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REPRESENTING THE BROADCAST AND MEDIA TECHNOLOGY INDUSTRY WORLDWIDE

Virtual Media Supply Chains

Virtualization, cloud,
content transport, and the
distribution of resources
and infrastructures

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**Launch of BaM
Stock Exchange™**

**IABM shortlisted finalist for
International Association
of the Year**



Index

Remote, distributed and at-home production: Imagine Communications	4-7
Remote, distributed and at-home production: Broadcast Pix	8-9
Remote, distributed and at-home production: GB Labs	10-11
Remote, distributed and at-home production: Intinor	12-13
Remote, distributed and at-home production: SDNsquare	14-17
Remote, distributed and at-home production: Vizrt & Matrox	18-19
Remote, distributed and at-home production: XILINX	20-21
Sales: IST	22-24
IABM launches BaM Stock Exchange™	25
Marketing: Grammatik	26-28
Livestreaming: Rexcel	30-33
Localizing content and advertising: Starfish Technologies	34-35
Content transport: V-Nova and LCEVC	36-37
Distributed media workflows: Digital Nirvana	38-39
Distributed media workflows: latakoo	40-41
Content protection: Irdeto	42-43
Content protection: Friend MTS	44-45
How to be a successful tech leader	46-49
Connectivity: Pebble	50-51
Cloud playback: Globecast	52-53
Virtual events: Never.no	54-55
Cloud 2.0: Object Matrix	56-57
dock 10: Inside dock10	58-60
IABM shortlisted finalist for International Association of the Year	61
Member Speak: CP Cases	62-63

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Virtual Media Supply Chains



Peter White
CEO, IABM

Welcome to the Q2 2021 edition of the IABM Journal. As with all this year's editions, it is themed to complement our BaM Live!™ events which are running four times this year. This quarter our focus is on Virtual Media Supply Chains, an area which has experienced rapid development recently, driven by the exigencies of the coronavirus pandemic.

Most of these developments were already in progress, but have been accelerated to meet the requirement for remote operations with everything that entails – from media transport to distributed workflows and connectivity – much of which is underpinned by the cloud to enable the distribution of resources and infrastructures across different locations.

IABM members are of course at the forefront of providing the media technology that facilitates the virtual media supply chains that Broadcast, Media & Entertainment companies are increasingly relying on to improve their efficiency, flexibility and reach. We are fortunate to be able to include a wide range of in-depth articles which examine and explain developments across the media supply chain in this edition.

dock10, the UK's leading television facility and media services company, also give us an insight from the customer end as to how the pandemic has affected their business, and what changes and new initiatives made as a result of the restrictions of the pandemic they will be carrying forward.

I very much enjoyed reading PBTEU's CEO, Ivanka Vassileva's article on how to be a successful tech leader. Ivanka is one of the growing number of inspiration female tech leaders in our industry, and her advice to 'work hard, stay humble, be kind' really resonates. Jade Kurian, President and Co-Founder of Iatakoo, is another inspirational female tech leader, and her article on collaborative workflows (and more) on page 40, 'The Interoperability of Being', is also a rewarding read – as, of course, are all the many articles in this edition!

As I write this introduction, we are on the eve of closing the voting that will decide the membership of the IABM Members' Board for the next two years. I am delighted that we have had a record 28 very high quality candidates put themselves forward for election. I think this demonstrates the increasing importance of IABM to its membership; we launched a number of major initiatives to support our members through the darkest days of the pandemic, and these have since become just a springboard to yet more innovations. The latest of these is the BaM Stock Exchange™, launched just this week in response to the global components shortage, to help members both obtain the parts they need and reduce their excess stock. You can read more about the BaM Stock Exchange on page 25.

I know many member companies, like all of us at IABM, are hoping that NAB Show and IBC are indeed able to go ahead as planned as (at least partially) in-person events later this year. We have all learned a lot from our enforced virtual activities over the last 15 months or so, and while I have no doubt that some of the techniques and technologies adopted will carry forward even when we are all free to meet again, there is still no substitute for those face-to-face meetings and conversations. So all being well, I look forward to plenty of both with IABM members at IBC in early December.



Peter White
CEO, IABM

EMG: The way ahead for location production



Bevan Gibson
CTO, EMG

When we talk about location production, our thoughts and processes are primarily driven by sport. This has always been the genre which has seen the most innovation: more cameras delivering more angles; more replays; more graphics; new formats like 4K and HDR UHD. Sports fans want to be continually engaged and informed: they want to understand the plays as well as appreciate them.

Remote, distributed & at-home production

This inevitably makes it a technology-intensive operation. A big football game might have more than 30 cameras, each one with a slo-mo replay channel attached, plus motion graphics, statistical overlays and more. Controlling all those inputs means a big production switcher, and sometimes a second truck for replays.

So we have reached the stage where outside broadcast trucks are at the very limit of size and weight to make it onto public roads, yet still present a cramped operating environment in which the production team must work under great pressure. At EMG, with sustainability in mind, we have long been looking at how we can take a completely fresh approach.

The result is our IP fly-pack system we call diPlay. This modular production system is designed to cope with the largest sports events and our original goal was the multi-sport event planned for Tokyo in 2020, now likely to take place in 2021. Built into modular racks of varying sizes in dedicated 40-foot containers, diPlay allows us to plug together the functionality we want for each particular job. Even more important, it allows us to physically place modules

where they are most appropriate – which could mean some at the location, others at any distance.

There is a huge advantage in complete remote production: putting the cameras and microphones at the event, but bringing all the signals back to a central production area at your headquarters, or even to explore distributed production facilities. Most obviously, this allows you to build the control rooms for comfortable and efficient operation, not to fit inside the physical dimensions of a truck.

The central control suite can then be used intensively. A more traditional truck might cover one football game in three days: with remote production, the control room could output three games in one day. That level of productivity allows the service provider, like EMG, to invest in the latest technology to engage audiences.

How does diPlay fit into this? The endgame is that you simply shift the endpoint modules to the location and use them to transport all the signals back to base. That way, you only transport the hardware you really need – unlike today when a 30-camera



truck might be used for a six-camera opera or snooker shoot.

EMG already has a diPlay central production suite operational in the Netherlands, and we will shortly enhance our remote operations centres in UK and further across the Group with the same technology.

In the near term, we can build flexible outside broadcast units which use remote technology while still using a suitably-equipped truck. A great example was the 2021 FIS Nordic World Championships in Oberstdorf, where we provided host broadcast facilities for the cross-country skiing and ski jump competitions.

We produced from a centralised IP fly-pack based near the cross-country finish area. diPlay modules were placed around the cross-country ski course to bring cameras and microphones back to the truck. The ski



We have huge numbers of EVS HD replay servers, and SNPs can provide the SDI I/O in an IP production – 32 channels in a single SNP

jump hill was some five kilometres away, and again all the sources were brought back to the core system in the cross-country stadium.

Obviously diPlay depends upon IP connectivity and the SMPTE ST 2110 family of standards. This allows us to treat every source as an individual camera or microphone, exactly as we would have done in a traditional outside broadcast, but route them in multiplexes over dark fibre.

Critical to the diPlay architecture is the Selenio Network Processor (SNP) from Imagine Communications. This does two things for us.

First, it provides an interface to high-speed IP connectivity – up to 400 gigabit ethernet in the latest version. It also provides a time reference point in a PTP network, which makes system timing across a diverse network practical.

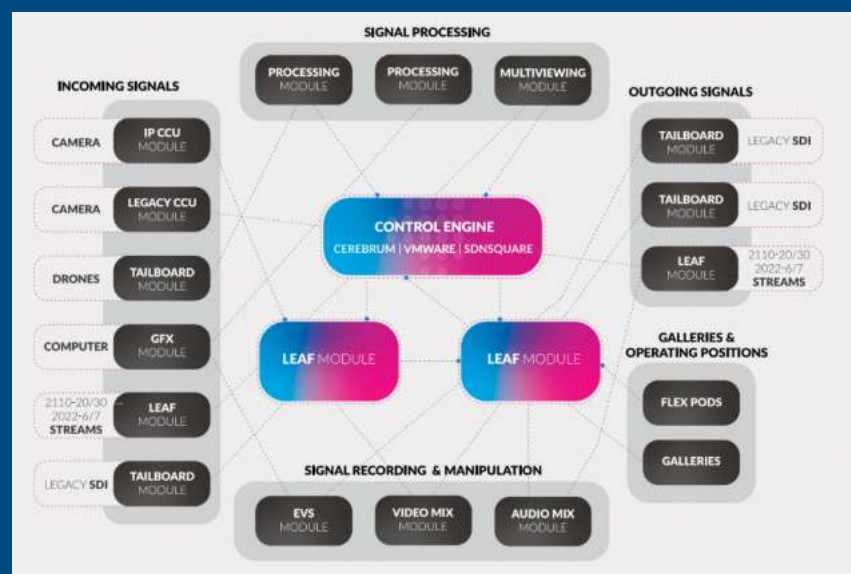
Second, the SNP is a powerful processor. To be precise, each 1RU device has four separate processor chains, running on FPGAs which are software defined. These software personalities allow us to build

precisely the functionality we need. One of the main tasks is format conversion: between 4K and HD, and between standard dynamic range and the various flavours of high dynamic range. Add in the multiviewer capability, and the SNP is vital just for managing and monitoring signals.

SNP also has the ability to bridge between IP and SDI, so legacy equipment can be easily connected into the network without latency or timing errors. We have huge numbers of EVS HD replay servers, for example, and SNPs can provide the SDI I/O in an IP production – 32 channels in a single SNP.

Many more software personalities are available for SNP: it can be used as a video proc amp, for example. It can also be used as a stage box, concentrating multiple camera and audio feeds onto a single fiber for the run back to the truck or central processing area.

We are aware that recent SNP updates also activate the feature licensing system, which will enable companies like us to realize one of the key benefits of virtualised



Remote, distributed & at-home production



software: the ability to pay for only the functionality required for specific workflows. This means that the hardware can be installed once enabling us to only buy the features we need to do the job at hand, and add functionality later as needs evolve.

We have an excellent relationship with Imagine, which allows us to see what is coming up for SNP. In particular, we are excited by the prospect of JPEG XS compression in SNP, which will help us to get even more circuits from a remote location over constrained bandwidth.

Our use of the SNP reflects our ambition for diPloy. We are service providers, so we have developed a production architecture which our clients can use in precisely the way they want. Whatever facilities they need, and wherever they need to operate them, we can software configure diPloy to do it.

Within diPloy, we software configure our SNPs to provide the workflow, the signals and the access that our clients need. On both levels, it is a common architecture made infinitely flexible through the software.



With solutions like the FX system you can pull off with two or three people what it took 10 people to do 10 years ago

Broadcast Pix: Building a production studio at SUNY Cobleskill to teach the next generation of video professionals

Sarah Madio
Director of
Marketing,
Broadcast Pix

One of the most important aspects of any training set up is that it provides relevant experience for students on industry standard equipment. For the broadcast industry that can be a problem. Not only is technology in the industry moving at a rapid pace, but the educational institutes that handle an increasing amount of training nowadays aren't always as well-resourced as they wish to be.

The result is sometimes students learning how to run, for example, a studio set up on out-of-date equipment; which is exactly the scenario that confronted Douglas Flanagan when he started a new role as Assistant Professor, Communication at the State University of New York (SUNY) at Cobleskill.

"When I walked into the studio on my interview tour, I was greeted with an old analog switcher, three analog cameras, analog audio, no teleprompters...It was all obviously going to need a bit of help," he says.

Luckily, Flanagan had already overseen a digital transition project at his previous employer and had specified a Broadcast Pix FX integrated production system for use in a project that was never realized. So, when soon after he joined the faculty at SUNY Cobleskill, he was told they were holding a fundraiser for video studio improvements, he knew exactly what he was looking for.

The Broadcast Pix system was supplied by ComTech in Melville, NY, and encompasses BPswitch live broadcasting and streaming software, a FX10 10-input server, and a 1000 (1 M/E) hardware control panel. Other studio improvements

included a new multi-purpose studio set system from Uniset, new teleprompters, a multichannel audio mixer, and the New York State Lottery donated three Ikegami studio cameras with accompanying Vinten pedestals.

Hands on approach

Flanagan says that he has always felt that his job is to try and get a student ready for their first job, and the flexibility of the Broadcast Pix system perfectly supports that ethos.

"One of the great things about this is that students can go into the industry knowing that they've learned their trade on a professional system," he says. "The system is also very malleable. We can do a traditional full-fledged studio production with a typical full student crew of individuals running the studio cameras, a floor director, audio, graphics and TD – it has the flexibility to let us do that. Plus, who knew that we would also need to explore the ability to do things with maybe just one or two people due to social distancing. Luckily, with solutions like the FX system you can pull off with two or three people what it took 10 people to do 10 years ago."



The oblique reference there is to the Covid-19 pandemic. Having taken delivery of the system in 2019, SUNY Cobleskill Communications students were prepping their first fully-staffed practice drill with the idea that it was going to go live the following week on March 12, 2020. The Campus closed due to the pandemic on March 15.

Thanks to the adaptability of the FX System Flanagan has been able to turn even that into a teachable moment. He cut his teeth at WUTR,

Remote, distributed & at-home production

an ABC affiliate in Utica, New York, which still maintains a traditional production and news department, with camera operators, TDs, directors, producers, and so on. Across the street is the NBC affiliate, WKTV, which takes a far more stripped-down approach with staff performing multiple tasks, and, as a result, sometimes there is only a single person building a show.

"It's two very different approaches to production, but when you look at them side by side, you'd be hard pressed to tell the difference," he says. "One of the major selling points of the Broadcast Pix system was that it could easily address or be configured to address the likelihood that you might, as a new employee, be one of 12 or 14 people on a crew, or you might be one of three people, and you have to run all this gear yourself."

Enabling future plans

While producing programs with minimal staff has become the Covid-driven reality for many stations, Flanagan already has his eye on the post-Covid future.

The new donated Ikegami cameras are a step up from the previous equipment, but they're still SD, so he's looking at using the JVC HD cameras used in the ENG courses in the Studio too.

Happily, the FX system can cope with that resolution upgrade and many more planned enhancements, without breaking the budget, a typical challenge that educational establishments grapple with.

"I knew the FX would be able to do all the things we needed it to and more besides," said Flanagan. "If we were trying to do this 10 years ago, it would have cost well over six figures. This is a system that not only does everything we need today; it gives us a platform that enables us to grow in the future, even moving to 4K."



The future will demand multiple islands of storage: in remote facilities, in homes and in the cloud

GB Labs: The new approach to post-production



Dominic Harland
CEO, GB Labs

In the old days, post-production may have been viewed as a licence to print money with post houses competing with each other for the biggest city centre facilities, the most inventive décor and the biggest espresso machines.

Even before 2020, this was definitely not the case. It became a much more carefully controlled business, with managers expected to deliver productivity and cost-efficiency. If there was enough margin left for a cappuccino that was a bonus.

Then a global pandemic came along, and everything changed. Travelling into city centres was no longer practical, let alone desirable. Smart editors set up suites at home. Facilities relied on remote freelancers to deliver excellent results.

As we move into the post-covid era, we will see fundamental, structural changes in the post industry. Having tasted the pleasures of working from home, more and more creative people will want to continue doing so.

It is not just the chance to take the dog for a walk in the middle of the day. It is a lifestyle choice. People no longer want to be crammed into commuter trains to London or New York (or spend three hours on the 110 freeway in Los Angeles). And it is not just time that is saved by eliminating the commute – there is a real reduction in the individual's environmental footprint.

The post facility of the future will certainly still have a city-centre presence, but it will be much smaller. There will always be times when the client wants to attend the edit. Colorists tend to rely on carefully calibrated monitoring conditions across a range of formats

which they are unlikely to have access to in their home offices.

But much more of the work will be done remotely, either in smaller facilities closer to the clients (and in areas with lower ground rents), or by individual editors and graphics designers – who may be on staff or freelance – working from their home set-ups.

This is possible because it is now practical to run many post-production functions on inexpensive off-the-shelf computers. Perhaps more importantly, the increasing spread of fast broadband makes practical the intelligent movement of the big, chunky files on which we rely.

There is a clear challenge here, though. That content needs to be

moved and shared. Handling the media must be secure, and it must deliver media when it is needed. Most of all, it needs to be automatic and seamless: editors want to get on with cutting the programme; managers want to deliver to their clients on time and on budget.

Individual storage systems come from a range of vendors, suitable for a range of file formats, and a range of requirements for security and credentials. Facilities and individuals look to choose their storage systems based on their individual requirements and reinvesting in a common platform is unlikely to be economically feasible.

