400 kbps per active channel) while maintaining high audio quality (up to 48 kHz). Each device provides access to 32 individual channels with full-duplex audio

communication and support for non-verbal communications like call or cue signs. Every channel target is configurable individually to provide either a private communication to a single user or a public communication to a group of users.

A Green-GO system can be managed and configured live or in pre-production with the free Green-GO control software available for Windows and macOS.

After extensive end-user beta testing, Version 5 of Green-Go's software and firmware is set for imminent release (check www.greengodigital.com for release details). Taking into account years of user feedback, Version 5 will deliver:

A New User Interface

Green-GO have taken the user experience to a whole new level: the new interface of Green-GO Control 5 provides lots of quality of life improvements like drag and drop, device previews, templates, dashboards, and many more.

Take Full Control

Green-GO Control 5 now provides full multi-session online access to your system and enables complete offline configuration for pre-production. Many new options and functionality provide a wider range of use cases.

Better Audio Quality

Not only was the audio quality improved to provide up to 48 kHz sample rate and 22 kHz audio bandwidth, Green-GO Version 5 also improved on the headset-to-headset latency and reduced it from 12 ms to 10 ms on wired connections!

Scripting API

Green-GO Version 5 introduces a new system API, giving you access to pretty much everything there is. This will enable you to create your own custom functions, automation, user interfaces, and so much more.

For more info, please contact Australian Green-Go distributor Event Communications Australia: evcomaus.com.au

THE 2021 'STICK PA' MARKET ROUNDUP

by Jason Allen

Welcome to the 2021 'Stick PA' market roundup, or as its more formally referred to, the 'Portable Column Line Array with Subwoofer' (not as catchy is it?). In this feature, we look at seven models that are already out working hard in the market, and preview two that are just hitting our shores.

I find myself increasingly in front of stick PAs, as more and more manufacturers get into the territory. I also ran the stick PA demo sessions at ENTECH three years running and have personally put almost all of the models in this roundup through their paces. What I have been surprised by is the history of the humble stick, its origins in a concept championed in the 1970s, and its relationship to modern immersive audio PAs.

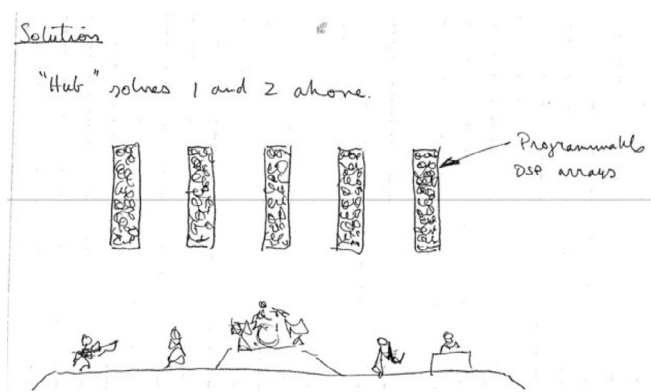
The Long Strange Trip

The stick PA we know today had its genesis in the USA when engineer, inventor, and musician Cliff Henricksen sold his company, US Sound, and came to work for Bose in 1993. Cliff and another engineer called Ken Jacob started to work on the first stick PA in 1995, which would be commercially released in 2003 as the L1.

Cliff and Ken were trying to solve what they referred to as the 'triple amplification' problem in amplified live music performance; instruments have amps on stage, performers have foldback, and then there's the FOH PA. They found it

all created a flat, uncontrollable mess with no spatialisation that wasn't ideal for the musicians. They adopted an idea from The Grateful Dead's 'Wall of Sound' experiment in the 70s; dedicated line arrays behind each performer, shooting over their heads, with a separate line array for each performer. No more guitar amps blaring into the first few rows, nor foldback making a sonic mess, and no FOH PA that the musos can't hear trying to drown all of that out.

Check out this sketch of the concept from an early concept paper:



Now, call me crazy, but that's five line arrays across the stage, much like you'll see in an L-Acoustics L-ISA Hyperreal Sound rig, or d&b auditechnik Soundscape set-up. As improved spatialisation and clarity was one of the goals of the L1, I'm calling it an antecedent of modern immersive FOH sound.

The L1 concept was tested exhaustively with musicians and sound engineers, with direct A/B comparisons run between traditional FOH PAs, switching over to four or five L1s set up behind the band. Apparently, the results were fantastic. But as is the case with many radical inventions, the public embraced the product, but not the manner in which it was intended to be used. No matter; the L1 and all of its descendants went on to become huge sellers for Bose, powering solo and duo musical acts, corporate speakers, buskers, and wedding celebrants. The success was noted, competitors entered the field, and now you'll find stick PAs in corporate AV and installations to boot.

The Latest

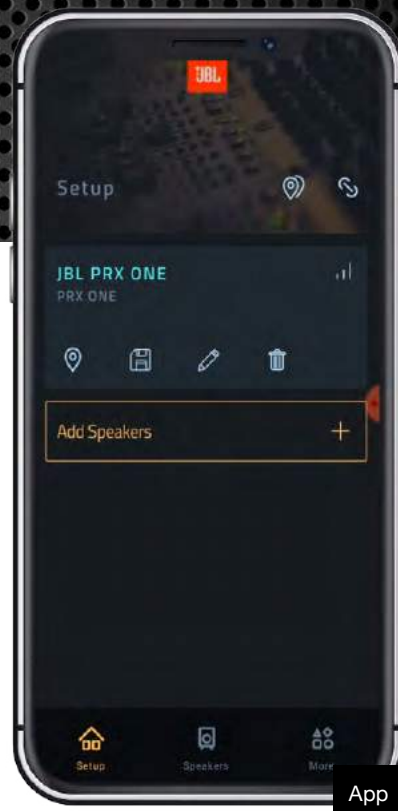
Our methodology for this Market Roundup is the same as for our CX Road Test reviews; real world opinions from professionals who have used the gear in the field. But as we went to press, JBL launched two new stick PAs that change the game, each in their own way. I had the chance to put them through their paces at Australian JBL distributor CMI Music & Audio's HQ before we went to press, and my first impressions are presented here as an informed stick PA aficionado.

JBL PRX ONE

by Jason Allen



Control Panel



App



Storage



The JBL PRX ONE is a high-quality powered column PA. The design boffins at JBL have taken what they typically don't like about stick PAs and addressed those issues one-by-one. Firstly, it looks professional and expensive; perfect for corporate. Secondly, the mixer and DSP are extensive and powerful. Thirdly, it's spec'd well; capable of 130dB powered by a 2000W amp, dispersion is an extra wide 135 x 40 degrees.

The PRX ONE succeeds where many previous stick PAs fail. Having passed my test tracks with flying colours, I went to the mic test. When running speech through a humble SM58, any PA's flaws are obvious. The PRX ONE is strong, flat, and honest.

The mid-high array sports 12 2.5-inch drivers.

Meanwhile, in the sub, there's a 12" woofer extending down to 35Hz. It's tight, musical, and completely free of the kind of 'one note' resonances you can find in this part of the market.

One of the most intriguing things about the PRX ONE is the optional install bracket and adaptor. Unlike other column PAs, this means you can position the mid-high array away from the sub enclosure/mixer/amp that feeds it. Specifically, you can wall mount them with a multi-angle bracket, hide the sub out of the way, and connect the mid-high via a speakCON terminated cable. Considering that the whole package includes inputs, processing, app control, subs, and mid-highs, this puts the PRX ONE in contention for installation in everything from small entertainment venues to large meeting rooms and every application in between.

The Specs

Powered Column PA Speaker

- Highs: 12x 2.5"
- Low: 1x 12"
- Max SPL: 130dB
- Freq Range (-10dB): 35 Hz -20 kHz
- Crossover Frequency: 260 Hz
- Dispersion (HxV): 130°x30°

Amplifier

Power Rating: 2000W Peak

Connectivity

- Inputs: 4x XLR Combo Jacks, 2x 1/4" Hi-Z, 1x 1/8"/BT Summed
- Output: 1x XLR Pass Through

Control

- Onboard dedicated encoders per channel (configurable) and LCD screen
- JBL Pro Connect app

Physical

- Net Weight: 25.7 kg
- Dimensions (H x W x D)
850 mm x 482 mm x 647 mm

Pricing

- JBL PRX ONE: RRP \$3099 inc GST
- PRX ONE Install Adaptor Bracket Kit: RRP \$699 inc GST

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JBL EON ONE MK2

by Jason Allen

This is a stick PA that runs on a rechargeable battery that is ingeniously built into the speaker column, offering a six-hour run time. Highly portable at just 19kg for the whole package, the battery operation alone offers huge advantages to anyone running anything outdoors including buskers and wedding celebrants. Not having to find power will also aid every kind of corporate AV application when getting in and out fast is a must.

Operating the mixer via the onboard controls is easy and intuitive. I like the inclusion of dedicated EQ controls, which you don't often find on this kind of unit. You get three levels of access to the DSP, including beginner, intermediate or advanced, which means the MK2 can safely go out with just about anyone

in dry hire, or be tweaked and tuned by pros as necessary.

In the listening test, utilising both test tracks and an SM58, the EON ONE MK2 is a solid performer. I had just tested the more expensive JBL PRX ONE, but the price difference did not equate to an equivalent reduction in quality.

The battery that runs the system is a very clever piece of engineering. I would swear, being an avid cyclist, that JBL have sourced it from an electric bike manufacturer; it's almost identical to units I've seen whizz by me on the bike paths. When you're running on mains power, you get a 4dB boost, kicking you up to 123dB peak SPL. We were listening on mains, and the power was more than adequate for most small gigs.

Horizontal dispersion is slightly wider than most, at 140 degrees. The column array is running eight 2" tweeters, while the bottom is handled by a 10" woofer that runs down 37Hz. Amp power is rated at 1500W peak.

The Specs

Powered Column PA Speaker

Highs: 8x 2"

Low: 1x 10"

Max SPL: 123 db on AC, 119 dB on battery

Crossover Frequency: 230 Hz

Freq Range (-10dB): 37 Hz - 20 kHz

Dispersion (HxV): 140°x30°

Amplifier

Power Rating: 1500W Peak

Connectivity

Inputs: 3x XLR Combo Jacks, 1x 1/4" Hi-Z, 1x 1/8"/BT Summed

Output: 1x 1/4" balanced

Control

Onboard dedicated EQ, gain and reverb encoders, and LCD screen

JBL Pro Connect app

Physical

Weight: 19.3kg

Dimensions (WxDxH): 452mm x 627mm x 730mm

Battery

97.2 WH, 36V, Lithium Ion

Pricing

JBL EON ONE MK2: RRP \$2399 inc GST



Control Panel



Storage



Yamaha STAGEPAS 1K

by Kim Churchill

When I'm home, I'm based in Newcastle. Converting the van has helped me navigate lockdowns, though it's been highly stressful, and I've still lost 80% of my gigs. I haven't been home since February this year. I'm currently in the NSW Northern Rivers region, staying in the border bubble so I can still play my Queensland shows.

Along with my foldout stage, I've fitted my van with two Yamaha STAGEPAS 1Ks. This set-up is incredibly flexible. I can play in just about any setting, and I can always take one STAGEPAS 1K out and do small backyard shows. Since COVID, I've played in a lot of regional areas and small towns. In all those old community halls, the STAGEPAS 1K is perfect. It's got just the right amount of what I need to communicate my music in a small setting. It's phenomenal clarity on a small scale, and the STAGEPAS 1K app allows me in-depth control of the mix, EQ, reverbs and delays from my phone, as well as the ability to stream music via Bluetooth.

The STAGEPAS 1K's portability is one of its biggest strengths. My two units simply slot into a small corner of the van and allow me to do high quality production for shows up to 150 people. When I think of the old PAs I used to use, you certainly couldn't store them in a van and still live in there.

Live, I'm playing an acoustic guitar, with its pickups running to both a bass and guitar amp. There also a direct line from the guitar, a line for guitar body percussion, and of course my vocal mic. There's a clarity to the sound, which on small gigs is highly beneficial. Performing as an acoustic singer-songwriter is all about drawing people in with your sound and storytelling, and the STAGEPAS 1K reproduces what I'm doing with warmth, and the full range of frequencies.

For the van shows, I'm running the STAGEPAS 1Ks paired in stereo. The benefit of pairing is that combining the two mixers together gives you twelve inputs, which is fantastic if I have supports or guests on stage with me. I feel Yamaha have really considered the advantages of using STAGEPAS 1Ks for larger productions. Some small halls still think they need \$30K from a government grant to get a PA, and I've been telling them to just buy one or two STAGEPAS 1Ks; they're perfect for what they need.

Another interesting thing about the STAGEPAS 1K is how little power it draws. There have been gigs where I've run off solar power. The amount of power the STAGEPAS 1K draws is so minimal it allows me to do gigs way out in the bush, running off a small generator. Not bad for something that can pack up into a small suitcase!

Kim Churchill is a singer-songwriter who has released six albums and is signed to Canadian label Indica Records. With a thriving international career, Kim has performed at Glastonbury, Splendour in the Grass, Falls Festival, Montreal Jazz, and Telluride Blues. He has supported Milky Chance, Billy Bragg, Michael Franti, and Nahko and Medicine for the People. Kim recently converted a van to include a fold out stage with full production and has been touring regional Australia through the pandemic.