With a central pool of storage, it is (relatively) simple to manage file naming and log-ins. But the future will demand multiple islands of storage: in remote facilities, in homes, and of course in the cloud.

What is needed is some way to make this geographically distributed, multi-format set of storage sub-systems appear as a single, common pool with a single sign-in. Users should have access to the material they need without being overwhelmed with too much unnecessary information. Finally, all



Remote, distributed & at-home production

files should be maintained in consistent synchronisation, and there should be no doubt about the master file, so no work is wasted on outdated versions.

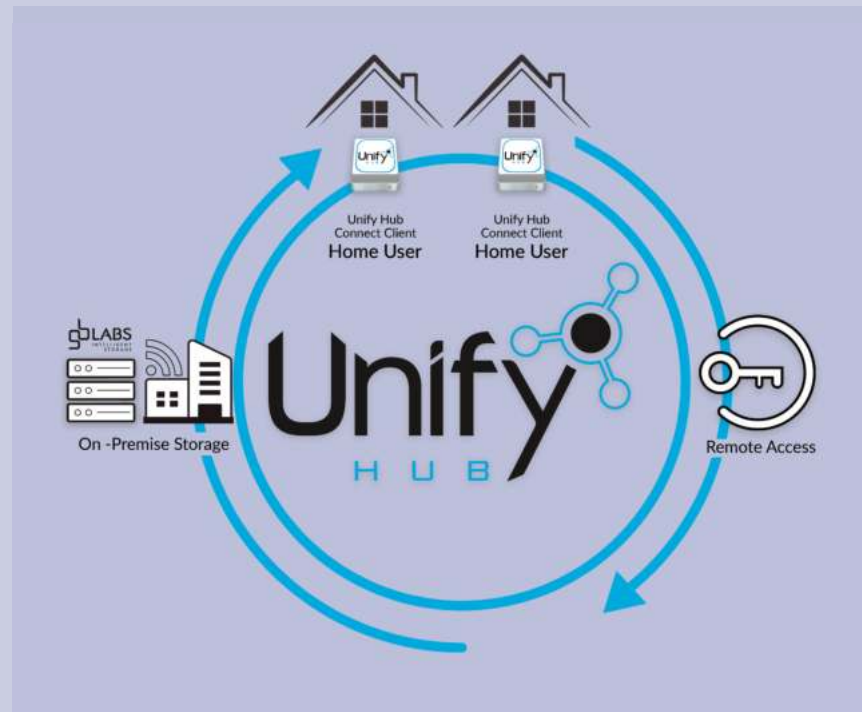
This is a challenge. You need to address connectivity, data management and access controls. The layer of automation and communication that sits below the user data must use intelligence and business rules to manage this, so it appears seamless.

Management and analytics need to be virtualised too, so that the IT manager can log on from a web browser anywhere in the world and see the state of the storage as a whole, gain metrics, trouble shoot and manage the content flows.

Those content flows are entirely dependent upon acceleration. That means not only using the latest data communication techniques to move media from A to B as quickly as possible, but also managing workflows by ensuring that the right content is pre-loaded into a remote store in time for the work to start. Hot caches of solid-state storage (Flash Cache is the GB Labs version) provide rapid access.

This is the background to our Unify Hub products. It applies intelligence to combine on premise and cloud storage. That on premise storage can be sub-systems from GB Labs, or it can come from any respected vendor of storage suitable for media. The translations between file formats and credentials are hidden in Unify Hub.

The storage can also be in the cloud: Unify can appear as an AWS S3 end point. So, if you have encoding or transcoding processes in the cloud, which typically depend upon S3 storage to manage the data, that can



now be incorporated into the overarching storage system.

It can also do the reverse: the result of anything processed in the cloud can be directly mapped into the unified storage. That means the output can appear at the central facility, and/or one or more remote facilities and home studios.

Of course, the big advantage of the cloud is its flexibility. Post house managers have a regular debate about whether to pitch for large chunks of business – finishing major series, for example – because the income (and prestige) generated needs to be offset against the cost of investing in new hardware to support it, hardware which may be unused after the project is completed, while still demanding storage space and air conditioning.

Processing and storage in the cloud allows you to increase your capabilities while you need it, slim down again when the project is over. Integrated remote working allows

you to add new locations, like the home studios of additional freelancers, to work on the project or to handle the routine jobs while your star editors do the new job. Seamless access to shared storage means you can address a wider pool of talent.

The future will bring new challenges and new ways of working. There is no right or wrong about distributed workspaces and workflows: every business will set its own priorities. But the core functionality any system will need lies in making sure everyone has access to the right media; careful and secure synchronisation of files to avoid confusion; and simple and secure access so users can forget the underlying technology, and even where content resides, and just concentrate on making the best programme.

Unify Hub from GB Labs solves those issues. With it, you have the route to successful distributed, remote and home working.

Pack a camera, tripod, microphone, lights and Intinor Direkt router into a flight case. All the recipient has to do is unpack it, plug in power and an ethernet cable and it is ready to go

Intinor: Towards hybrid production



Daniel Lundstedt
Intinor

We have all seen the way that producers have been forced into creating new solutions over the last year or so. If you are like me, you will have cringed at some of them!

It used to be easy. You got your contributors into a studio, or onto the platform of a conference hall; they did their piece; they interacted with each other.



Covid meant that became completely impossible. We got used to seeing people on screen coming from their own homes. Sometimes it was on Zoom, sometimes – usually when it was going to be a long term situation – then something rather more sophisticated (and high quality) was assembled.

If we now turn around and look forward, we can take what we have learnt over the past year and see how it will apply in future. I think it will fundamentally change production of both television programmes and live events like conferences or commercial presentations.

Contributors have got used to the idea that they are still valued for

their expert opinion, but they do not need to waste a lot of time travelling to deliver it.

Imagine you are trying to get the CEO of a Fortune 500 company to deliver a keynote speech at your conference. In the past you had to persuade them to give up three or four days of their time, travel to your location (and maybe you had to pay the first class fares), look after them while they were there, just for that 30 minutes on stage.

Everyone is going to be happier if the CEO's 30 minute presentation takes 30 minutes. The organiser is happy because it saves the travel and hotel costs; the CEO is happy because it takes much less time out from the real job; the planet is happier because of the

eliminated carbon emissions in travel.

This will not work for everyone and every situation. I think we will find ourselves with some people in the studio or on the platform; others contributing remotely. We can call this hybrid production.

But to make this work, we have to have the right technology. Going back to our imagined conference, if you have a host and two subsidiary speakers on the platform or in the studio, but the keynote address from the CEO is on Zoom with its low resolution video, very poor audio quality and blocking, and unpredictable latency, then it is easy to guess who is not going to be happy.

For those prestigious guests, for whom Zoom will definitely not do, then you can ship a kit to them. Even if you send a technician too, their expenses will be significantly less than the CEO's!

A simple kit might include a tripod and camera, a clip-on microphone, and maybe some flat panel lights. All you need then is some means of getting the sound and pictures to wherever they need to go.

That is where Intinor comes in. We provide bonded network services to carry signals direct point-to-point. Where we stand out is that we have developed our own protocol, BRT for Bifrost Reliable Transport. Bifrost is the burning rainbow bridge between the earth and the gods – we love our Scandinavian heritage.

We developed Bifrost to give secure and fast contribution from anywhere, over broadband or multiple cellular links. It includes



a lot of technology to include that, which our competitors do not, like forward error correction which hugely reduces the need for retransmission of data packets.

With our latest version we have end-to-end latency below 0.5 seconds. Which makes for virtually seamless remote contributions.

So, at the simplest level, you pack a camera, tripod, microphone, lights and Intinor Direkt router into a flight case. All the recipient has to do is unpack it, plug in power and an ethernet cable and it is ready to go.

But you can be more sophisticated than that. Management of the bandwidth allows Intinor to partition off part of the signal for a VPN. That allows a remote PTZ camera to be operated from master control. Or multiple cameras to be switched at the location, again from the master control desk.

It also allows return video to be sent to the contributor, as a confidence monitor or to watch the rest of the

proceedings. Return video is hard to do properly over an internet connection, as it normally requires ports to be open in the firewall. That is beyond plug and play understanding and, is not a good practice anyway.

The Direkt series allows the user to pull the return video into the location, eliminating the need to fiddle with firewall settings. So, it performs very much as people are used to on Zoom, but in much higher quality.

These set-ups can be quickly established in a home or an office. But we also see a growing business in local hubs: studios in towns and cities that can be rented by the hour and connected over the public internet to whichever broadcaster or production company needs them.

This is real, and available today. One company using this set-up is Zest4TV, a UK-based production companies.

Tom Herrington of Zest4TV said "What is great about the Intinor Direkt is that it is software controlled. So, we started with a basic SDI I/O, then added other functions like talkback, VPN and SRT as we needed them. No two jobs are the same.

"It has the features that we really need, like easy return video, or mix minus audio to each remote user," Herrington added. "It also gives us control, over the VPN. The director is in charge of framing on a PTZ camera or switching between remote sources; the engineer can analyse connections and troubleshoot, relying on 4G to get the main link up.

"Hybrid events have been forced on us," he admitted. "In the future, clients will be looking for it. Quality is the first concern; latency number two. Intinor gives us these, with very little trouble."

The future of discussion and debate, whether on television or in conferences, will be hybrid. The key will be getting it right – stable, secure and fast.

EMG diPloy: SDNsquare Case Study

The customer:

EMG (Euro Media Group) are a leading global provider of broadcast services and media solutions for live sports, entertainment and events across the world. With 35 years of experience in the industry, and a team spanning ten countries, EMG's expertise sits at the heart of many of the world's biggest productions, including the Tour de France, Football World Cup, Formula One, Eurovision and X-factor.

The context

EMG's core business proposition is the ability to deliver productions from events across the world, making use of remote and now, increasingly, distributed production setups. In 2017, it became clear that reliance on legacy SDI systems would be prohibitive in achieving the company's goals, and that a move to IP constituted the next logical step; allowing EMG to yet further reduce the amount of equipment and personnel which needed to be transported to remote sites. Not only would this represent a key element in reducing associated production costs, but more crucially, it would also support EMG's environment and sustainability goals – reducing the carbon footprint associated with the transport of kit and people: a factor of importance for both EMG and their clients.

A further benefit of the distributed production abilities facilitated by IP relate to the past year's need for socially distanced production – a concern which may prove to have ongoing relevance in the field of broadcast for some time to come. IP allows for production professionals to

work in their own specialized environments, in real-time, without needing to coordinate within a single OB van or on-site studio.

In addition, a key element of EMG's success is a focus on creative vision; delivering the excitement and emotion of live events to viewers across the world. This means that the technologies which they chose to implement would need to be able to deliver the highest level of performance; reliably and in a way that does not increase complexity or learning curve for those implementing and configuring the system on projects.

At the heart of EMG's growth would be the ability to create a solution that allowed them to implement IP-based production across the entirety of their operations in a modular, flexible, reliable and cost-effective manner.

The need

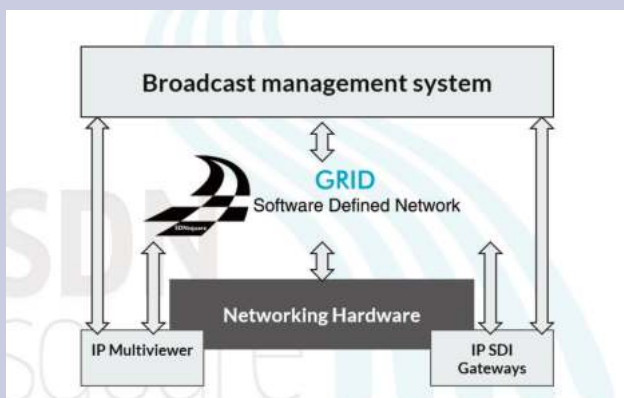
With the above factors in mind, EMG developed the diPloy system, based on an 'Anywhere, Anyway, Any size' concept, which would sit at the heart of their live remote production and video editing offerings. The diPloy system – a modular, standardized, scalable and flexible IP platform, was imagined back in 2017; a progressive approach at the time considering the complexities that existed regarding the homogenization of standards.

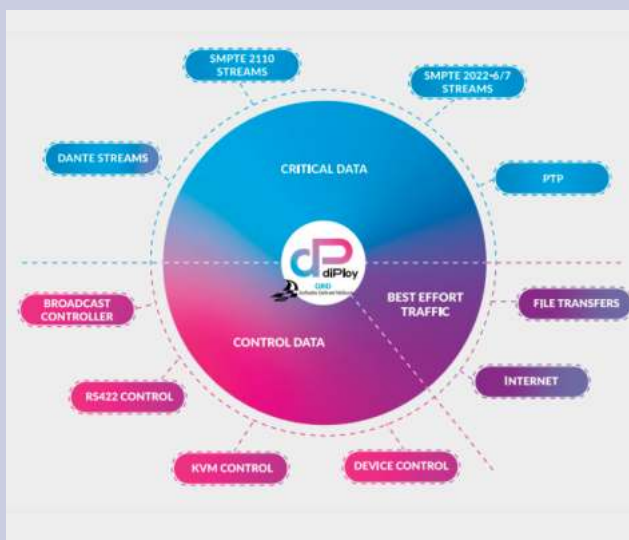
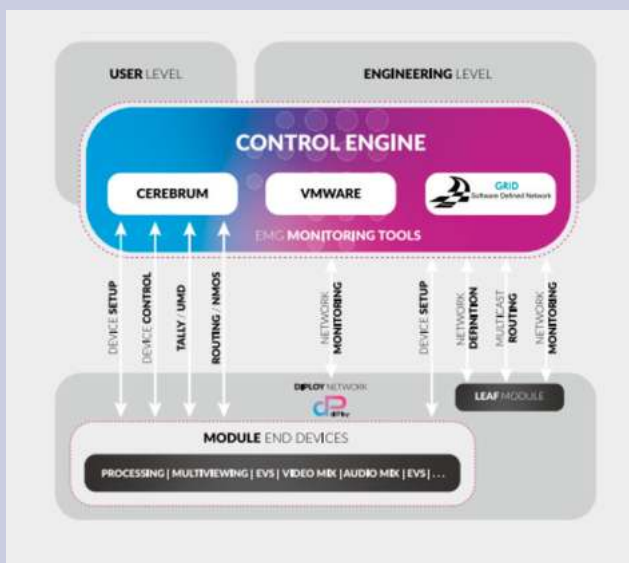
Key to EMG's ability to achieve success with diPloy would therefore be the ability of vendors who were contributing components to the system to integrate the relevant standards and protocols of each modular element, correctly and on time. In particular, EMG were determined to have the system fully functional for the major sporting events of 2020. However, with the inevitable postponements that the COVID crisis brought, it was the 2021 FIS Nordic World Ski Championship in Oberstdorf which provided the ideal opportunity for EMG to showcase diPloy's abilities.

The Solution

In identifying a suitable strategic partner, EMG looked to SDNsquare to coordinate their IP system through deployment of the GRID Network Controller; a Software Defined Network controller which guides the path for all data-streams and creates predictable, low latency flow.

The key outcome facilitated by GRID is the predictable and optimal management of the network, providing for reliable, real-time production operations which are not





disrupted by data transfer issues or blockage – using intelligent management to deliver predictable and reliable data flow.

Moreover, GRID works towards facilitating quick and automated configuration of an IP infrastructure in accordance with the needs of each of EMG's projects, accommodating modular and scalable setups, and using an interface and approach to configuration that is intuitive, easy to learn and based on WYSIWYG representations of network entities.

The specifics

Within EMG, all traditional OB units are divided into individual modules – each with different functions: Dedicated Audio & Comms-Modules, Video Switcher-modules, Replay-modules and Basestation-Modules. Tailboard Modules guarantee connectivity with the outside world. All modules are combined according to the Networked Media Open Specifications (NMOS) of the project and connected using SMPTE ST2110.

diPlay's control software is designed around a Northbound and Southbound system. The Northbound Control is based on familiar broadcast control software, interfacing with the Southbound Controller that runs hidden in the background, communicating with switches and routers. This is powered by GRID; guiding the path for all data-streams to facilitate the above-mentioned predictable low latency data-streams which are crucial to the ability to engage in distributed live production.