The Specs

Powered subwoofer with a line array speaker

Frequency range (-10dB): 37 Hz - 20 kHz

Nominal coverage (HxV): 170°x30°

Low: 12" driver

Mid-Highs: 10x 1.5" drivers

Amplifier

Power rating: Total 1000W (subwoofer: 810W, Line array: 190W)

Connectivity

Inputs: 3 mono mic/line + 1 stereo line/2 mono line

Outputs: 1 Link out, 1 Monitor out

Bluetooth: Bluetooth Ver.5.0, A2DP (SBC, AAC)

Control

Reverb foot switch, STAGEPAS Editor (iOS/Android app)

DSP

SPX digital reverb (4 program, parameter control)

Mixing channels: 5 (3 mono + 1 ST)

Input channel functions: Hi-Z: CH2/3, 1-knob EQ: CH1-3/ST

Output channel functions: MODE (SPEECH - MUSIC - CLUB)

Physical

Dimensions (W x H x D)
System: 334 x 2,000 x 418 mm (maximum), Line array: 67 x 582 x 86 mm, Powered subwoofer: 334 x 550 x 418 mm, Spacer: 67 x 555 x 86 mm (each)

Weight

System: 23.0kg, Line array: 1.8kg, Powered subwoofer: 20.0kg, Spacer: 0.6kg (each)

Pricing

STAGEPAS 1K: RRP \$1999 inc GST

STAGEPAS 1K Dolly:
RRP \$159.99 inc GST



LD Systems MAUI 28 G2

by Brent Riley

Our LD Systems MAUI 28 G2 is one of the mainstays of our dry hire business. It appeals to our customers because it is powerful and sounds incredible, but its real strength is in its simplicity. There are no menu-driven screens to scroll through, and there are only limited controls, basically just overall level and post-fader sub level. The feedback we get from our customers is that the MAUI 28 G2 is just super easy to use.

A lot of the customers taking out the MAUI are musical solos or duos running an external mixer. They simply plug in, adjust the master, and that's it. With units that had more control, we always had problems and calls for support when they'd get into trouble going through menus and making adjustments. It doesn't happen with the MAUI.

While you can run two as a stereo system, we generally only ever hire them out on their own. Even I will admit that I was sceptical at first that one unit could put out enough power

for some of these gigs, but I've never had a customer say they needed more volume. In fact, very much the opposite. We've had some customers who have gone on to purchase the MAUI 28 G2 after hiring them, and some of them have bought two, but only ever go out with one.

Their coverage is 120 degrees horizontal by 20 degrees vertical, which is a little different to other comparable products, but it suits the applications it was designed for and works well. Their construction is solid as a rock, and the steel locking pins that hold the top column in place work perfectly. I demo them by grabbing the column and shaking it back and forth aggressively, and it never disconnects.

The LD Systems MAUI 28 G2 is built very well, priced keenly, and sounds fantastic for its price point.



The Specs

All-in-one column speaker for PA and monitor applications

Max. SPL (peak): 126 dB

Frequency response: 45 Hz - 20 kHz

Dispersion (H x V): 120° x 20°

Low/mid drivers: 2x 8"

Midrange drivers: 16x 3"

Tweeters: 2x 1"

Connectivity

Line inputs: 2x stereo, RCA, XLR/6.3 mm jack

Line outputs: 2x XCLR (1x System Out, 1x Sub Out)

Mic inputs: 1x Mic inputs, XLR/6.3 mm jack

Line input: 1x 3.5 mm jack

Hi-Z inputs: 1x 6.3 mm jack

Controls

Bluetooth switch, Hi-Z Level, Line level, Main level, Mono/stereo switch, MP3/

Bluetooth Level, Power, Sub level

Amplifier

Class D, peak output 2000W

DSP

Bit depth AD/DA converter: 24 bit

Internal sampling frequency: 48 kHz

Physical

Subwoofer (WxHxD): 370mm, 484mm, 480mm

Subwoofer weight: 19.7 kg

Mid/Hi system (WxHxD): 96mm, 780 / 795 mm, 104mm

Mid/Hi system weight: 5.6 kg

Pricing

LD Systems MAUI 28 G2 RRP: \$1,899 inc GST

Column Bag: RRP \$89 inc GST

Sub Bag: RRP \$79 inc GST

Castor board: RRP \$199 inc GST

Wall mount adapter kit: RRP \$199 inc GST



Control Panel

Brent Riley is the Manager at QLD Sound and Lighting, and a FOH sound engineer with 20 years' experience. Based on the Gold Coast, QLD Sound and Lighting provide full-service event production, along with an extensive retail sales arm.

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INDUSTRY

AV	32%
Other*	26%
Sound	23%
Lighting	18%

*typically Audio/Lighting/Staging



WORKPLACE

Other*	27%
Production Supply	19%
Corporate	15%
Conventions & Exhibitions	13%
Theatre	13%
Education	8%
Worship	5%

*typically Audio/Lighting/Staging



EMPLOYMENT TYPE

Permanent	67%
Freelance	11%
Other*	9%
Perm/Casual	7%
Casual	7%

*typically self employed



ANNUAL SPENDING

Up to \$10K	11%
\$10K - \$49K	14%
\$50K - \$99K	11%
\$100K - \$499K	15%
Over \$500K	15%

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Bose L1 Pro32

by Dave Coughran

My duo performs with the Bose L1 Pro32 tower and the Sub2, the larger of the two subs that are available to go with the Pro32. We run dual vocals, guitar, a footstomper and backing tracks. We run an external mixer utilising around six inputs and output the mix into the Pro32.

When I was looking for a new PA, I needed something that would handle whatever gig opportunity we were given. Something that could more than cover all of the venues we regularly play and have power in reserve if we got a gig in a larger space. Ideally, we needed a professional sounding rig that would be loud enough for a variety of situations as well as being compact and easy to pack up and down. I was considering a few options, but when I first heard the L1 Pro32 I knew I'd found exactly what I'd been looking for.

Unlike other portable column PAs, the array sits separately from the Sub2. We get comments from venue owners and punters about the uniquely modern, sleek look. Its capability versus portability is exceptional; the Sub2 fits in the back of my coupe! I have

considered buying an L1 Pro16 or Pro8 for smaller gigs, but don't quite have the need just yet.

We typically play in a busy pub environment to a couple of hundred people, with a lot of crowd noise. We've found we don't have to stretch the Pro32 to cut through. The reproduction of our performance is full, clean, balanced and musical. The Pro32 outputs a true representation of what's going through it. I find I just need a simple EQ and compression on our vocals, and the mix sounds polished and professional. We've also had comments from venues saying that they really like how deep, punchy and present the bass and low end is, which is great to hear considering how portable the sub actually is.

If I had to change anything about the L1 Pro32, I think it would be nice to have a couple more channel inputs built into the

unit, as that would eliminate our need to run an external mixer for smaller, pared-back situations. Compression in the onboard DSP would also be useful but apart from that, I love the features and design and there's nothing else I would change. I think that to date, it's by far the best column PA ever made.



The Specs

Self-powered line array with modular bass module and onboard three-channel digital mixer

Frequency Range (-10 dB): 30 Hz to 18 kHz

Nominal Vertical Coverage Pattern: 0°

Nominal Horizontal Coverage Pattern: 180°

Calculated Maximum SPL @ 1 m, peak: 128 dB

Crossover: 200 Hz

Low Frequency: 1 x RaceTrack low-frequency driver 10" x 18"

High / Mid Frequency: 32 x Articulated 2" drivers

Amplification: two channel, Class D. Low Frequency Amp Channel 1000 W, High / Mid Frequency Amp Channel 480 W

Onboard Mixer

Channel 1 & 2 Input: Audio Type Combination XLR or 1/4" TRS connector (mic/instrument/line)

Channel 3 Input: Audio Type 1/8" TRS (stereo-summed, line), 1/4" TRS (line),

Bluetooth audio streaming

Output: Audio Type XLR connector, line level, full-frequency bandwidth

Bluetooth Enabled: Yes

Channel Controls: 3 digital rotary encoders

Phantom Power Channel 1 & 2

AC Power Input 100–240 VAC (±20%, 50/60 Hz)

Product Dimensions (H x W x D)

L1 Pro32: 2120 x 351 x 573 mm

Sub2: 694 x 317 x 551 mm

Net Weight: L1 Pro32: 13.1 kg

Sub2: 23.0 kg

Included Accessories: Carry bag for arrays, carry bag for power stand, SubMatch cable, IEC power cord (2), bass module slip cover

Optional Accessories: L1 Pro32 Array and Power Stand Bag, Sub2 Roller Bag, Adjustable Speaker Pole, SubMatch Cable

Pricing

L1 Pro32 with SUB1: RRP \$3,739 inc GST

L1 Pro32 with SUB2: RRP \$4,399 inc GST



Dave Lee Coughran is a gigging musician in Perth, WA. As part of the Diamond Road band and Diamond Road acoustic duo, Dave sings and plays guitar at major corporate events, pubs, clubs, and hotels around the metro area.

Turbosound iNSPIRE iP 1000 V2

by Joel Grace

We had the iP 1000s in our hire stock for some time, before I sold them to a colleague who was desperate to own them! We were hiring the Turbosound iP 1000 to a lot of solo acts, particularly singer-songwriters. They were typically going out on gigs with 50 to 100 punters, indoors. With two 8" woofers in the sub, and eight 2.75" drivers in the mid-highs plus a 1" tweeter, the iP 1000 has lots of DSP, great horizontal dispersion, and is quick and easy to set up.

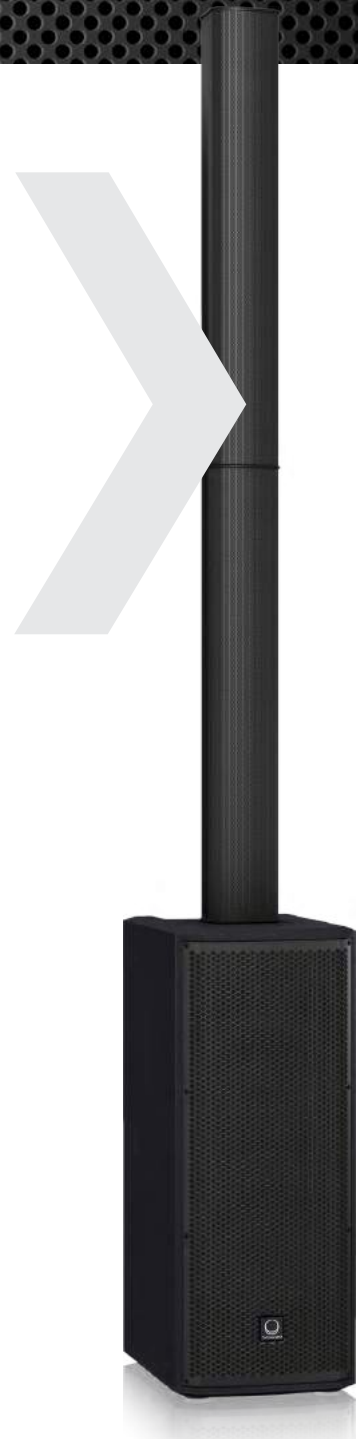
Overall, the iP 1000 is very light and portable, which is perfect for solos and duos. We found that they could often get away without having foldback speakers, as the dispersion was so wide, and there were no gain before feedback issues. If space was ever a consideration at a gig, the iP 1000 was perfect; it was very compact.

A real selling point of the iP 1000 is that it comes with a 10 year warranty. Not that I've ever had any problems with Turbosound

products, but that is impressive support. If you're going to be hiring it out or using it regularly on gigs, it will be taking some abuse. It's good to know you've got great back-up.

Sonically, I found the EQ and reverb were really nice on vocals. The vocal reproduction and clarity is good, and the sub is well matched. Operationally, the Bluetooth connectivity is easy, and the stereo link between two iP 1000s is great for DJs and bands with backing tracks.

Both the hardware controller on the unit and the Turbo Control iOS app were both very easy to use. Overall, I found the iP 1000 to be bulletproof and affordable, with a solid sound and great back-up. It represented good ROI for businesses like ours and had a well-defined place in the market.



The Specs

1000 Watt Powered Column Loudspeaker with Klark Teknik Spatial Sound Technology, digital mixer, reverb, remote control via iOS, and Bluetooth audio streaming

Frequency response (-10dB):
43 Hz – 20 kHz

Nominal dispersion: 120° H @ -6 dB points

Maximum SPL: 122 dB

Crossover type: 4 way, active and passive

Lows: 2x 8" (208 mm) LF drivers

Mids and Highs: 8x 2.75" MF drivers, 1x 1" HF compression driver

Amplifier

Class-D, Maximum output power 1000 W, three channels

Connectivity

Inputs: 2 x XLR/combo jack

Link output: XLR.

Master-slave: stereo pairing link

Version: Bluetooth 4.0 dual mode

Controls

Hardware: Rotary push-encoder

Display: LCD 128 x 32, blue, backlit

Software: iOS interface via Bluetooth

DSP

Factory EQ presets: Positioning, Sound mode

Equalisation: Bass, middle and treble

Protection: Lock-out function for all settings

Physical

Dimensions (H x W x D): 1955 x 262 x 370 mm

Base: 655 x 262 x 370 mm

Tower: 1300 x 103 x 89 mm

Weight: 24.8 kg

Pricing

iP1000 V2: RRP \$1,399 inc GST

iP1000TB: Deluxe water resistant transport bag for iP1000 Column, RRP \$79 inc GST

iP1000PC: Deluxe water resistant protective cover for iP1000 Subwoofer, RRP \$119

Joel Grace is the owner and operator of Sydney's Northern Beaches PA Hire, an audio-visual equipment hire and setup business servicing parties, DJs, weddings, bands, and conferences.

EV EVOLVE 30M

by Gabriel Vargas

When I perform live, I'm playing acoustic guitar and singing. I also perform as part of a duo, which adds another guitar and voice, plus a footstomper. For both types of gigs, I'm generally working in clubs, pubs, and venues with 150 to 200 capacity.