The key advantage facilitated by GRID is that it allows for this to occur even in a many-to-many environment, using a redundant MESH network rather than the traditional

The key benefit of IP technology is that it allows the creation of scalable, flexible systems which are easily capable of remote and distributed production workflows



IT-based spine-leaf approach. This allows for an unrivalled level of operational flexibility; accommodating more than 250 switches and close to 2000 end devices, whilst monitoring, detecting and rectifying cabling and address allocation issues, all through the use of a fully location-based DHCP server.



The benefits

SDNsquare's GRID has been involved in helping EMG to realise their diPloy vision, and thus working towards the benefits associated with IP-based production. More than simply facilitating a 'straightforward' IP setup though (a challenging enough undertaking in its own right), SDNsquare have provided a solution which will allow for a straightforward, frequently automated approach to network setup and facilitates complex, scalable and flexible configurations. In this way, EMG can adopt a modular approach their operations, setting up diPloy in accordance with the specifications of each given production project.

The result is a production environment which gains all of the benefits of IP – including future-proofing for UHD, HDR and beyond, which can be accessed and engaged with from anywhere in the world, in real-time. Even within a traditional production environment, EMG are able to benefit from the fact that an IP setup results in a significantly lower number of cables. This reduces what the German's have helpfully named 'Kabelsalat'; the tangling of numerous wires, since with the GRID powered diPloy, each production area requires only one cable core. This makes for a more streamlined, reliable, lightweight and safe working environment.

The central advantage for EMG has been the ability to more closely manage the costs associated with production; the modular approach meaning that technology deployment can be scaled to meet the size of the project, and does not need to be transported half way across the world.

In addition to the financial benefits though, EMG have also been able to meet their sustainability goals – both through the reduction of transport-associated carbon footprint, but also because when implemented with ToR switches, GRID can reduce the overall power consumption of a standard network by up to 45%.

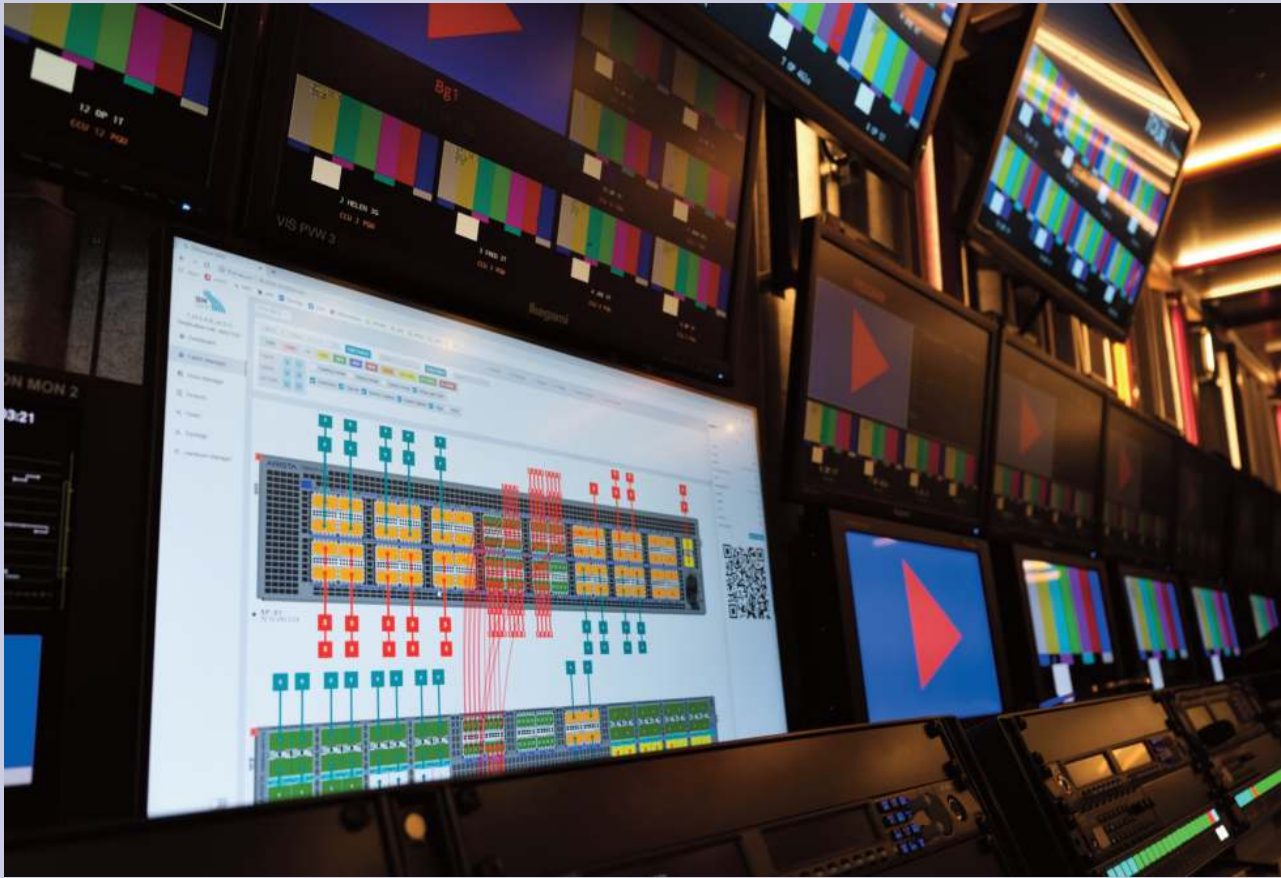
Ultimately, the use of GRID has allowed EMG to deliver a better, more cost-effective, more reliable and higher value level of service to their own clients. This was proven in the field during deployment of the system at the Nordic World Ski Championships 2021 in Oberstdorf, where the client commented on the fact that EMG's systems ran smoothly and without disruption, delivering the professionalism of production expected, whilst facilitating crew safety (through distancing), and operating in a challenging environment (namely, the snowy Bavarian Alps).



Client observations

Speaking for EMG, CTO Bevan Gibson observed: "The key benefit of IP technology is that it allows the

Remote, distributed & at-home production



creation scalable, flexible systems which are easily capable of remote and distributed production workflows. The idea with the modular nature is that it's fast to install, fast to prepare, very flexible in what it can do – and because the connectivity between modules is IP it's far simpler than legacy infrastructure based on SDI. Whether it's distributed locally across a couple of kilometres, or distributed to 5,000 kilometres away, the diPloy system utilising GRID, is designed to handle both operations.

“Moreover, aside from the technical benefits that the implementation has realised for us, increasingly, our clients demand a solution for their event that is not only modular and scalable, but also



environmentally sustainable. We strongly believe that nowadays, real innovation means reducing our ecological footprint – an idea that is echoed by SDNsquare”.

Commenting on their own role within the collaboration, Henry Alexander said for SDNsquare:

“diPloy with GRID allows sports federations and sports event organisers greater opportunity to optimise the on-site resources necessary to deliver the highest quality of broadcast coverage, whilst also promising a more sustainable approach to broadcast operations”.

Vizrt and Matrox:

Vizrt Leverages Monarch EDGE for Remote & Cloud Production

VizrTV Goes Live on Location(s) with Matrox Monarch EDGE

The Matrox Monarch EDGE encoder and decoder pair powers seamless remote and cloud-based productions by securely transporting high-quality live video across public Internet for VizrTV

How do you make two people thousands of kilometers apart appear side-by-side in a virtual studio instantaneously?

Teleportation technology. While it may sound like science fiction, Vizrt regularly brings people together from separate locations across the globe with help from a pair of Matrox® Monarch EDGE 4K/multi-HD encoder and decoder devices when producing its own VizrTV online series.

The Monarch EDGE encoder and decoder pair alongside Vizrt's software-defined visual storytelling tools for broadcasters allowed Vizrt to 'teleport' resident experts Chris Black, Vizrt's Norway-based Head of Brand and Content Team, and Gerhard Lang, Vizrt's Austria-based Chief Technology Officer into a virtual studio in Vomp, Austria – along with guest experts from anywhere in the world. With the ability to seamlessly execute both remote and cloud-based productions during different episodes, the Monarch EDGE has become Vizrt's go-to broadcast-quality encoding and decoding appliances for delivering low-latency, strikingly-realistic virtual interviews.

No travel? No problem.

Due to COVID-19 travel restrictions, what began as a means of internal communication to unite and inspire more than 700 Vizrt employees in 30 offices around the world quickly became VizrTV: an external platform focused on issues currently impacting the broadcast industry while demonstrating how Vizrt's broadcasting tools can help solve them in real-time. While broadcasters around the world were unable to return to their broadcast studios and forced to report the news from their own homes, Vizrt's in-house and guest experts found themselves in the exact same predicament.

To show the world how Vizrt's software-defined tools can help broadcasters create a more realistic live reporting experience for their viewers, Lang did not want to simply talk about the tools. Instead, he wanted to demonstrate their capabilities during live interviews. "We wanted to create a talk show format that looks natural and resembles what viewers are accustomed to seeing on TV," said Lang. "Zoom-style interviews may become the norm, but with our technology, we can do better. We wanted to inspire our customers by showing them what is possible. How do you bring two storytellers together in one place? This is the question we were trying to answer when we decided to use the Monarch EDGE encoder and decoder devices. The 4:2:2 10-bit video that the Monarch EDGE provides was critical to allow us to achieve the quality of keying we needed to make the production truly convincing."

The Monarch EDGE encoder and decoder pair met all of Vizrt's requirements for a high-performance solution that would allow them to create the image of multiple individuals having a seamless interview in one location despite their physical distance from one another. Vizrt's 'location' for VizrTV is a virtual studio, exquisitely rendered by Vizrt's Viz Engine 4.1 compositing, real-time 3D rendering, and video playout platform. An essential tool to realizing this illusion is the Monarch EDGE, which is able to deliver 4:2:2 10-bit H.264 streams that translate to flawless green screen compositions. Furthermore, SRT support on the Monarch EDGE encoder and decoder pair allows for ultra-low-latency video transport over public Internet – and ultimately – a smooth and realistic viewing experience for those watching the VizrTV live stream.

Bringing storytellers together

For VizrTV episodes featuring a [one-on-one dialog](#) between Black and Lang, cameras capturing each individual are stationed in separate studios in Bergen, Norway and Vomp, Austria, respectively. During these productions, the Monarch EDGE encoder was housed in the Norway studio, while the Monarch EDGE decoder was located in the Austria studio. SDI cameras send HD video along with embedded audio to the Monarch EDGE encoder – which encoded at 6 Mbps and streamed in SRT – with delivery latencies that allow for a natural flow of conversation. The Monarch EDGE decoder received

Remote, distributed & at-home production

the stream, then output an HD-SDI feed with audio to the Viz Engine 4.1 system housed in the Austria studio. A second SDI camera in studio sends SDI video with embedded audio to the same Viz Engine 4.1 system, which generates the final composition for delivery to a Viz Vector switching system. This system provides cuts between clips and live and encoded program delivery to Vimeo, Facebook Live, and LinkedIn, as well as proxy feedback to Black for program monitoring on his laptop. Although the Monarch EDGE encoder and decoder pair does have an independent, bi-directional analog audio circuit available to users, Black and Lang opted to use Microsoft® Teams for their real-time audio communications during these broadcasts.

Productions involving three participants follow a similar setup with an encoder required at each remote location. A single Monarch EDGE decoder and take up to four streams. In an example of [a three-participant VizrTV production](#), Dr. Andrew Cross, President of Global Research and Development for the Vizrt Group, appeared on screen while being filmed in San Antonio, United States, alongside Lang and Black. The Monarch EDGE encoder was used to capture and encode the feed captured by the camera in the U.S. studio and transport it to the Monarch EDGE decoder in Austria. There, the device was also used to decode feeds coming from the other Monarch EDGE encoder in Norway. The end result was three individuals appearing side-by-side in a realistic virtual studio environment rendered by the Viz Engine 4.1. Despite participants being located in three separate cities across the globe, VizrTV was able to deliver a realistic live interview.

More than just great technology

The Monarch EDGE encoder and decoder pair's ability to encode multiple 4:2:2 10-bit video feeds and transport them using SRT over public Internet with ultra-low latency has made it easy for Vizrt to create a realistic virtual studio setting for VizrTV, in which multiple individuals can come together from separate locations and in real time. "We wanted the end result to be a seamless viewing experience for the people watching," said Lang. "We didn't want the viewers to say, 'Wow, this is great technology.' Instead, we wanted seamless interaction with the video so viewers can focus on the story. We could not have accomplished that without the Monarch EDGE encoder and decoder."

Lang noted that Vizrt plans to leverage the Monarch EDGE encoder and decoder for its upcoming VizrTV productions. "We are looking forward to being able to use the Monarch EDGE devices alongside our own solutions in future VizrTV episodes and more," he said. "We are eager to see what else we can accomplish with this dynamic combination."

Make two people thousands of kilometers apart appear side-by-side in a virtual studio instantaneously:-



Filmed in Bergen, Norway



and filmed in Vomp, Austria



put together and sent to the world

XILINX:

Accelerating the Move to Remote & Virtualised Workflows



Rob Green
Senior Manager -
Pro AV, Broadcast
& Consumer -
Xilinx

Over the last three decades, we've seen a shift from specialised units for various video and audio functions, to high performance hardware platforms which can be repurposed on-the-fly to support any AV processing, and now to virtualized media applications and microservices which can be spun up and deployed (and paid for) only when you need them



Figure 1 – The industry shift from specialised to virtualised

Broadcasters have applied constant pressure to suppliers to enable them to move their capital expenses to operating expenses which can be more flexibly managed, as well as improve agility and scalability by providing services just for specific events or productions.

Two major technology advances have enabled this shift to occur: AV-over-IP and compression. Moving from point-to-point SDI connections to IP transport using open and interoperable standards such as SMPTE ST 2110, has meant that equipment can become addressable on the network, and that packets of audio, video and data can be transported over larger distances and to multiple places at once. This has many benefits, not least that the hardware can effectively be anywhere in the world, either on-premise or deployed in cloud data centres. Additionally, the emergence of lightweight, low-latency mezzanine compression schemes such as JPEG-XS are helping to

move media around the network more easily, using existing Ethernet installations for AV-over-IP at 4K and beyond, and enabling efficient streaming in and out of the cloud. H.264 and H.265 encoding has also been more widely deployed for contribution and for live streaming.

The impact of a global pandemic

This move from on-premise, specialised platforms to distributed workflows was happening anyway, but the global COVID-19 pandemic has vastly accelerated the move from technology proof-of-concepts to technically and commercially viable deployments for live TV and production. Unsurprisingly, the IABM Special Report (Sep 2020) listed the three most important priorities in technology roadmaps as Cloud & Virtualization, OTT & Streaming Platforms and At-Home/Remote Production, and with proven deployments are likely to become the norm.

We've seen many parts of the industry suffer greatly with lockdowns forcing abandonment of major sports and live events, but some have thrived.

The demand for remote operations has increased significantly because of travel restrictions and social distancing. On the contribution side, technology has enabled live streaming content from broadcaster staff working from home (WFH) using low-cost production equipment – often a decent quality SLR camera with HDMI output, and a live H.264 encoder box or mini-switcher connected to the Internet is all that's needed. This is one of the major reasons we saw a big increase in adoption of the Xilinx Zynq® UltraScale+™ MPSoC which integrates AV connectivity and H.264/H.265 codec into a low-cost, single-chip multimedia processor.

On the acquisition side, ensuring social distancing on-set has been made possible with the same devices, offering compressed video through wireless camera transmitters to remote field monitors, or the use of remotely controlled PTZ (point, tilt & zoom) cameras. KVM (keyboard, video & mouse extenders) have also seen growing use for remote control and display, safely separating the operators from the source.

Travel restrictions can be somewhat overcome with the use of virtual sets, with exciting developments in the use of fine-pitch LED walls in place of traditional green screens and real-time CG with in-camera VFX offering a way to create virtually any location, real or imaginary.



Figure 2 – Xilinx Zynq UltraScale+ MPSoCs

Driving such walls, particularly with large formats such as 8K, needs high-performance software processing and hardware acceleration, and the creativity that it unleashes is incredible.

In production, the emergence of ST 2110, cloud-based workflows, and reliable streaming with Secure Reliable Transport (SRT) for example, has also allowed distributed production teams to work on major live events from the comfort of their homes.

All these use cases were not driven by the pandemic itself, but rather accelerated their adoption. They showed that the technology works, and that new ways of working can be achieved much sooner than planned and likely to become more permanent in many cases.

Virtualisation

One of the major technology shifts in remote production and distributed workflows is abstraction away from hardware, or virtualisation. Understandably, we hear many broadcast equipment companies stating that they are now 'software-only', but software still needs something to run on. What they really mean is that they no longer care what hardware their systems run on, be it

CPU, GPU or FPGA, or where it resides. They just need it to be easy to deploy and use, easy to integrate and provides the required performance for handling low latency, multichannel HD, 4K or more.