I first came across the EV EVOLVE 30M when I played through one at a festival. I really loved the sound I got, and I also was really impressed listening to the other acts play through it. For me, it was kind of like picking up a guitar for the first time, trying it out, and falling in love with it. In these situations, if it sounds great, you go with it.

I will admit I was slightly biased toward the EV brand as I've owned and used their products for 15 years. I've been using EV speakers for my own PA and they've been more than durable and lasted the distance. For me, EV is a familiar brand with a good reputation.

While there's larger and more powerful EVOLVE models available, the 50 and 50M, I've found the 30M packs more than enough punch for my application. I really like the wide dispersion (120 degrees) and the overall tonality fits in well with what I'm trying to achieve musically.

The biggest difference between the EVOLVE 30M and my old, traditional PA setup is the portability. Set up and pack down happens really quickly now. After two shoulder reconstructions, I was getting sick of lifting big speakers.

Having the Electro-Voice QuickSmart Mobile app on my phone to run the mixer means I can store settings and recall them. I've got my guitar with effects and vocal processing saved; I just hit the button in the app, load them up, and make slight adjustments based on the room and crowd. When I play in my duo, I've got my partner's settings saved too. The Bluetooth connectivity means I don't have to bring an aux cord for pre-show music. It's all just so much less mucking around.

Sonically, the EVOLVE 30M doesn't compromise; it's an honest sound. The wide horizontal dispersion gives very even coverage. I've recommended the EVOLVE 30M to other musos, who have gone on to buy them, and they've given me the same feedback.

Gabriel Vargas is a Melbourne-based singer-songwriter.

The Specs

Portable column speaker system with 6x 2.8" HF drivers and one 10" woofer. Onboard eight-channel digital mixer including studio-quality onboard effects and remote control capability.

Frequency range (-10 dB): 45 Hz to 20 KHz

Maximum SPL: 123 dB

Coverage (H x V): 120° x 40°

Amplifier rating: 1000 W

LF channel rating: 500 W

HF channel rating: 500 W

Crossover frequency: 200 Hz

Connectivity

4x XLR/TRS Combo Jack Line / Mic Input, 1x 1/4" TRS HI-Z input, 2x XLR/TRS Combo Jack for Stereo Line Input, 1x Stereo RCA Input, 1x 3.5 mm Stereo Input

1x Wireless Stereo Bluetooth Audio Input

1x 1/4" Foot Switch Input

1x XLR MIX OUT Output, 1x XLR AUX OUT Output

Physical

Sub (HxWxD): 448mm x 332mm x 432mm

Column (HxWxD): 620mm x 95mm x 157mm

Pole (2 pcs) (HxWxD): 600mm x 48mm x 55mm

Weight: Sub 15.8 kg, Column 2.7 kg, Pole (2 pcs): 1.4 kg

Pricing

EVOLVE 30M (black or white)
RRP \$2322.10 inc GST

EVOLVE 30M Soft Cover for Sub
RRP \$112.20 inc GST or included as a bonus until 30 November 2021

Control Panel



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dBTechnologies ES 1203

by Steve McDonald

Steve McDonald is the CEO of Queensland's Airlie Beach Music Centre, the largest supplier of pro audio and AV equipment in The Whitsundays. In addition to an extensive rental inventory for dry hire, Airlie Beach Music Centre also provide production and installation services, as well as sales.

At Airlie Beach Music Centre, we hire, sell, and recommend all of the models in dBTechnologies' ES series of portable column PAs, but the ES 1203 is the model we both sell and use most often. They are usually hired out to cover musical duos and trios in local venues, extending out to the west and on the nearby islands. They go out on a lot of corporate gigs, as they have excellent clarity for speech along with solid low end 'thump' for presentations. They're also known to handle smaller band and DJ gigs, and weddings.

I find the ES 1203 really shines in its low-mid and bass performance. While the official dBTechnologies specs say the dual 12" sub crosses over at 160Hz, we've found it performs considerably higher than that, up to around 315Hz, which is also much higher than comparable systems. That's important, because the thing most engineers dislike

about portable column PAs is that they're often lacking in low-mid, losing performance with acoustic guitars and big vocal registers. With the sub working harder, the top boxes don't have to extend down so far.

While the ES 1203 can be considered to be a little more expensive than some of its rivals, I find it provides better low end and full frequency output. A single ES 1203 system is more than capable of handling a show in a very large pub with a very loud crowd.

One of the unique things about the ES 1203 is that the top boxes can be taken apart and run remotely from the sub, creating a true stereo system; that isn't something many of its competitors can do. Running in normal column mode is very easy; a speaker cable comes out of the sub and you connect as normal, with an optional cable cover available for aesthetics.

The Specs

Tri-amped stereo system with two full-range tops and one subwoofer

Frequency Response (-10dB): 35 Hz-20 kHz

Max SPL: 132 dB

MF – HF: 8x 4" Neodymium drivers

LF: 2x 12"

Directivity: 97x60°

Amplifier

Amp Technology: Digipro G4, Class D

Power Amp Peak: 2400 W

Controls

1x OLED Display w/rotary encoder w/button

1x USB port (service data)

Power Supply: Full range with PFC

Processor

Controller: DSP 56 Bit

Converter AD/DA: 24 Bit/48 Hz

Limiters: Peak, RMS, Thermal

Crossover Frequency: LF-MF160 Hz

Digital Steering: Up/Down/Far

Input Channels: 1x Mic/Instrument Combo (XLR/Jack), 2x Mic/Line Combo (XLR/Jack), 1x Bluetooth receiver

Mix Output: 1x XLR balanced output

Physical

Pole Mount: 36 mm (M20 Thread)

Top box dimensions: Width 110 mm, Height 460 mm, Depth 160 mm

Sub Dimensions: Width 360 mm, Height, 680 mm, Depth 545 mm

Top box weight: 3.3 kg

Subwoofer weight: 29.3 kg

Pricing

ES 1203 - 2 x tops with 4 x 4", 2 x 12" active subwoofer. Includes 35mm telescopic pole, 2x 7m speaker cables and transport covers for sub and tops. RRP \$5,700 inc GST





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RCF EVOX 12

by Alan McInnes

Alan McInnes is a professional musician, performing solo, in bands, and as part of children's entertainment phenomenon The Mik Maks, who boast 3.15M subscribers on YouTube and regularly clock up millions of views.

As both The Mik Maks, and in our other musical projects, we have used RCF equipment extensively on our journey of 10 years. In a normal year, I perform around 30 solo shows, and our wedding and function band around 90. As The Mik Maks, we'll be inside, outside, and in a huge variety of venues. Any PA we invest in has to have the versatility to work for all of our acts.

In looking to update our PA, we primarily wanted something very portable. As The Mik Maks, we're a small touring production in a 12-seater minibus with five cast, plus crew and production. The RCF EVOX 12 really appeals as there's a handle and wheels on the sub. We can just roll it out, put the column into the sub, and the bump in is done quickly. The manoeuvrability means anyone on our tour can handle the PA easily. The portability and size mean the sub and column pack nicely into the van, with our in-ear systems sitting on top.

On The Mik Maks and function band gigs, we'll run two subs and two top boxes. My solo work goes out with one sub and one column. The Mik Maks and the band have their own FOH engineer on a Midas desk out the front, and my solo work utilises a small Allen & Heath analogue mixer that I sit on the sub.

The very long and loud throw of the EVOX 12 really gets the job done, coverage-wise. The Mik Maks perform for kids and families, but we're still a live band. We need bottom end, and we have a live drum kit and bass. We need presence and full frequency coverage without it being overpowering. We find the EVOX 12 more than capable of delivering a clear, full band sound to 300 people, and an audience of kids can be LOUD.

We've now done over 1000 shows with our RCF EVOX 12s and they've travelled very well indeed. They've been knocked around, constantly in and out of venues, and all I've had to do in terms of maintenance is replace the wheels on the sub once. The wooden construction is rock solid, and they still look great.

The Specs

Active Two-Way Array

Frequency Response: 40 Hz – 20 kHz

Max SPL@1M: 130 dB

Coverage Angle (HxV): 90°x30°

Mid/Highs: 8x 4"

Subwoofer: 1x 15"

Connectivity

Input Connectors: 1x XLR, 1x Jack

Output Connectors: 1x XLR

DSP

Crossover Frequency: 180 Hz

Controls: Volume, EQ

Amplifier

Total Power: 1400 W Peak, 700 W RMS

Highs: 400 W Peak, 200 W RMS

Lows: 1000 W Peak, 500 W RMS

Physical

HxWxD: 2200 mm, 410 mm, 560 mm

Weight: 36.4 kg

Pricing

RCF EVOX 12: RRP \$6205 inc GST

Cover for EVOX 12: RRP \$625 inc GST



Control Panel

RISE UP

by John O'Brien

It's been a long, dark winter for us all. Seasonal woes seem insignificant in light of extended home detention, enforced workplace closures, and endless grief that we've endured in the fight against an unseeable menace. At times, it has felt like there is no end in sight.

Except, a few rays of light are poking through. The social handbrake is being released and I detect a hint of showtime in the air. Not so much this year as next, but gigs nonetheless. **How do we keep alive until then?**

If you don't have deep pockets (any more), keep putting your hand out for everything on offer, state or federal.

What is RISE?

After a year of apparent neglect, I was heartened when the federal government finally announced some entertainment industry specific support. Restart Investment to Sustain and Expand (RISE) Fund was established to reactivate the arts and entertainment sector. In early 2021, \$200m of public money was allocated to this pool.

Doled out in a series of batches, private and public groups have been encouraged to apply for grant funding within a bunch of constraints.

Primarily:

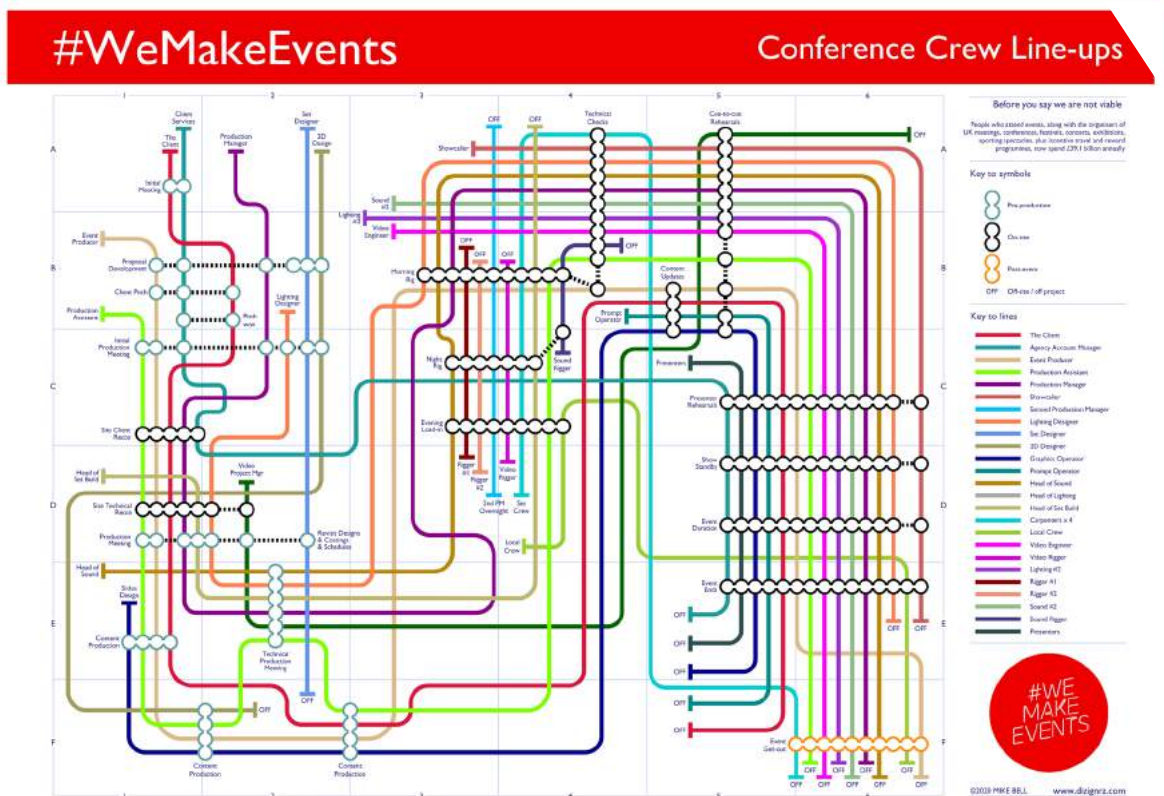
"Organisations with the primary purpose of the arts and entertainment that can demonstrate that in the absence of this funding, their activity would be substantially less likely to proceed due to a constrained availability of finance as a consequence of COVID-19."

So, basically the entire entertainment production industry you would think. One of the allowed activities under RISE is "purchasing or leasing essential equipment for events, such as sound or lighting equipment." Surely this qualifies most production houses?

But no, we have to wait until the gear is rented and the diva has sung. While this fund was set up with good intent, poor implementation has meant that much of the money released will pad the pockets of the big players while workers and supply chains see nothing until a show actually goes ahead. Most of these are not due until 2022.

RISE structural problems

There are a few issues to be addressed in explaining why this hasn't worked well. First, not all live shows necessarily follow the classical 'arts model', where large tranches



of funds are sought annually to sustain an artistic company. This might work for a few large and well-established players with long lead times on their productions but not the bulk of the entertainment scene.

To this end, RISE is project based, a more appropriate thing you might think. But the projects (shows, installations and tours) all require a governing entity that coordinates artists, suppliers, technicians and associated providers; hardly a role for the production supplier to take, as someone usually in the middle of the supply chain.