Deploying hardware such as the Xilinx Alveo™ PCIe accelerator cards either on-premise or in data centres has meant that production teams can benefit from high-density and high-quality encoding and transcoding for OTT streaming, or accelerated multichannel video processing in production. Abstraction means that the software environment just needs a well-defined API. The key to agility in either data centre or on-premise embedded media systems is the use of complete software stacks that enable abstraction and portability using common, open frameworks and libraries such as FFmpeg and GStreamer. The addition of microservices deployment to distributed hardware using Docker containers and Kubernetes orchestration gives even greater flexibility, management and control. This all means that broadcasters can effectively fire up services only when needed, or where needed and still benefit from the performance required to handle 4K video processing.

The New Normal

As the world hopefully returns to normal, it's clear that attitudes will change. The pandemic forced innovation to speed up, with social distancing and travel restrictions requiring fast deployment of streaming-enabled technologies. Despite the downsides, remote working has shown itself to be a viable option for productivity. The technologies that have been used by remarkably innovative companies in the creation and distribution of media content and collaboration have proved that decentralized workflows can not only work successfully, but can be more efficient, more scalable and more agile. Enabled by AV-over-IP and compression, with abstraction using multimedia software frameworks, media companies can more effectively work with distributed content creation to keep consumers connected and entertained.

Sales



IST: Going global while keeping it local



Charlie Day
*Global Partner
Manager,
International Sales
Team*

Just as many companies have already done with business functions such as accounting, human resources, and IT, there are now very good reasons for outsourcing sales.

It affords increased sales through rapid deployment and scalability; better overall risk management; and the ability to refocus existing resources on the core business, all of which result in a substantial increase in profitability.

I've been the managing director of a successful broadcast system design, sales, and content delivery firm for more than 25 years and know first-hand that many companies were – and are – looking for ways to make their sales strategy more efficient, pro-active, and productive. The complexity of maintaining in-house sales teams nationally and, particularly, internationally has always been under scrutiny, but until now has been accepted as a necessary cost of doing business.

It needn't be any longer.

International Sales Team, 'IST', was created to provide

highly skilled sales professionals who are strategically located around the globe and immediately available – on the ground – ready to perform for broadcast industry manufacturers and suppliers in key international locations from day one.

The ability to immediately source and deploy high quality sales representatives, pretty much anywhere in the world, who are totally at ease with local business and cultural norms from the start, is a massive advantage to generating new sales quickly. This is because they 'speak the language', not only natively but also in the local business parlance. Moreover, they already have an extensive network of local and regional contacts, ready-made to evaluate and, hopefully, buy your product or service.

Outsourced sales is different from the use of a distributor

or agent. Whereas a distributor acts somewhat independently of the manufacturer and decides on sales activity and retail prices etc, with IST, the manufacturer/supplier retains direct contact with, and maintains full visibility of, the outsourced sales company and its representatives, including regular reporting, updated training, feedback on local and regional market trends, and much more.

Given the current travel obstacles and health concerns, a manufacturer stands a far better chance of a local sales representative being able to quickly, and repeatedly call on a customer in their region rather than organising an in-house, international travel and sustenance schedule in the midst of a pandemic.

That's not to say that you can totally dismantle an in-house sales team. Outsourced sales forces can be used to complement a domestic team to quickly capitalise on emerging markets or periods of opportunity that would take too long to ramp up and exploit via traditional means.

And what is an outsourced salesperson's incentive? Well, it's the same as the partners they represent, i.e., to increase profits. The difference with outsourced sales is that the manufacturer is no longer responsible for the additional overheads traditionally associated with achieving that goal. IST is rewarded on sales, so in that respect the interests of the partner and IST are perfectly aligned.

From there the alignment diverges, but in ways that benefit the manufacturing or supply partner. For example, outsourcing sales reduces the need to recruit and/or relocate employees (and often their families) to international locations. There's no

longer any need to wrestle with housing, schools, taxes, local employment law, work visa requirements (which in many regions can be fairly draconian) and binding employment contracts. IST looks after all that.

Upscaling is easy to do with an outsourced sales team, whereas upscaling, and subsequently running an international sales team can be costly, tedious, and risky.

It's also important to note that locally sourced sales professionals know how and where to find business opportunities that are often overlooked by in-house sales staff, who sometimes spend too much time chasing big fish while ignoring potentially lucrative niches, new vertical markets, and other, less-travelled tributaries where the net pickings may be smaller but exist in far greater numbers.

Outsourcing is also more cost efficient because the sales professionals sell more than one, complementary, product at a time during each visit. In other words, one call covers the non-competitive interests of multiple manufacturers.

I've already mentioned scalability, but it's worth repeating that if a rich and potentially lucrative market is identified, upscaling to take advantage of it is easy to do with an outsourced sales team, whereas upscaling, and subsequently running an international sales team can be costly, tedious, and risky. If something goes wrong, or performance targets aren't met,

redirecting an international sales force can be similar to turning around the proverbial super tanker. Local sales staff, however, know how and where to find all the potential sales prospects. It's full steam ahead.

Ultimately, outsourcing sales is yet another way of engaging professionals to perform on partners' behalf and have them assume the risks the partner would otherwise have to take, right from recruiting sales staff (largely eliminated) and ongoing training (significantly reduced) right through to managing and negotiating the vagaries of wages, local government compliance, and legal contractual obligations. When outsourced, all of this becomes the responsibility of IST, therefore taking the weight off partners' shoulders.

Supporting an international sales presence can be complicated and financially draining at the best of times, which is what has led many manufacturers, suppliers, and service providers in the broadcast trade to rethink whether there might be a better, and more profitable, alternative to traditional international – or even domestic – sales functions.

Now is the time to consider if outsourcing that function is right for your business.



IABM launches BaM Stock Exchange™

IABM has just launched the BaM Stock Exchange™. This initiative follows the publication of IABM's recent survey results of electronic component shortages across IABM. The BaM Stock Exchange™ enables IABM member companies to list their excess stock on the IABM website using internationally accepted parts codes and descriptions.

Companies who are experiencing shortages can check the BaM Stock Exchange™ and potentially find the components they require; the BaM Stock Exchange™ is fully searchable and filterable, making it simple to quickly find their required components. IABM then puts the two parties in contact to complete the transaction as a value-added service.

"We launched the component shortages survey following a conversation I had with Tim Shoulders, CEO at Grass Valley," said Peter White, IABM CEO. "Grass Valley was experiencing significant challenges in sourcing certain components for manufactured products. We wanted to establish how widespread this problem was in the Broadcast and Media technology ecosystem.

"The survey revealed that many companies are experiencing the same difficulties – but was there anything we could do about it? As a relatively niche industry compared with, for example, the automotive industry giants who are widely reported as suffering the same shortages, we don't have equal 'clout' with component suppliers. However, most companies do hold their own stocks of components – some of which they no longer use. Since many components are common across Broadcast and Media tech suppliers, it makes compelling sense to use the industry's independent, international organization as an 'Exchange'. From there, it was a comparatively straightforward process to set the BaM Stock Exchange™ up, and I hope this value-added service will help many IABM members to obtain the parts they need or reduce their unused stock overhead; it is truly a win-win for all.

"I want to give credit to Tim Shoulders for the genesis of this idea, and for turning to IABM to make it a reality. IABM is committed to building and sustaining a thriving global MediaTech community, and this kind of initiative plays perfectly with that mission," White concluded.

"I'm thrilled that the IABM stepped up to fulfill this important role for the media community," said Tim Shoulders, CEO at Grass Valley. "The BaM Stock Exchange™ will help us keep these short supply components within our industry and improve lead times and outcomes for our media customers. This is a great example of the IABM leadership responding to the needs of our membership for the better of our community."

Marketing

Marketing

US

Grammatik: Powering your business with connected communications



Glenn Matchett
*Managing Director,
Grammatik Agency*

There has never been a more fragmented and competitive communications landscape than what we have today. Not only are there more products and services than ever before but there are considerably more routes to market. On top of that we are also seeing increasingly sophisticated and nuanced relationships between products/services and the customer they are aiming to engage with. Trying to cut through all of this with effective communications can be quite a challenge. Not an impossible one, but a challenge nonetheless.

We are constantly bombarded by images, stories and advertising across multiple platforms each and every day. Research firm Yankelovich estimates that we are exposed to 10,000 ads each day. Inevitably there is a screening process attached to that statistic in that consumers stop engaging with and start ignoring brands and messages unless it's something that they have a personal interest in.

How can brands and companies without massive marketing budgets still make a significant impact in their target market? At Grammatik we are strong advocates for delivering 'connected communications' for marketing and PR. The starting point for this is a clear, well-defined positioning for your service, product or brand for the market in which you operate. Define what your Unique Selling Point (USP) is and then consider how you can focus on and communicate that as a key part of your marketing and PR strategy.

Understanding your company's value proposition is another fundamental that acts as a bedrock to effective communications. Loosely defined as the meeting point of brand, experience and product, the value proposition and its subsequent articulation is often the special sauce that will really engage both existing customers and draw in new ones.

It's vital that you can define and understand what is at the heart of your brand and what gives it a sense of purpose.

- Research your market.
- Acquire forensic knowledge of the space in which you operate.
- Speak to your customers – both existing and potential.

Then use this insight to inform your marketing and PR.

With so many routes to market it is vital to ensure that your messaging is connected across all the platforms you utilise for your activities. Create a consistent message – both visually and with your language and tone – across this fractured commercial landscape. Once you've established your messaging, it's also important to make sure your marketing and PR are synced together. Often these communications disciplines can be run independently of each other and, as such, messaging can become confused and less coherent for the audience.

Working in silos doesn't cut it anymore. It requires complex, interwoven, and often co-dependent messaging played across advertising, branding, packaging, PR, digital, customer service, and more. Symbiotic, interlocked, and constantly evolving, there is no solitary lens for communications. Instead, there is a brand kaleidoscope that acts as an ever-changing window into how a brand is perceived through the entirety of your activities. With this in mind having a single-minded and consistent approach to what you say and how you say it is increasingly important.

Effective PR and marketing help keep you front of mind with potential customers and within your market. It engenders awareness, trust and understanding of what you have to offer and – when done correctly – should help power growth and business success. PR, in particular, can be a relatively low-cost way of having a continuous heart-beat of messaging pulsing out from your company. PR can have a powerful ongoing impact by creating a form of ‘aggregated trust’ for your business.

Earning coverage in relevant publications and outlets with your stories can pay dividends when it comes to spreading your message. PR mobilises third-party support to secure share of voice (awareness), share of mind (engagement), market advantage (preference), & approval & trust (reputation). Perhaps it’s contributing to an industry story, sharing news of a new product launch, stories about the people within the business or an in-depth case study on a recent project.

All of these can make great content for your target audience in the right publication. Nurturing relationships with journalists can take time – often you can shortcut that by engaging an agency with ready-made specialist connections for you to gain exposure into the right publications.

For marketing and PR opportunities, you should always look at the broader industry to see where you can tell stories about your business and share examples on how you fit in and add value. Can you mobilise your existing customers or recent use cases

in order to power your communications? This may be creating a case study with a recent client, an online event/webinar that you can host together or an introduction to other businesses that might value your services. Keep your head above the parapet and constantly look for the connections you can make.

Research firm Yankelovich estimates that we are exposed to 10,000 ads each day. Inevitably there is a screening process attached to that statistic in that consumers stop engaging with and start ignoring brands and messages unless it’s something that they have a personal interest in.

The opportunities should be many and varied. Advocacy from a client or an existing customer is much more impactful than singing your own praises. Demonstrating the tangible value of what you do and how you have impacted on a real world situation is a much more effective way of selling than laying out functional explanations of what you do.

Show don’t tell.

With more and more pressure on marketing and PR budgets, it is important to ensure that it is accountable and there is an understanding on what you are trying to achieve – be that new customers, sales, a level of awareness or even just an

amount of coverage. Your PR and marketing activity should sync to your overall business targets, and it is always important to understand what you are aiming to achieve with your activity.

Constantly review what’s working and what’s not. Have clear and open lines of communication between contributors and invested parties so everyone pulls in the right direction. If you’re using an agency, then a shared channel on Slack can remove the overload of multiple email threads and muddled communication.

Albert Einstein is often credited with the statement that “the definition of madness is repeating the same mistakes over and over again.” It doesn’t take Einstein to surmise that the same can be said of your marketing and PR activity. If something is not working, if you can’t figure out how to get positive results, then get rid of it from your activities.

Finally, don’t be afraid to innovate and try new things. It can pay dividends to be agile and responsive when new marketing and PR opportunities present themselves. Being tuned into your competitive landscape, being active with social listening and being connected with the publications who are writing about your industry will help with this immensely. Getting a fresh perspective from a third party can also help shake out any fatigue, complacency or lack of effectiveness with your current communications and get things on track.

BaM LIVE!

Find out more
at
www.theiabm.org



Rexcel: Democratizing Livestreaming Around the World

A case study within the performing arts industry

"I can't enter the theater?" In 2020, I traveled to Taiwan, to conduct the livestreaming of an opera production. But with a sudden surge of COVID cases abroad, foreigners were quickly barred from entering certain buildings in the country, including the very theater the opera was to be performed in. As I could no longer organize the livestreaming in person, I resorted to configuring the components for it in a hotel room, and passed them along to the opera production team's camera crew.

This allowed the crew to simply connect a few cables, and start the livestreaming with the push of a button. In this moment, the 'SIMPLE LaaS' (Livestream-as-a-Service) was developed – enabling performers to livestream high quality content with four simple steps:



Ren Egawa

CEO of Rexcel Nippon Co.,
Ltd. (Tokyo) and
Rexcel Group
(Philadelphia)

Little did I know at the time, SIMPLE LaaS would assist in understanding the various concerns livestreaming can introduce for a performer. In this article, I will walk through each of these concerns, and discuss how livestreaming can serve performing artists to the best of its abilities.

Sammi Cannold, director at New York City Center, has directed a documentary about the survival of theater during the pandemic. She recently shared with me her thoughts on the potential of livestreaming technology:



"In the world of commercial musical theater, where I operate as a freelance director, conversations around livestreaming are incredibly active and lively at this moment. For years, proponents have been trying to win over the commercial theater community, but never have they seen more traction than in the wake of the global pandemic. Having lived through a near existential threat to our industry, many theatermakers are eager to ensure that our artform reaches as many people as possible and streaming has proven to be a primary – if not the main – vehicle for that."

But its potential does not come without concerns:

"One of the issues we're contending with is in the distinction between streaming and capture/release. Several major productions – such as the Broadway productions of Diana and Come From Away – have recently pursued capture and release approaches (with Netflix and Apple respectively). Where there is more

1) Config & Test



2) Ship



3) Connect



4) Push start



reticence is in actual live-streaming as artists – myself included – are nervous about the lack of control that one has when relaying the content of a live event live. Of course, we as theatermakers, give up that control in the theater as our artform is necessarily live, but we seem to have trouble getting over the hurdle when it comes to capturing and immediately releasing, perhaps in part because we aren't familiar with the methods of quality control in the world of streaming. So, it feels as if there's an artist education campaign to be waged in that regard."

As a livestream professional who has worked in the broadcast and consumer electronics industries for more than thirty years, I echo Sammi's points, especially regarding the concern on 'quality control'.

When producing a performance that is simultaneously in person and online, it is essential to have a tight collaboration between the stage and video directors. Luckily, the broadcasting industry has produced experienced video directors who can work well with stage directors, and assist in producing a still effective performance for the remote audience. But with the introduction of livestreaming, new and unique challenges come into play for video directors, who are used to only worrying about TV viewers.

A livestream must cater to the possibility of different viewing devices, and artistry must still be well presented to an audience regardless of how they are watching. For example, even if a stage's lighting looks good in person, it is challenging to capture it in the same way on camera for streaming. The only way to know if a livestream is doing justice to the artistry of a performance's lighting, effects, etc., is through 'practice, practice, practice'. But to practice means to rehearse and recreate multiple times, and it hasn't been particularly easy to set up livestreams for concerts before, much less to recreate them for 'practicing'. Fortunately, the easy setup of 'SIMPLE LaaS' I devised in Taiwan allows performers to effortlessly practice livestreaming. In Taiwan, opera rehearsals were 'practice livestreamed' as many times as the performers wished until everyone felt comfortable with the display and quality of artistry in [this livestreamed video](#).