Following classic neo-liberal dogma, feed the head and the body prospers. This fund is distinctly designed to trickle down from the top. As we've seen elsewhere across the economy, this concept does not work. So far, it's not trickling anywhere except down our legs. For the bulk of the supply chain, this fund is so far more like a golden shower than handshake. Gee, thanks Canberra.

The next major impediment to this working as supposedly intended is the traditional model of recompense on gig completion, or "no show, no pay". Promoters have already trousered millions of grant money, but workers and suppliers won't see any of this until after the doors are open and the show has run. When will that be? How do they pay their bills in the meantime? How many have any financial fluidity left? Those still around have burned through cash reserves long ago. How do they even feed themselves?

Traditionally, we gig folk are excellent money managers. We have thrived on our own, without any sort of government or industry assistance. Until now. Now, we really, really need help. Unfortunately, this gravity seems not to have filtered through to the decision makers.

Who makes the decisions?

RISE is administered by the federal Arts Department under advice from the Creative Economy Taskforce. Drawn from a variety of industry notaries representing arts organisations, promoters and festivals, it is light-on in direct delegacy from coalface workers.

So, we have a bunch of bureaucrats with little idea of how our world works being advised by folk who haven't dirtied their hands on a roadcase in years, if ever. I am sure that they are well intentioned, but I don't see broad enough representation.

Where has the money gone?

With ~75% of the RISE purse already emptied, and over 2,000 applications to date, 370 have been successful. It has been spread over a wide variety of organisations, from cultural stalwarts like Womadelaide, through the large concert promoters and down to individual touring acts.

I've crunched the numbers at length and allocations seem to be roughly in line with my

understanding of industry deconstruction. However, many have still missed out and some that succeeded have raised more than a few eyebrows. One case highlighted elsewhere in the media is the Maninjump - Gatsby Skyline Showcase. Operators with little prior commercial show experience get allocated \$620k+ for 200 punters per week in a remote population of 4,000. On an untested concept, no less. Experienced and road hardened operators missed out while first timers get \$600k+ for a pipedream! Seems a little unbalanced to me...

Where hasn't the money gone?

Just like in the natural world, the top of the food chain has hoovered much of the spoils. I've canvassed widely across the industry and only unearthed two instances of supply houses guaranteed (or being included) in budget projections for grant applications. This may change as the 33% rule is enforced, but it still amounts to 2 percent of sweet FA.

So far, only a minuscule proportion of production companies are guaranteed anything. Peking Duk and Rone are the only grant winners I am aware of publicly putting budget aside for specific production industry help. There may be more, but they are not obvious to date.

Some applications were rejected for spurious reasons. I heard of one applicant rejected for "making too much profit" even when they specified rolling back all profits over a multi-year plan. Another rejected for "too much production component", even though it was costed as per pre-pandemic breakdowns. One feedback gem was "Oh, we didn't read your case properly and, yeh, you were right. Oops. Try again in the next round." Bureaucratic ineptitude or too few workers in a hollowed out public service?

Either way, I'm not getting the warm fuzzies of post-coital trickle down just now; more like the looming dread of a late-night souvlaki gone wrong kind of trickle.

Where are production companies and crew at?

On their own, as ever. If they fold before the world turns again, where are the promoters going to hire their PA, lighting and video gear from? Who will provide the staging, seating and other necessary show accessories? Will there be anyone left who knows how this gear works, let alone operate it with flair?

As we all know, many of the personnel who will be crewing these shows are self-employed. Have ABN and passport, will travel. Except, the latter is no use right now and the former is a bigger number than your bank account.

Even in good times, only a select and/or elite few might be so lucky to see an advance or retainer. If that is happening now, they are smartly staying mum. As ever, the bulk of the roadcrew workforce are grafting hard just

to stay alive right now. Many have already walked to something more dependable.

Why is it so?

Because the RISE funding model is wrong. Giving all the readies to the cats at the top, or those in the know, is exactly the same mentality that underpins countless federal funding decisions.

In fairness, like JobKeeper, this is all a work in progress and feedback seems to have been taken onboard by the RISE administering body. The addition of the "33% production clause" is welcome relief but, only implemented for batches 5 and beyond (not retrospectively), it may be too little, too late. The bulk of the money is already allocated.

Worse, I have heard of lobbying efforts from various parties to rescind this clause - the only time we have been explicitly included. That's a sad state of affairs for the CX readership.

Here's some real-world industry feedback for the big wigs - how comfortable will you feel at your next photo opportunity when the mic takes off with loops of 4kHz @ 100dB? Oh, that's right, you shafted all the good operators and now they're driving forklifts.

Where to next?

There's still \$40m or so in the kitty. Batch 6 and beyond offer promise of late funding for our overlooked corner of the shed. How this gets to those who need it most, I do not know.

Governments: Fix the model - it is broken. It does not reflect how the industry truly works. Listen to the feedback.

Suppliers and workers: Lobby up the chain for up-fronts. Lobby to get included in their budget in writing. Help them with production quotes to expedite this.

Everyone: Lobby your local members. This article is being sent straight to mine on publication. Maintain the rage.

RISE UP

Until the gigs start regularly happening and density restrictions approach a realistically profitable number, this inequity is going to continue. Until then, you can either bend over and take it or campaign against the unfairness of RISE.

Perhaps it is time for production companies and the technical crew that work with them to rise. Rise up against the unbalanced allocations of RISE grants. Rise up against CET and its inadequate response. Rise up against the wooden eared dunderheads of our governments.

Yep, another round of 'kicking against the pricks'. But, if we don't speak with a loud voice, we won't get heard. And the fat cats will take all the loot. Again...

Harness the Rage In Supply Economy - get up and get up 'em.

CASTAWAY WITH KARAOKE

by Brian Coleman



It was 30 years ago today, karaoke taught the gigs to pay. And how they paid! As the 90s rolled in most of us still struggled to get a few hundred dollars out of any gig, but the standard fee for a karaoke show was a whopping \$600. Just as duos and solos had replaced bands at some venues, karaoke, a major drawcard, was a new threat, and booking agents became unnerved as karaoke promoters began bypassing them and booking direct.

It was the best of times, it was the worst of times. I hadn't even heard of karaoke when I made the tragic mistake of abandoning my hard fought one-man-band agency gigs to do a residency in the Whitsunday Islands on the now commercially abandoned Brampton Island. The island, which boasted its own airport, was owned by TAA (Trans Australian Airlines), and I had to become a TAA employee to work there. This tropical paradise earned its reputation as the quintessential honeymooner's resort. Sounds romantic

enough, but I had wandered into a minefield.

The gig was to back a neurotic female singer and an annoying little French piano player, both of whom couldn't figure out why the honeymooners went to bed so early leaving them bewildered and playing to a virtual furniture exhibition in the main lounge. To save face they convinced the management that a guitarist/vocalist would augment their failing performances, and this addition would be the catalyst for the guests to stream

back en-masse. Well, who was I to tell them otherwise? I took the gig.

Not only did I have to deal with the neuroses of my two fellow band members, but I was forbidden by management to drink on duty, not even on the day of my duty. I'd front up to the bar and they'd point-blank refuse to serve me. Staff were only permitted to purchase one case of beer per week, which equated to 3.4 beers per day, or if taken to the extreme, since it was verboten to drink on performance

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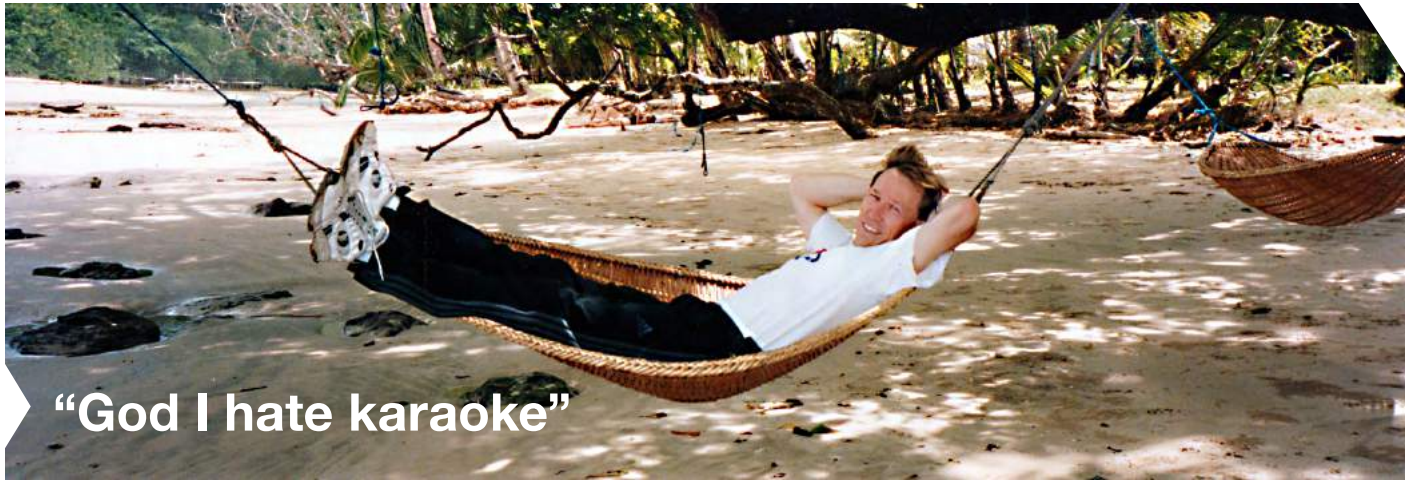
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“God I hate karaoke”

days, 24 beers on Sunday night, my night off. Fortunately, backdoor deals with non-drinkers to acquire their beer ration came to the rescue, and the Sunday binge was avoided.

The island's stringent regulations didn't stop at alcohol. All hospitality staff, maintenance employees, and entertainers on Brampton were strictly forbidden to fraternise with the guests. In fact, staff quarters were deliberately built in an isolated section some 500 metres away from the main nerve centre. Staff members were encouraged to engage in gratuitous sex with each other, and any employee's partner that applied for a position on the island was all but assured of acceptance. It was kind of like a Jonestown community without the massacre.

There's a certain clique that exists amongst hospitality staff, and I've learned over the years that I don't quite meet the criteria needed to enter that inner circle. So, I mostly mixed with the maintenance staff and Yvonne, the island's only emu.

I first encountered Yvonne when she blocked my path whilst trekking the 500 metres to my debut performance in the guest's lounge. I'd step one way and Yvonne would step in front of me. Fortunately, the gardener showed me how to get a special leaf that would appease her and she'd let me pass. Yvonne somehow learned the exact time I went to work each evening and she would meet me on the path where I'd pay the leaf toll and she would allow me to continue.

During band breaks I'd trek back to the staff section on the island, sit by a stagnant pond in the moonlight and surreptitiously sink a succession of stubbies before heading back for my next set with The Neurotics. These nightly transgressions invariably distorted my Portuguese renditions of Lambada.

Sunday night was the band's night off, so the management introduced karaoke night, and

this was my introduction to the forthcoming entertainment phenomenon, or some might say, debacle. You may question what I was doing retuning to my workplace on my night off. Well, there was absolutely nothing else to do on Brampton Island. It was either consume several beers alone down by the stagnant pond, somewhat depleting my beer ration, or off to the karaoke show after doing the Boston two-step with Yvonne.

Following several altercations with my fellow band members and management I was politely asked to leave. This was commonly referred to on the island as NBO (next boat out).

I said goodbye to Yvonne and headed back to Sydney where I discovered that my month-long absence had alienated most of my one-man-band agencies, and bookings were hard to come by. Karaoke was the light at the end of the tunnel.

I equipped myself with a Pioneer Laser Disc Player and a bunch of very expensive twelve-inch karaoke Laser Discs. I bought three TV sets and a light show and utilised my existing EV Tapco Entertainer PA. I named my fledgling production Karaoke Showtime. The agents didn't want a bar of it, so it became a cold-calling marketing exercise in which I had to explain to pub and club managers ad nauseam exactly what karaoke was.

I was under the delusion that karaoke would be similar to what it was on Brampton or in Asia, where venues were brimming with either budding singers taking to the stage to brandish their hidden talents, or self-effacing patrons who sat at their tables with wireless microphones crooning dulcet tones to their sweethearts.

Conversely, I discovered that Australian karaoke venues were mostly frequented by punters who drank twelve beers or lost count of how many triple bourbons, Zombies or Margaritas they'd had, then staggered up to the stage to blunder into either a raucous and raspy rendition of Roxanne, a woeful out-of-time offering of Whitney Houston's Greatest Love of All, or an agonising and tuneless six minutes of Hotel California. And those who couldn't carry a tune joined in the frivolities by invading the stage with their drunken football mates to put down a rugby scrum. Thus, my latest enterprise did not do a lot for my ongoing misanthropic outlook on life.

The backdrop for Karaoke Showtime featured Rosco slit drape hung on truss between two lighting poles and lit with an array of Par 56 cans. In a classic exhibition of schadenfreude (taking pleasure in someone else's misfortune), I still revel in the memory of seeing a drunken punter charge at my slit drape in an attempt to dive head-first through the glittering display. Unfortunately, he wasn't aware that it was set up in front of a brick wall.

The last words spoken in the movie Christine by the movie's female protagonist were, “God I hate rock ‘n’ roll.” The movie personified a 1958 Plymouth Fury named Christine whose radio played rock ‘n’ roll as it went on its homicidal rampage. Similarly, when I think of the torment I went through with Karaoke Showtime in my short-lived venture, or when I see some discordant karaoke singer making an ass of themselves, a voice in my head resonates, “God I hate karaoke.”



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