Courtesy of Taipei Opera Company

Aside from the concerns of portraying the artistry of a performance on video, we must be conscious of how engaging the livestream is as well. Boredom easily drives away online viewers. Considering how a portion of a remote audience may well be tuning into a performance on the small screens of their smartphones, a single, fixed angle livestream is practically inviting them to leave. But what makes them stay? A multiple-angle or XR? While I can't say for sure, the camera angles used should regardlessly capture the soul of a performer, and deliver passion to online audiences. This 4HDs-in-one-4K livestream provides a possible solution to keeping online audiences engaged with a performance.

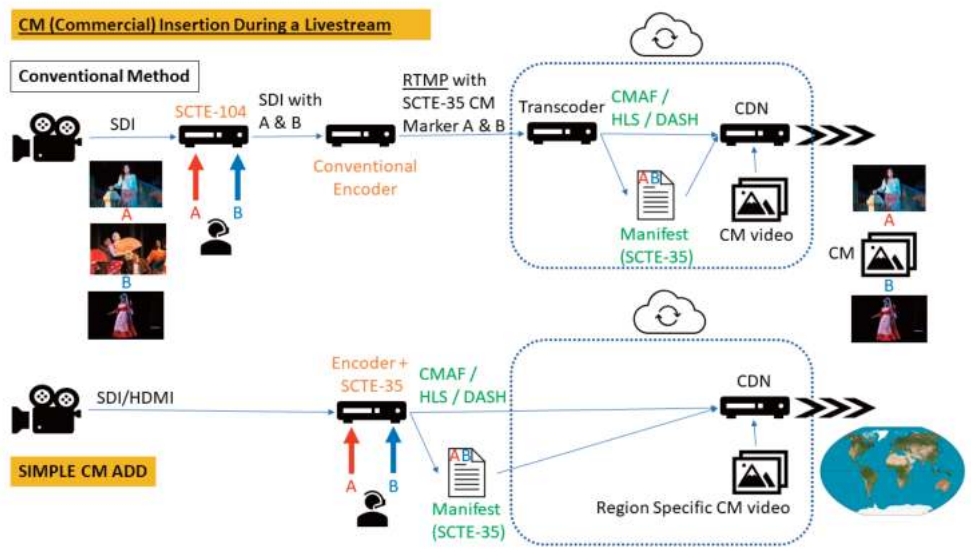


Courtesy of Taipei Opera Company

Multiple-angle cameras bring out more expressions, but also add more work and cost to a production. 'Simple LaaS' pre-configures encoders to their respective cameras, allowing stage and video directors to focus on setting up different camera angles and other more important tasks. Once an optimal multi-view presentation is achieved, a few camera angles may be selected as a 'premium channel'; these angles may be accessed by online audiences who chose to pay an extra fee.

'Quality control' is important. However, a different issue arises, as audiences are accustomed to watching online content for free. Extra steps are necessary to encourage them to pay for a livestreamed show. And as long as there exists a third party that controls and stands between performers and online audiences, it is unrealistic to expect the audiences to pay the performers. There are two underlying problems, and solutions to both point in the direction of democratizing livestreaming.

The first problem is when an audience assumes that watching intrusive advertisements and commercials pays for artists and the production of a show. However, it is possible to optimize this situation by providing performers with a financially viable method to control what commercials are shown, and when to show them.



The second problem that may arise is the idea that a pre-recorded production is finished, and that the people involved have been paid for it all already. This can be deflected by offering a 'once-in-a-lifetime experience' to an audience. We are experimenting with an approach of disabling DVR, and livestreaming every show instead. If an audience member misses a show, they can buy or exchange for a ticket to watch the next livestream show. Each livestream should be 'live', and the excitement it creates encourages audiences to pay to watch, rather than feeling as if they are paying to watch DVR content. Disabling DVR also helps lower the

SIMPLE CM ADD, as an example as to how this may be achieved.

SIMPLE CM ADD:

- Allows performers to decide when to insert the commercial, such as during an intermission (between time A and time B).
- Allows performers to decide what commercials play by placing them in the cloud.
- Needs a commercial cloud service provider such as AWS (unlike a free platform, such as YouTube) that incurs an additional cost. But this cost can be recouped by:
 - Comparing and choosing a low-cost CM ADD operation method
 - While conventional methods require costly equipment (e.g. SCTE-104) or cloud processes (e.g. transcoding), new methods such as SIMPLE CM ADD do not.
 - Covering the operation cost by increasing sponsorship revenues, by placing targeted commercials pertaining to different audiences of their respective regions.
 - E.g. Placing a Japanese commercial for Japanese audiences and a French commercial for French audiences creates the possibility of receiving sponsorships from companies that plan to enter either the Japanese or French market. These commercials can be deployed during the same timeslot as well. If used globally, the chance of having more and diverse sponsorships is increased.

livestream operation cost by eliminating the cost of storing content in the cloud.

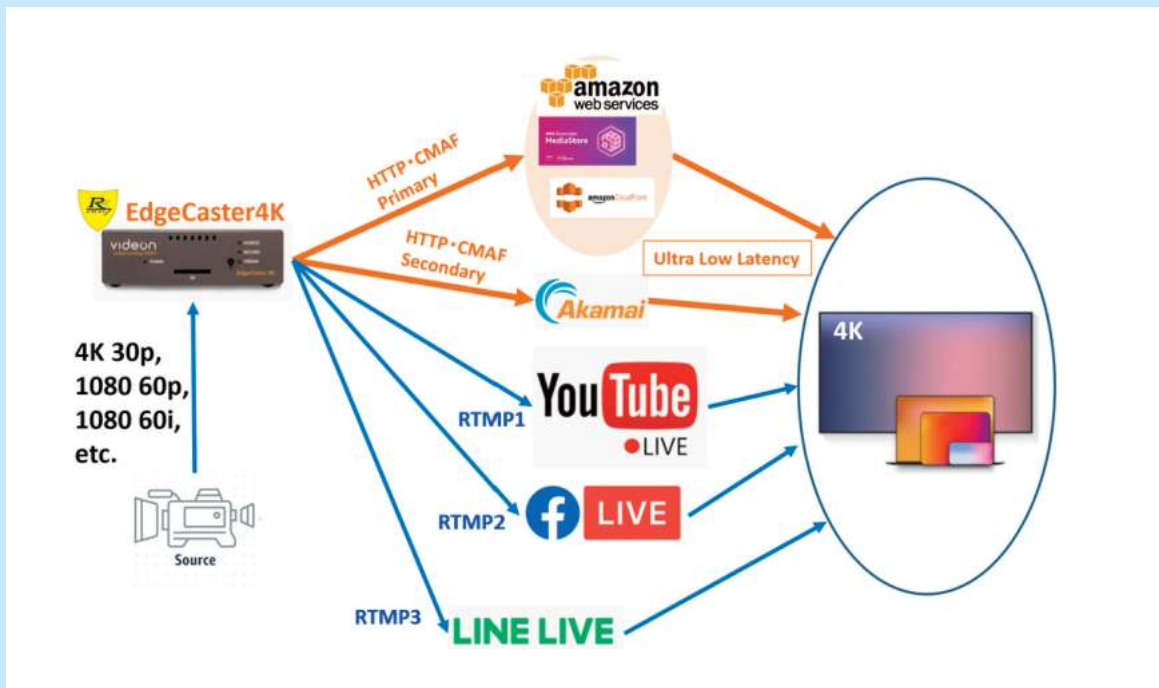
Every country's livestream skill varies, and it is impractical to travel to all countries to support their livestream operations. SIMPLE LaaS allows us to support remotely, by requiring an encoder that:

- Is light, small, and durable.
- Is quiet (no-fan), as some traditional art forms (e.g. Noh) require absolute silence.
- Concurrently supports various domestic and international CDNs so if one server is down, a backup keeps the show running.
- Supports 4K resolution so performances are appreciated to their full extent, even in the details.

To fulfil these requirements, we came to rely on Videon's 'EdgeCaster'. It is powered by a Qualcomm SoC that was originally designed for portable devices, consumes little power ($\leq 7w$), and operates without a fan. It is small (38.1mm×127mm×107.5mm) and light (450g), delivers multiple HTTP and RTMP streams simultaneously, and supports 4K.

Summary

In this article, we share our mission of enabling performers to livestream shows at low cost and high quality, offering innovative technologies and tools to generate new revenue streams, and maintaining a profitable and sustainable livestream operation under the performers' own control... all through democratizing livestreams by connecting performers directly to the audiences.



Ren Egawa (Author)

Member, IABM Americas committee,
CEO of Rexcel Nippon Co., Ltd. (Tokyo)
and Rexcel Group (Philadelphia).

A technology and business leader for more than 30 years in video and IT industries, Ren owns notable video patents, served as an SoC designer at Sarnoff/SRI, and chief technical strategist of CMG Global Software Strategy at STMicroelectronics. Ren was a recipient of Matsushita's Board of Directors award for his contributions to the digital television standardization effort at ATSC in Washington, D.C. More information is available at <https://rexcelgroup.com>.



Sammi Cannold (Guest contributor)

Director in Forbes Magazine's 30 Under 30 in Hollywood & Entertainment, class of 2019. Recent theater credits include *Evita* (New York City Center), *Endlings* (New York Theatre Workshop, A.R.T.), *Ragtime* on Ellis Island, *Violet* on a moving bus (A.R.T.), and *Allegory* (La Jolla Playhouse WOW). Upcoming projects include *Carmen* (Lincoln Center w. MasterVoices), a documentary film, and a feature film. Sammi has also served as an Artistic Fellow at the A.R.T., a member of Cirque du Soleil's Creative Cognoscenti, and a Sundance Institute Fellow and developed work with Playwrights Realm, The Eugene O'Neill Theater Center, New York Stage and Film, Cirque du Soleil, and Nickelodeon.

She holds a B.A. from Stanford University and an M.A. from Harvard University.

More information is available at www.sammicannold.com.

Starfish Technologies: The evolution of a regional TV and advertising system



Peter Blatchford
CMO, Starfish
Technologies Ltd

This narrative begins in 2006. One of the more forward-thinking European broadcasters began the search for a system to take their single national feed, that was funded through traditional ad break advertising, and produce just over 30 variants of this channel. Every channel (regional feed) would now include some regional advertising content, replacing the national advertising breaks at specific times of the day.

Starfish Technologies was awarded the contract to design and supply this system. It was implemented using SDI based technology located at each of the regional distribution hubs, the majority of which were unmanned. This system worked well and generated a significant additional revenue stream, so the broadcaster requested an 'upgrade' to this system that would also enable local news bulletins and late changing schedules to be inserted into every regional feed. These requirements were best implemented by moving to a centralised architecture and building a complete regional channel system located at its main transmission centre. The first centralised Starfish Technologies system went live in 2009 and again proved reliable, commercially rewarding and with the significant benefit of providing viewers with locally relevant news content.

In 2012, the requirement specification expanded again, this time to supplying the 30+ regions with HD feeds and HD commercial/news inserts. It also included providing a range of encoded feeds to support different distribution platforms, with both

MPEG and H264 streams at various bitrates. The system Starfish built to meet these requirements was incredibly sophisticated and included software-based encoding, stream multiplexing, auto failover redundancy and web-based system monitoring. This was a hybrid system where the input national feed was provided as high-definition SDI signal. This signal was replicated for each channel encoder (that also performed the content insertion/ replacement) and then transcoded to the required output format and bitrate, and then leaving the complete Starfish system as four encoded MPTS streams. See fig 1. At that time, the traditional approach to providing regional variants of a TV channel would have been to use multiple playout servers (typically 'channel in a box' systems), multiple channels of traditional broadcast automation and a large group of dedicated broadcast encoders, followed by stream multiplexers. The estimated physical size of this type of installation, power requirements (and subsequent air conditioning requirement) and not least the cost, would have been totally prohibitive.

All the systems described above

were designed and built by Starfish Technologies using generic enterprise grade server hardware, and primarily Starfish Technologies software products. The resultant reduction in physical size, power consumption and cost over a traditional approach was revolutionary at that time.



Figure 1 The System went live in 2014 producing over 60 channels (30 regional signals configured with full 1+1 redundancy) of HD content insertion and multi format out encoding.

When this HD system was scheduled for a hardware refresh, because of hardware warranty expiration, the increase in SDI card density and the improvement in Ad inserter/encoder performance resulting from improved CPU performance and software optimisation, meant the re-built system (using fundamentally the same software licences) had a physical size reduction of over 60%.

Localizing content and advertising

This system installation is shown in figure 2.



Figure 2 Image of the system update in 2019 after a hardware refresh/update

The next logical move in building this type of system was to move away from the restrictions imposed by SDI infrastructure, such as SDI card density, SDI routing and most importantly the desire to move beyond HD resolutions. This would require implementing the content switching/ad insertion on high bitrate (mezzanine quality) encoded streams. At that time, the products available to perform this function had a number of limitations, primarily they decoded the input stream back to base band video, inserted the replacement content, and then re-encoded the output stream. This resulted in concatenated encoding artifacts in complex systems and significant propagation delays through the processing channel – in some cases this was over 4 seconds.

Starfish Technologies decided to begin a very significant development project to design a next generation product that would avoid the limitations of the transport stream processing technology available at that time. The result of this development project is the Starfish TS

splicer. This product incorporates Starfish's patented technology to produce technically clean switching of encoded streams (splicing) without re-encoding the input stream and results in a significantly reduced propagation delay (typically less than 1 second).

Using these sophisticated stream switching techniques, continued software optimisation and combined with the ever-growing improvements in CPU performance and network speed, Starfish can now offer a 30 channel HD TS Splicer system on a single 1U generic server.

With the system manager functions of advertisement schedule handling, data base management, automation command processing, channel redundancy switching and system monitoring (via a web-based GUI) running on another, relatively low performance server. For a fully redundant 1+1 configuration, this two-server installation can be replicated at a remote site where both systems are producing the same 30 channels of live content insertion/replacement on encoded mezzanine broadcast streams.



Figure 3. Two servers providing a managed, 30 channel HD system of connect replacement/ad insertion.

Because all these systems are processing live TV channels and have a 24x7 requirement, all of our customers have chosen to deploy our software on their own, on-premise servers.

Moving forward

Applications of the TS Splicer technology include adding regional/local advertising, blocking advertising where distribution rights are not available, blocking content where there is cultural sensitivity and simply processing new OTT feeds to exploit the commercial benefits of advertising insertion.

There is also a wide range of requirements to process advertisement break signalling, including adding advertising break commands to enable downstream distributors to replace or insert advertising, and reformatting advertising break commands to meet the requirements of a new OTT system, including adding anti skip markers. Typically, these break signals are required to be compliant with the SCTE35 specification for signalling in encoded streams. The TS Splicer can add an SCTE35 signal to the channel stream using commands derived from local automation and system control systems, or even manually generated GPI's.

The opportunities for commercially focused 'broadcasters' are obvious and the more forward-thinking media suppliers are implementing new operational models to exploit these opportunities. Starfish Technologies will continue to develop our products for these applications and enable these suppliers to maximise the opportunity by incorporating sophisticated, automated solutions.

LCEVC: Increasing compression efficiency, lowering costs and reducing carbon footprint



Guido Meardi
CEO and Co-Founder
of V-Nova

We spoke with Guido Meardi, CEO and Co-Founder of V-Nova to understand the benefits of LCEVC video compression and what these could mean for users across Broadcast, Media & Entertainment.

1. Why LCEVC?

Video is the most engaging communication and entertainment medium and the appetite for better and more engaging video experiences is only growing. However, delivering higher resolutions and colour depths to more people and devices remains a challenge, regardless of the network used.

MPEG-5 LCEVC aims to address today several of the challenges increasingly felt in video streaming, broadcasting, gaming, immersive video, etc. Improved video compression is the key to solving these challenges. More recent and advanced codecs have been designed with these in mind, but most services will have to wait for device support to reach a critical mass to make their deployment meaningful and this will take years. Every new generation of video codec also comes with substantially higher encoding compute costs that can impact both profitability and the environmental sustainability of video delivery.

To meet these challenges, MPEG-5 Part 2 LCEVC 'Low Complexity Enhancement Video Coding' adds an enhancement layer to any codec improving their compression efficiency (and therefore quality) at up to 40% lower bitrates whilst maintaining the same device compatibility as the codec that is being enhanced. Low complexity also results in 60-70% lower compute costs, as well as lower carbon emissions.

In short, the low-complexity enhancement layer approach of LCEVC can be immediately deployed with software updates and helps solve video delivery challenges. It does this by enabling higher

quality over any given bandwidth and a reduction of content preparation and delivery costs, while being supported on the vast majority of devices available today.

2. Explain the licensing model

From the outset we wanted to understand what would deliver the best value to customers and to the industry. We consulted widely with services and other key industry players to define the licensing model. As a result, the fees follow these key principles:

- a) Free for integration by device or chipset manufacturers, operating systems, browsers, for in-house development and encoder or player vendors.
- b) Low-cost and capped for services, with overall cost based on service size.
- c) Designed together with customers and key industry players in order to meet their needs and ensure swift adoption.

The V-Nova LCEVC licensing model reflects the low complexity of the standard and the ability to be implemented efficiently also in software. As such, the licensing model does not require to follow traditional models charging devices and silicon deployment, but rather it can align with modern software-as-a-service (SaaS) models. The functionality is made available to the ecosystem, and services only pay if and when using and benefitting from the increased user engagement, satisfaction and retention as well as the cost efficiencies that LCEVC offers.

3. Who gets the licensing revenues?

V-Nova licenses and receives revenues for the V-Nova LCEVC, a fully productised implementation of the LCEVC standard.

4. What is the future for LCEVC?

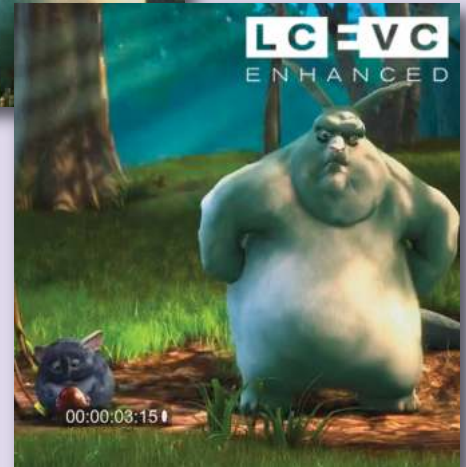
LCEVC has been standardised and recently MPEG has published the Verification Tests validating that the objective of enhancing the compression efficiency of another video compression standard while reducing its computational complexity has been achieved.

In parallel, we have developed implementations of LCEVC that we are making available to our customers. At this point, our SDK already supports a wide range of encoding and device environments. For encoding we have libraries optimised for CPUs (both Intel and ARM), GPUs and even FPGA. For decoding we have optimised libraries to cover the most popular platforms including Android, iOS, Windows, MAC and scripted decoding for HTML5-capable browsers to deploy LCEVC avoiding the need for any plugins.

To facilitate adoption, we also made available multiple reference integrations for a wide range of encoders and decoders including FFmpeg (with support for over 20 base encoders), ExoPlayer for Android, AVPlayer for iOS, Microsoft UWP for Windows and web players like HLS.js, Shaka Player and video.js. We also have integrations at the operating system level, such as a patch for AOSP (Android Open-Source Project) that makes LCEVC easily implementable in all devices with operating systems derived from that project. Importantly, those are not tech demos: they are deployable implementations, and while working on actual deployments with our Early Adopter Program, we have also engaged with professional testing companies to soak test and certify them across devices.

With the announcement of clear and simple licensing terms, we are now completing the package for anyone wanting to deploy LCEVC in any media and entertainment application.

Our focus is now on supporting the adoption and deployment of LCEVC through a range of active customer and partner projects. We see great interest and we're confident that the future for LCEVC is wide adoption.



Digital Nirvana: AI-Based Closed-Captioning Solution for New Streaming Platform Requirements

In the past couple of years, consumers' insatiable and growing demand has increased content consumption over streaming media. We have witnessed a barrage of new players launching streaming services into the market. Recent examples include the launch of Quibi and Peacock in April 2020, and HBO Max is planning to expand into Latin America by June 2021.

The increasing demand has left content creators and owners to scramble for new or repurposed content for these platforms while meeting the platform's standards in video and corresponding metadata. This critical metadata includes closed captions and, as is the case with video, closed captions must meet [standards and style guides](#) mandated by individual streaming platforms.

The tremendous growth in content consumption and the widespread acceptance of closed captions beyond the hearing-impaired community have driven up the output volume required of captioners and introduced the need to provide captions that can be used on different platforms.

One of our clients, a leading U.S.-based mobile video platform content producer headquartered in California, faced a similar challenge. They were obligated to include closed captions in line with the platform's standards and style guidelines for all their content.

The client assessed [Digital Nirvana's Trance](#), an AI-driven, cloud-based, enterprise-grade solution for transcription, captioning, and translation to find a solution to these challenges. There are a lot of impressive closed captioning applications in the market. What makes Digital Nirvana's Trance different? While the basic functionality of other applications may be similar, Trance is unique in that it is offered via the MediaServiceIQ platform; the gateway to Digital Nirvana's suite of Machine Learning (ML) and Artificial Intelligence (AI) capabilities. The platform makes accessible Trance's collection of sophisticated yet straightforward AI modules. These modules

simplify captioning for the user and support an evolving captioning and processing workflow. Be it [automatic speech-to-text content](#), [automatic caption generation](#) based on style guides, or translation, each aspect has been designed to reduce the effort involved to create the output.

Because it is an enterprise-grade application, Trance comes with an orchestration layer that enables easy project management, automatic assignment of tasks to users, and a holistic view of day-to-day operations. Combining these future-ready functionalities with superior ease of use, Trance was the customer's top choice.

Digital Nirvana's solution enhances efficiencies by using various AI modules to address the needs of transcription, caption generation, and translation based on the target streaming platform's style guide preference, enabling users to confirm compliance with output requirements automatically. Once media is ingested, a speech-to-text output is automatically generated and then displayed alongside the video in the user interface as a time-synced transcript. The operator can quickly review and correct the transcript, then convert it to closed captions based on the profile set, e.g., Netflix, Quibi, Prime, etc.

This process enables adherence to character count, line count, text frame, gaps, maximum words per minute, and more. Once the initial review is completed, the content is displayed in a captioning professional window. Users can review it along with the video and confirm how the content appears on platforms.

Distributed media workflows



Once the caption review is completed, the user can [automatically generate translation](#) in the same window alongside the [video and source-language closed captions](#). This feature eliminates the need to recheck conformance on style-guide-based parameters and allows users to review automatic translations in line with the source language captions.

Trance also has a built-in caption conformance module that helps users repurpose existing captions, correct them, and reformat them to comply with new streaming media requirements. This feature generates time-synced alerts on any nonconformance so the user can easily navigate to the occurrence and review. After completing caption generation or repurposing using caption conformance, users can download caption output formats based on the profile set, including customized WebVTT or TTML formats suitable for various streaming platforms. Users can also choose to download multiple forms that are in conformance with different broadcast and streaming platforms. Not just this client, all our clients have leveraged the following key features of cloud-based Trance to accelerate their captioning process:

- **Web User Interface:** Trance provides a simple and intuitive UI with user-specific access and customizations. Users can access work items through an easy-to-use dashboard and can even customize keyboard shortcuts.
- **Transcription Page:** Our solution is enabled with advanced speech-to-text (STT) engines equipped to handle various content types. The advanced speech-to-text (STT) engines of Trance allow users to color-code for easy identification of low-confidence text and enable easy navigation within the edit area with interactive text. Users can also import existing scripts.
- **Automatic Formatting (Presets):** Trance presets enable Natural Language Processing (NLP) based on grammar and proper nouns. These presets can be

customized technical parameters to accommodate various styles and create multiple presets under one account for various projects.

- **Pro Captioning Page:** The Trance pro captioning page provides the functionality to view, edit automatically formatted captions, sync automatically to the video, generate alerts on nonconformance with preset guidelines, and import existing closed-caption sidcar files.
- **Text Localization/Translations:** Trance supports translation into 100+ languages. Users can copy the formatting of the source or create a new preset for each language. A dual-pane display allows them to view source language text alongside translations.
- **24/7 support:** Digital Nirvana's experience, backed by a worldwide support team, ensures that our customers get application-level availability, security, comprehensive visibility, and quick responses.

Digital Nirvana's Trance is an easy-to-use, web-based application for the generation of transcripts, closed captions/subtitles, and translations for content localization. Purpose-built for media and entertainment operators, the solution empowers users to unlock the power of AI with no significant upfront capital expense or in-house expertise. Our adaptive technology is designed to handle future industry standards, while our open API architecture makes integration with existing workflows seamless and easy. Our solutions empower broadcasters and independent content producers to enhance content value, meet regulatory captioning requirements, and prepare content for publishing to different distribution channels. It offers an interface through which customers can submit their job requests and access customized, flexible services that fit their business needs.

To know more about how Digital Nirvana's AI-driven solutions can accelerate your captioning workflows, write to us at marketing@digital-nirvana.com.

There's a natural instinct for self preservation: a catch in the throat, a protective fear that occurs when broadcast vendors talk about interoperability

latakoo: The Interoperability of Being



Jade Kurian
latakoo

As ridiculous as it sounds, multiple people get a notification every time my cat, Raja, uses his smart litter robot and any time there is a sound in my hallway. I or someone else can act on those notifications with connected devices. Does Raja's litter need to be changed or is he just tripping the system? The robot will tell us. Is there a package at my door? The camera will let us know. App makers connect us to our pets, our cars, our fridges, our shoes. We live in the age of connection and while broadcast has been slower to the trend, we're now seeing a growing demand for interoperability and flexibility in the enterprise broadcast and media sector.

"For years, people sat on panels and said the NRCS (Newsroom Computer System) needed to be that interconnect. Everybody listened. Nobody did anything about it," said Blake Russell, the Executive VP for Station Operations and Content Development at the Nexstar Media Group. Mr. Russell envisioned a world where multiple systems opened up secure endpoints to connect with the newsroom computer system. "That's our NASA, our Mission Control," he explained. Nexstar owns, operates or provides service to 199 television stations and their related signals reach approximately 62% of all U.S. television households.



Mr. Russell and Nexstar were among the first to push for this, but they are not alone. This has become a routine request from

media clients. Recently a buyer said, "We really love having our video and transcriptions and metadata in latakoo, but I like that it also shows up in Avid." latakoo's backbone is built on agnostic collaboration. Our cloud infrastructure and API exist in such a way that we can provide secure connections to integration partners.

There's a natural instinct for self-preservation: a catch in the throat, a protective fear that occurs when broadcast vendors talk about interoperability. No matter what customers want, it sounds suspiciously like we are being asked to build a bridge into our service that allows some other company to sell something to our customers that maybe we could have built and sold ourselves. Why give up business to an interloper? After all, this is not the consumer web. We support a niche industrial market that some of us have carefully developed, groomed and served for decades.

And when I say "we," there are doubtlessly some tenured technology vendors who look at latakoo today and see an "interloper." The reality is that whether we're talking about new

technology startups in a market or newly arrived immigrants to a country, the temptation once one has arrived and survived is to immediately turn around, close and bolt the door. Let's build a wall, because we can clearly handle things from here. I can understand the trepidations here as I am both an immigrant and a startup technology founder, but we can't let fear create handcuffs.

While the temptation is strong to create closed branded ecosystems with locked-in customers, there are at least two problems with this bar-the-door strategy. First, it is a guaranteed superhighway to mediocrity. And second, it does not serve the best interests of our customers. Truly free markets are scary precisely because they are not protected, and that means that some innovator (not interloper) can surprise and disrupt the market with a superior service or business model. That is also why free markets are awesome for customers. Innovators create the future through their imagination and skilled execution. Everyone benefits.

After Eliud Kipchoge, a personal hero and the Kenyan marathoner, ran his epic sub two-hour

Distributed media workflows

marathon, he said, "No human is limited." His "why" resonated with the world, "The reason for running 1:59 is not the performance. The reason to run 1:59 is to tell that farmer that he is not limited; that teacher that she can produce good results in school; that engineer... that he can go to another project." Kipchoge built a team of rivals to get it done, pacemakers who were among the world's best distance runners. That's how records get broken. And sometimes during the race, competitors discover they are faster when they collaborate.

For years, broadcast and media customers asked vendors to provide easy access to superior solutions under one umbrella. "We need to remove the level of complexity to use broadcast technologies and find out how we *can all get along within the same environment*," said Mr. Russell. "You don't need six things, each doing one element alone. You need one thing that can talk to everything and it has to be secure."

Like almost every major station group in the United States today, the Nexstar Media Group grew quickly as it acquired other station groups. This created a communications challenge which the Nexstar team brought to latakoo. How does a station group operating in 100+ markets realize its potential economies of scale through real time communication and content sharing? Another station group simultaneously described the same scenario. We tackled the challenge and called our solution, Manifest.

At its heart, Manifest is a searchable index of assignments that allows users to quickly discover what is being produced that day throughout the company. Teams can search through a huge organization's assignments by category, geographic region and precise search terms. They can follow developing stories they discover for updates and request that the content be

delivered directly to them the moment a journalist turns in a story by sending the finished product through latakoo from the field to that reporter's home station.

Like every other part of latakoo, Manifest can exist on its own or it can integrate into another asset management system. For Mr. Russell's team, there's no time to duplicate work by re-entering data in more than one place. Instead, the systems used by reporters need to synchronize so that the same information and content is available on every platform they use. Today, Manifest already seamlessly integrates with three of the world's most used Newsroom Computer Systems as well as a custom assignments system, called Daybook, built and used by Nexstar.

This year, latakoo is participating in the roll out of another collaboration product that provides broadcasters the benefits of two companies, each doing what they do best. The Panasonic US team reached out to us earlier this year with a proposition. Their PTZ (Pan, Tilt, Zoom) cameras are in demand, and they've got low latency streaming video built right into the cameras. The challenge their customers face is easily setting up the necessary web systems to support the cameras. Could latakoo help? As a web-based software service provider, latakoo used the tools Panasonic baked into its cameras to easily discover the cameras on a LAN, to send the video to the cloud, to control the cameras from anywhere in the world and to direct the video stream to on-premise broadcast playout. Panasonic makes hardware



solutions. latakoo makes software services. Marry the two and broadcasters receive the collaborative benefits of each company's specialty skillset.

All of this is not to say that companies should ever walk away from the creation of any disruptive service or product they see fit to produce. The key is to go ahead and build the things you know are needed in the marketplace, but also negotiate an entry point for others to integrate. Vendors will do better if customers choose their service because it's better and not because customers feel chained inside their matrix.

I call this the interoperability of being.

Jade Kurian is President and Co-Founder of latakoo, provider of an end-to-end solution for fast, secure transfer and delivery of large files. Jade has more than 20 years experience in all facets of broadcasting and broadcast technology. She is also an operational expert, having managed staff and coordinated crews while traveling the world. Jade is a patent holder for some of the technology built at latakoo. Under her leadership, latakoo has grown to serve companies around the world including television stations, production companies and marketing firms.

There has been and continues to be a large trend toward SaaS and Cloud solutions rather than license or on-premises implementations, as these solutions offer higher service levels and scalability

Irdeto: There's no vaccination for COVID Piracy but there is hope!



Mark Mulready
VP Cyber Services,
Irdeto

The world, slowly but surely, is re-opening its tired eyes to what we called 'normal' before COVID-19 struck, shutting down everything and anything worldwide. Measures are being reworked and we're able, in some locations, to return to normality by heading back to the office, going to the movies and resuming face to face contact.

The COVID-19 pandemic truly accelerated the Video Entertainment industry, in its totality, in two different directions. Not only did it catalyze digitalization and streaming services need for D2C, but it also increased the risks threatened by piracy and security issues. Circumstances have changed, and digitalization has increased. The entire value chain including production, postproduction, and distribution is now digital. This has been in development for a while, but COVID-19 accelerated the process with contact and face-to-face life being limited.

Piracy was not a new phenomenon when COVID-19 struck, we had always battled with nefarious pirates long before we entered a pandemic. When the coronavirus first took hold in early 2020, internet usage soared with lockdowns forcing us to drastically alter how we go about our daily lives. In the UK, internet service providers (ISPs) saw a double-digit increase in broadband usage in March, with [BT claiming fixed network traffic jumped as much as 60%](#). Since then, it has become apparent that the level of disruption brought by COVID-19 would not be a passing inconvenience and would instead leave a lasting impact. Online activity has remained at levels once considered 'peak' but now considered 'normal'. All this online activity also means more opportunity for cybercriminals to exploit our networks, our devices, and often our well-intentioned human nature too. Cybercriminals are smart and creative when it comes to inventing new threats and scams, and the world has seen criminal groups increasingly switching to COVID-19 themed traps

for phishing, attempting to exploit general anxieties around the virus to their advantage. It was reported that [significant cyberattacks against critical targets in Europe have doubled in the past year](#).

Operators must of course think about security and protection, but what must also be considered is the reliability, scalability, and efficiency of the platform. Security and protection come at a cost, and we understand that operators don't have an independent budget to allocate to these services.

When it comes to protecting content from pirates, one must think like a pirate to outmaneuver the pirate.

One should think about how a pirate would look for the content, how the content would be pirated and if there are any weak links in the infrastructure. This means operators must take a smart approach in protecting and securing their valuable content. With this comes three other factors to consider: time to implement, cost to implement, and impact of the implementation. Let's explore this further.

Security

If operators are looking to launch a new OTT service, the first step is to use a multi-DRM and content usage management solution. With this operators can eliminate the simple things. Then from here, things become a little more nuanced, such as managing credential sharing, which Netflix is homing in on. [Password sharing violates Netflix's terms of service, which means it's technically illegal](#). To combat this from happening,

Concurrent Stream management provides strong enforcement against this, meaning Susie can't share her password with Amrita to watch the latest Rom-Com on Netflix. As well as this, operators can think about CDN tokenization, but unfortunately, we are seeing pirates leveraging this and using operator CDNs to deliver content they've pirated. Further steps operators can take include protecting the application the content is delivered from to secure themselves against either jailbroken or rooted phones. There are tools however to detect devices that have been jailbroken and can limit the use of the application.

Operators can also add watermarking to their content so that it can be located more easily. Irdeto's TraceMark™ supports different use cases, from tracking security weaknesses in distribution channels to identifying individual pirate sessions to disrupt unauthorized streams at the source. Whether you are trying to protect live or video-on-demand content or whether you deliver your content over Satellite or OTT platforms, Irdeto has a watermarking solution that is optimal for content protection needs.

Reliability & Scalability

2020 was a breakout year for OTT platforms where we saw explosive subscriber and usage growth. Consumers now turn to streaming services to get their fix for content. And with that comes the expectation of a high-quality and seamless streaming experience. Operators must ask themselves: are my platforms up to the task to support my subscriber growth? Can we handle high-profile events such as live concerts, sports events, or online movie premieres? Can it support my global ambitions? Is a 99,999% Service Level Agreement enough these days? All these questions need to be answered to ensure that consumers remain happy with the service they've subscribed to. Dissatisfaction may lead to consumers canceling their subscription to the service and your ambitious business plans may go up in smoke.

Efficiency

There has been and continues to be a large trend toward SaaS and Cloud solutions rather than license or on-premises implementations, as these solutions offer higher service levels and scalability. This means that service providers benefit from the scale that a company like Irdeto can offer. For example, Irdeto offers an

industry-leading service, 99,999% SLA, and we serve over 2.7 billion DRM licenses monthly and that number only continues to grow. We're able to help customers to benefit from our economies of scale and we're able to be flexible when demand is required. Irdeto can spread the peaks of demand out globally whereas an operator would have to size their operations for their own peaks, paying for idle capacity most of the time. Irdeto manages and invests in your infrastructure, all accompanied by our expert knowledge. We actively analyze the usage of our services to detect service abuse and will support our customers in addressing those issues.

So, what comes next?

We must all remain realistic in the fight against piracy – it will always be there. What we can advise is to ensure reasonable measures are taken to protect the content and that valuable content is encrypted as a preliminary stand against the pirates. We must remain vigilant, respond quickly, and continue to assess your network, your capabilities, your action plans and adding levels of security – as piracy evolves, so should your security solutions. Effective content protection requires 24x7 monitoring for rapid breach detection, notification, and takedown of illegal content. Having this additional layer of protection will provide peace of mind for rights holders and content owners that every measure is being taken to protect assets from illegal redistribution and protect their revenue. Every operator will have to embark on a different journey in fighting piracy. What is needed is an incremental approach with a long-term partner that can advise you throughout this journey and has the tools and relationships to assess, protect, detect, take down along each step, and go the legal route to enforce if necessary.

Looking further into the future, our focus must be on increased education of cybersecurity risks, through cross-industry collaboration, government, media support, and greater investment in tools to fight against modern threats. The new reality of the pandemic has exposed weaknesses in cybersecurity and more can be done to protect systems. 2020 highlighted the need for solid systems and how dialogue with industry partners and customers is necessary to find the right solutions. We have to adapt because the risks are high if we ignore them. There may be no vaccine to cure content piracy, but there are steps we can take to mitigate the risks.

The number of SVOD subscriptions skyrocketed during the pandemic as binge-watching time increased, and they're predicted to rise further to reach 1.5 billion by 2026 according to Digital TV Research

Friend MTS: No Gap Protection

Securing Content & Mitigating Risk through Collaboration



Simon Hanna
Friend MTS

In the media and entertainment world, content is king and central to your business model – critical investments and revenue that must be secured. Content piracy is nothing new and the pervasive idea that 'piracy is not a serious crime' still writes it off as nothing more than user misbehaviour. Commercial piracy today is a full-time job, stealing and reselling for profit, driving significant illegal business activities. The numbers speak for themselves: the value of pirate video services will exceed US\$67 billion by 2023, according to Parks Associates.

Larger Attack Surface: Increased Risk

While content pirates aren't opposed to a challenge, they prefer an uncomplicated route to their illegal payday: unmanaged OTT environments offer an easier target for pirates to illegally redistribute high-value content across multiple channels. The magnitude of the issue? The number of SVOD subscriptions skyrocketed during the pandemic as binge-watching time increased, and they're predicted to rise further to reach 1.5 billion by 2026 according to Digital TV Research. In addition to that, early release windows now allow pirates to have easier access to the most valuable Hollywood content.

It's not enough however to only secure content on your OTT services. While the dramatic subscription increase of 65% is driven mainly by subscriptions stacking (based on Digital TV Research analysis), pay TV will still continue to deliver more revenue: the prediction by Omdia is US\$217 billion total revenue in 2025 vs US\$115 billion for online video.

No Gap Protection through Collaboration, Technology

Content security requires a concerted effort from multiple players in the media ecosystem, and it is crucial to work with the various **content hosting platforms**, including social media, and with **infrastructure vendors**. Our established working relationships with online platforms allows us on a

daily basis to ensure pirated videos are removed from many popular platforms such as YouTube, Facebook, Telegram, Twitter and Reddit, to name a few. And, our most impressive wins in the fight against the piracy of live high-profile sporting events have been made in close collaboration with internet service providers (ISPs) that use our intelligence to implement dynamic delivery server blocking. In simple terms, it's about cutting off access in real-time to the video delivery servers that pirates are using rather than, for example, blocking pirate sites prior to an event taking place.

No gap protection across your **distribution chain** requires regular security reviews of your technology vendors to check for vulnerabilities or security gaps. This is where we collaborate with our partners like Akamai, Bitmovin and Intertrust, and ask questions like, "Is the client hardened enough?" and, "Can the DRM license proxy be worked around?" This closes any gaps between content security components and helps ensure immediate remediation of live and VOD content streams when piracy is detected.

Across **piracy networks**, key anti-piracy measures to ensure protection without gaps include the comprehensive global detection of stolen material across all redistribution channels (both legitimate, for example social media platforms, and illegitimate – pirate apps, devices, subscription

services, etc.) as well as forensic watermarking that allows us to pinpoint subscription accounts being misused and consequently remove access to content being restreamed into piracy networks (for the complexity of such networks see p. 116 of the EUIPO report).

As a technology-based services vendor, the recently launched 4th generation evolution of our Advanced Subscriber ID (ASiD) forensic watermarking service is aimed at supporting no gap platform protection. In order to achieve this, you must protect all types of content (live events, linear channels, and video on demand/VOD) in all device scenarios which can mean a mixed-mode deployment of the different ASiD watermarking solutions (Embedded for STB, Client-composited or Edge-switched for OTT). And, when we talk about large-scale mass deployment, efficiency is key. The single watermark extraction pipeline shared by all of the ASiD solutions can help achieve this efficiency with uncompromised security.

Collaborating for a Safer and Stronger Media Ecosystem

Content protection is linked with protecting consumers from fraud, from the malware risks that illicit content often carries, and from illegal content such as child abuse material. To protect not just Internet users but the victims of these crimes, we have donated our video fingerprinting technology to the International Centre for Missing and Exploited Children (ICMEC). Collaboration with law enforcement organisations and various regulatory groups is paramount to ensure a safer and more enjoyable space online for all.

Drawing on more than 20 years of experience in the content protection space, we firmly believe that no gap protection and concerted collaboration are essential to lessening the impact of content pirates, and accordingly protecting valuable video content, securing revenue and protecting consumers. Key stakeholders – rights holders, platform owners, and content creators – have a role to play in achieving this security goal and creating a stronger media ecosystem



Work hard, stay humble, be kind: the secrets of a successful tech leader



**Ivanka
Vassileva**
CEO, PBT EU

Ivanka Vassileva is CEO and co-founder of systems integration specialist PBT EU, offering customised solutions to the broadcast, media, and AV language services industries.

Products include the EXEcutor™ broadcast server line, subtitling platform SubtitleNEXT, and Profuz Digital's business process management system LAPIS.



How to be a successful tech leader

Ivanka is also co-founder of development company Profuz Digital and has grown both companies into competitive global entities that propel women into leadership roles.

Highly regarded for her integrity and passionate commitment to client service, Ivanka is one of many dynamic successful women leading the change in the technology sector.

The IABM Journal had the chance to get Ivanka's perspective on how organisations in the industry can advocate for women, and men, in tech, resulting in attracting the best people to create a thriving culture that encourages and motivates. She believes that tech is a fantastic industry for women and will improve if more women are working in engineering, development, and sales roles.

What do you love about your work?

I love to get stuck in early concerning complex issues that arise in our industry, and to have a solution ready before the rest of the market even realises the need for it. We evolve our products continuously to meet a variety of challenges. In my line of work, I make a concerted effort to get up to speed with new technologies fast, which I find energising.

What advice would you give to a woman getting started in her career in your industry?

I would advise them to be confident in their skills, to work hard and further develop them, but to be patient, as success doesn't come in a day. Women have a lot of soft skills which can complement their knowledge. With perseverance, this combination can make them advance quickly in their career, even in this industry. In the media localization area, we see a lot of successful women and many hard-working successful professionals that are highly respected for what they do.

Tell us about a favourite book/show/podcast or film and why/how it inspires you.

I find historical books about people of integrity and of successful people inspiring. We can learn a lot from our predecessors and bring continuity to their work from our perspective and in our era. I prefer to watch movies revealing various characters and emotions humans can demonstrate in unexpected situations. It makes me believe that with all our weaknesses we can still be strong when required.

Where do you find support and inspiration? How important is networking and how do you expand your contacts?

A good leader is empathetic and a good listener. It's important for leaders to strive to create an environment where people can be at their best. I also believe that good leaders have to lead by example and proactively follow the same rules and principles they expect from their fellows. When it comes to leadership, aggressiveness is overrated. You don't have to be aggressive to be a good leader, but you do have to be dynamic.



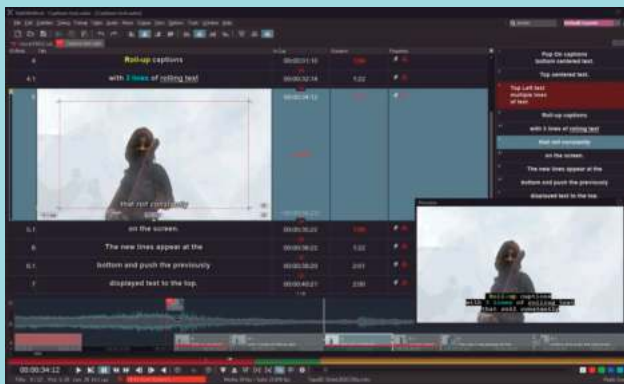
What's the most effective way for women in IT media Tech to help other women in tech succeed?

Generally, representation of women as leaders is low. However, considering that research shows that companies with female leaders have reaped many benefits, this should help to change things. Women are regarded as effective leaders, especially with respect to employee engagement, collaboration, and customer insights. Diversity in management and on corporate boards helps to deliver better financial results for shareholders, companies, and in turn, customers too.

Advocating for women in their professional lives and pointing out how great they are to someone else is a great thing to do. It is great to be confident of one's talents and skills but boasting about your achievements does not always sit well with many people. It is always positive to highlight when someone has achieved something – encouragement goes a long way and helps boost people's morale and also helps to promote them within the industry to others.

How has your life experience made you the leader you are today?

From a young age, my parents instilled the importance of believing you can be whoever you want to be. This belief gave me a great deal of self-confidence. If you try to learn as much as you can, listen carefully and work diligently, you can be successful in whatever you set out to achieve.



What have the highlights and challenges been so far at PBT EU throughout your career there?

We started out as a regional company specialising in PlayBox products, and soon understood that in order to be remarkable and independent, it was important to expand our portfolio, broaden our horizons across the globe and provide clients with a full range of reliable products and services that deliver results and meet specific requirements. It was challenging but also exciting to build a successful team from excellent high calibre professional individuals with various backgrounds and experiences. The hard work and effort resulted in a highly productive and motivating environment where everyone contributes. We also enjoy what we do. When we think of innovative ideas to improve clients' working lives, this sparks fresh enthusiasm, and our clients feel that too. It's a rewarding process to know we are playing a role in solving our clients' challenges.

Which other female and male leaders do you admire and why?

I have the same level of respect for everyone who is a respectable professional, if they put their heart into what they do.

What is the most important lesson you've learned in your career to date?

Do not be afraid to take risks. Understand the potential benefits and consequences and make a decision. If the

decision is a win-win, ensure it is everyone's success too. If it is not, learn from it, and move forward.

A CEO's job is 24/7 so I have to balance priorities while staying focused on our strategic goals. It's important to be able to step back though to re-set your perspective from time to time. I also believe very strongly in giving back to the community, and I am a passionate supporter of women's health.

How has the Covid-19 Pandemic changed your clients' working lives and have you got products that adapt to the situation for remote working for example?

The pandemic forced a large proportion of the broadcast workforce to work remotely. It's vital to be flexible at all times, to be able to offer integrated web-based multi-channel functionalities to ensure that customers can continue to operate their broadcasts without interruption.

Many of our clients that primarily work with freelancers in the translation and subtitling sector, worked remotely long before the Covid-19 pandemic though. However, other clients such as universities and production companies have had to adapt to virtual or online models where we have been able to assist through our flexible and adaptable technologies that enable remote working.

We are in the fortunate position to support educational organisations with SubtitleNEXT licenses for remote working.

Portugal's Jornal do Centro chose our Profuz LAPIS system to centralise their management processes and help manage news content, by providing journalists with access to all their content at all times from anywhere in the world.

What do you want PBT EU to accomplish in this year for 2021 after you bucked the trend with a successful 2020 despite the pandemic?

I am immensely proud that PBT EU is a client-focused team with a broad global footprint. As a result, our customers' ongoing achievements fuels our success which makes for the solid relationships we value. In return we provide customers with vital tools to stay on top. We forewarn our clients that they need to be prepared not to leave upgrades too late, and risk being left behind by their competitors. We continue to deliver reliable and efficient solutions to remedy that risk.

What is your motto?

Work hard, stay humble, be kind.

How to be a successful tech leader



Pebble: Designing Virtual Media Supply Chains



**Miroslav
Jeras**
CTO, Pebble

While it is generally acknowledged that the broadcast industry roadmap leads to a fully IP-based infrastructure, there is still plenty of uncertainty regarding the exact route that will be taken to get there. Currently the industry can be characterised as being in an extended implementation phase which concurrently overlaps with the R&D efforts necessary to make IP workflows optimised throughout an organisation.

There are several areas of uncertainty surrounding IP deployments as a result, and one of the chief ones resides in IP assignment and the way that broadcast engineers can connect and disconnect devices to IP-based broadcast networks. This becomes a significant task in the move from SDI to IP, with several vital stages that have to be completed. Connecting devices to a switch might be relatively straightforward, but each device requires an IP address so that it's visible to the network. Then, for each output on each device, a multicast address and a multicast port for video, for audio, and for ancillary data need to be allocated. Additionally, in an IP environment it's also more difficult to lock and synchronise all these sources together, requiring PTP (precision time protocol) parameters to be set for each device.

This is why we developed Pebble Control; to solve these problems and to do it in an independent and cost-effective way that retains interoperability and does not require any lock in to a specific manufacturer's ecosystem. As a result Pebble Control is a connection management system that assists in the transition to becoming a vendor-agnostic IP facility without the need to deploy a bespoke enterprise solution and get caught up in all the configuration, consultation, and potentially large expense that the process involves.

This is a very natural progression for Pebble as a company. From our early pioneering playout systems we have always been champions for the

power of automation with best of breed components and its ability to reduce operational complexity. With Pebble Control we are simply applying that philosophy to the problems of adding devices to an IP network.

Rather than go down a proprietary route, Pebble Control provides full support for the increasingly popular NMOS (Networked Media Open Specifications) suite of protocols that have been produced by the AMWA (Advanced Media Workflow Association) specifically to help IP workflow deployments. It also interfaces with NMOS-enabled devices from multiple vendors on the network. This allows for the crucial automatic discovery of devices, provides secure resource management, and gives immediate feedback and alerts if critical elements of the broadcast chain go offline.

There is also a new integration with VideolPath, Neveon's orchestration and SDN (software defined network) control software. This integration enables users to control SDNs, in addition to the traditional IGMP-based networks. Pebble Control can discover devices in the VideolPath system and issue connection requests based on the user input. Furthermore, VideolPath customers can now benefit from Pebble Control's advanced features, such as its container logic concept.

Pebble Control operates on web-based UIs for maximum flexibility, especially when it comes to remote network configuration and monitoring. NMOS IS-07 software and hardware panels can be

easily integrated to perform actions and display critical information, while Pebble's own software panels provide configurable functionality and quick access to key features.

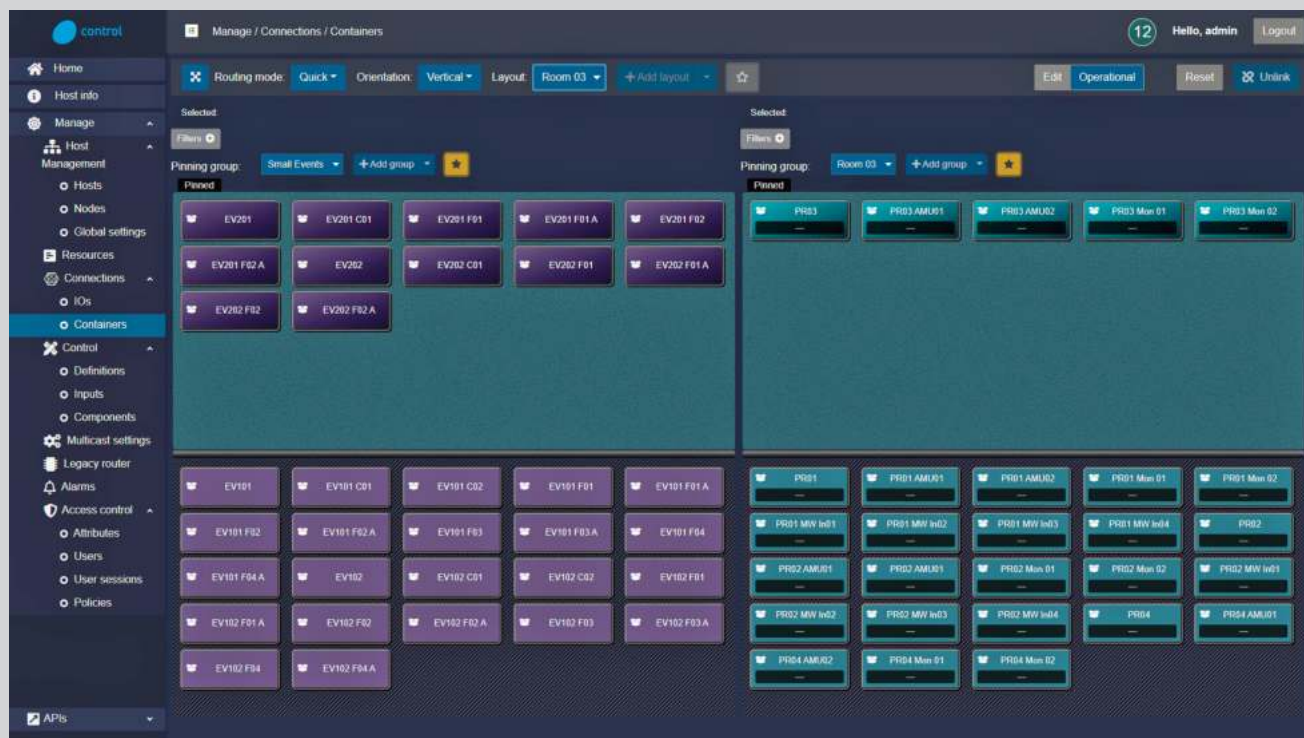
Provisioning the multicast settings for NMOS senders is easily done through a responsive tabular interface, while the ability to export and import configuration data means users can delegate and quickly restore settings. Full support for NMOS IS-05 v1.1, alongside the flexibility of defining custom logical views and containers, means connection management is a streamlined and focused experience analogous to connecting SDI signals. It has also been designed for security from the outset with a design approach that has embraced modern access control methodologies from the ground up. Authentication and granular authorisation through attribute-based workflows means broadcasters have the flexibility to shape user access as required.

Helping to ease deployment issues, it is also extremely scalable. The software can run on a single machine (physical or virtual), or on many networked machines. The database it uses is also scalable, allowing broadcasters to start with a simple test system –

let's say as simple as a camera and a monitor – and then scale that to a system with thousands of devices as they roll out a deployment.

Crucially, and acknowledging the very necessary role that hybrid deployments will have in the industry over the coming years, it also features legacy router emulation. By emulating legacy index-based matrices or routers, any I/O or container can be connected using the well-known SW-P-08 protocol, allowing Pebble Control to be remotely controlled in turn by systems that support this protocol (including Pebble Automation). Therefore, Pebble Control can enable any application – even those that are not IP-enabled – to make connections in an IP environment.

We're also working hard on the support side to make sure deployment is as easy as possible, offering comprehensive online help and a series of tutorial videos. The result is that IP routing and switching is within the grasp of any broadcaster looking to make the transition, and, as long as the components they use to build out their ecosystem are NMOS-compliant, they can continue to use and specify the individual devices that best suit their business needs at all points in the chain.



Globecast: Clear thinking about cloud playout and the customer advantages



Chris Pulis
CTO, Globecast
Americas

Cloud playout is not a new idea; it's been discussed in our industry for at least a decade, including early attempts at creating and supplying solutions. But it's only more recently that it has become a reality and it's certainly an important part of the future. Globecast is leading the way.

What do we mean by cloud playout? We mean software playout deployed in the cloud: a virtualized playout system. At Globecast it can also mean the media supply chain, playout and distribution are all in the cloud, but we likely have to provide a playout solution that services numerous distribution methods and destinations, using both traditional and new models.

At Globecast, we have developed playout platforms that are entirely cloud based. As an example, we've been working with one of the largest, most, complex US cable network customers and we're now fully supporting their playout (more news of this soon). We are very confident we can support the needs of broadcasters of all shapes and sizes, right up to the most demanding. Our customers quickly see the benefits of cloud playout.

The challenges for someone whose infrastructure is on premise is the inevitable technology refresh on a three-to-five-year cycle. Hardware does wear out; it can also become antiquated in terms of performance needs and in terms of additional delivery channels being added. Using cloud playout, nobody writes a check for new hardware and we're able to keep customers using the most relevant, up-to-date technologies. For example, as new graphics cards are released and new graphics capabilities in the cloud are launched, we can pass along these advantages to customers who may want to increase the level of complexity of their on-air product by using multi-layer graphics. We simply need to turn them on.

If it's virtualized, what we're also able to do using infrastructure as code techniques -aka DevOps (more on that shortly) – we can migrate any existing cloud playout operation in a short period of time to the latest infrastructure with very little problem and it's seamless to the customer. That's how we can control costs and create opportunities. Time-to-market is significantly reduced too, of course.

When it comes to provisioning new services, once you have it all set up in the cloud, we can spin things up and down in orders of magnitude faster using an OPEX model. In many cases, customers are also only paying for the capacity they use and as a result works this better on their balance sheets.

Graphics have been a challenge since the dawn of cloud playout but this is also a hurdle we have been able to overcome. Graphics need a graphics engine, even in a software environment, to playout multi-layered compositions. This has to be done using a high-end GPU-based processing engine and this is part of the AWS infrastructure that we use. The level of complexity required determines the exact nature of the software that we deploy, tailored to each customer. There's isn't a channel on air that we can't handle, not only in HD but UHD, too.

We work with partner vendors and service suppliers across this space and we have the infrastructure available, courtesy of our cloud

infrastructure partnerships, to comprehensively test these solutions. We provide clear feedback, giving suppliers the opportunity to make any adaptations to suit our overall architecture. We have a comprehensive toolkit and we use whichever tools are most appropriate. In terms of media processing, again this varies on a per-customer basis. As an example, with a major customer of ours, they have mastered content that they own, along with graphics, promos and commercials. All of this is stored in the cloud. We then use automation, with their schedule, to pull the necessary files into the processing pipeline that transcodes the content, sometimes including audio channel re-mapping, and then it's staged for playout. It's fully automated.

Our Orchestrator solution – a cloud MAM built in-house – is the glue between the customer's schedule and the playout automation systems. It pairs the schedule that the customer creates from their traffic system with the media, then it moves that media and stages it for processing by the processing pipeline for playback. So media can be in an Amazon S3 bucket, for example, or it can even be in Glacier, which is the equivalent of an LTO tape in the cloud – or another high-performance storage tier – and Orchestrator keeps track of it. We're not only talking about programming; we're talking about commercials, graphics, snipes, ratings, icons, everything. The system is able to intelligently identify media conflicts in the schedule. If there's a piece of media that's missing, it escalates that to both the customer and our operations team, if necessary. Orchestrator also manages the media storage life cycle. When programs have played, if they're not scheduled again quickly, they don't stay sitting on the playout storage, filling it up, they're deleted and then they'll be brought back on when the time comes. This, again, keeps costs, like storage, down, both for Globecast and our customers.

Infrastructure as Code (IaC) is the process of creating and managing cloud-based technologies using scripts – hence code – to do so. The script is then 'read', or accepted, by systems like AWS' CloudFormation or the cloud-agnostic solution Terraform. The systems created using IaC can be as simple or as complex as required, i.e. entirely cloud-based complex playout infrastructure can be generated far faster and cost-effectively via this method. Changes to a service can be made very quickly

and services can be duplicated in a very short time, usually a matter of minutes. We see DevOps and IaC as an integral part of our industry going forward and it's something that's increasingly important across what we do.



Cloud playout is a paradigm shift. There are customers that know they are ready to make the change, but even among those, many are still apprehensive. It's vital for us to understand that dynamic and bring them along on the journey in order to help make that leap into a 'new normal'. We help them understand how systems are virtualized in the cloud and how the process flow is different from on premise. One point that's very important to make customers understand is all of the principles of redundancy still apply. Failover is central to the design of our cloud architectures, but we have to acquaint them with how this works in this new context.

Another key point is that we work with customers on how their content flows into the cloud environment and what opportunities there are for migrating their current processes as part of a cloud deployment. At Globecast what we can do, and what we recommend, is virtualize the customer's content supply chain upstream from playout so that automation is driving much more of the ingest and content prep process that's common in traditional, on-prem environments.

Cloud playout is the future, but as with all Globecast solutions, this is not a one-size-fits-all situation – far from it. We have developed strong partnerships alongside our market-leading experience to make cloud playout the reality it should be so our customers can realize the numerous, long-lasting benefits.

Polls are a fantastic way to gauge opinion; run them on a particular topic and see if opinion changes following your live content – it will create a great debate and arm hosts with topical conversation

Never.no: Virtual Events – create an experience with cloud-based tools



**Alex
Humphries-French**
*Head of Marketing and
Communications, Never.no*

Put your hand up if you're bored of virtual events! Most of you are sitting at your home desk with your hands held high. As restrictions slowly ease we're seeing plans for more in-person and hybrid events in place for Q4, particularly with IBC and NAB on the move, and we're all hoping that we'll get to walk through the gates of a conference centre as soon as it's safe to do so.

But things will never be the same. Whether it's in-person, fully virtual or a mix, it's important to engage and activate your attendees and delegates wherever they're located. There are many opportunities to motivate participation and make a tradeshow or simple networking session an enjoyable experience. With plans in motion for virtual and hybrid events, let's take a look at how organisers can connect with attendees more than ever before.

The ice-breaker

In the build up to your event arouse interest by asking attendees to send in and share their questions or comments aimed at a scheduled session or particular delegate. Use your social channels for the call to action and share responses live, or feature during the event to build engagement. Polls are a fantastic way to gauge opinion; run them on a particular topic and see if opinion changes following your live content – it will create a great debate and arm hosts with topical conversation.

Create multiple touchpoints

WhatsApp, Facebook Messenger, Telegram, or similar, are excellent platforms to create a two-way conversation. Implement automated responses featuring sponsor links, promotions and supplemental information. Also, some attendees love to share their opinion publicly and can do that via public social channels, or live event platforms,

but there's a lot of value to cater for those that prefer a more intimate interaction. Cater for everyone across multiple platforms – you can even include that content during the event.

Share the experience

Include images, videos and reactions from your audience, and drive questions and topical points to your host's display or tablet, so they can discuss. Your audience's generated content overlayed into the live feed will enhance reactions and influence the conversation.

Voting and polls

The best way to make anyone interact and get involved is a vote or poll. People love influencing a live vote and impacting on the final result, generally offering opinion of a hot topic, or impacting on the direction of the narrative. Using a social engagement tool, you can run multiple polls across social and aggregate that data into a consolidated live result.

Fill the gap

There can be a lot of downtime during a conference, particularly in between sessions, so use that as an opportunity to share attendees live feedback sourced from social, or run clipped highlights for an immediate catch up. It will keep the conversation flowing and entice others to get involved.

Seeing is believing

It's important to produce and deliver a broadcast-standard event. We're all used to watching 4k, high production value content every day of our lives, so don't fall short with your event – your audience WILL switch off. Feature dynamic graphic overlays and live content, info and audience interaction, in the form of tickers, full-screen and L-graphics, to keep them captivated – just because it isn't broadcast doesn't mean you can't recreate that standard and enhance live sessions.

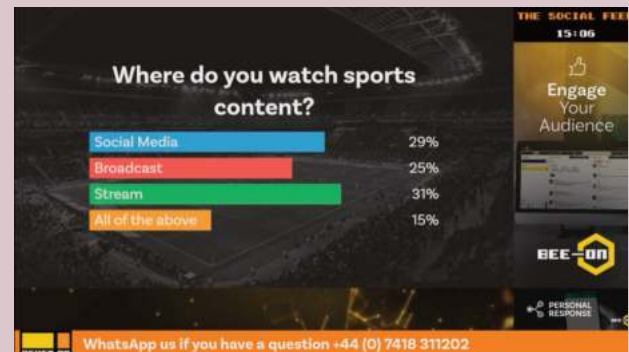
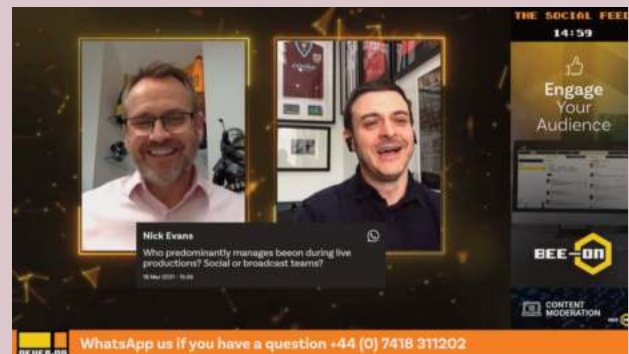
Engaging tools

Use cloud-based production and engagement tools like Bee-On to source social content, including polls and 3rd-party data and redisplay with your live overlays to create an active community that will organically enhance the overall experience for those involved. Feature your audience's interaction live on your feed throughout and let them influence the narrative to make them feel part of your event. There's a reason why engagement rates are so important for influencer and brand campaigns – a more engaged and active audience is more likely to buy into the value of your content, boosting revenue, retention, feedback and opportunities for event sponsors.

We're seeing more virtual and hybrid events produced with cloud-based production and delivery tools to enhance the experience both for those attending in person and situated in remote locations. Event organisers have seen the power of virtual production techniques and tools that will boost participation and create more touchpoints to connect and interact with other members, delegates and hosts.

Our clients working within events see there's a huge opportunity to feature attendees in the content and complement the narrative, creating topical discussion, impacting live debate, and sharing real-time experience. Looking ahead, we see hybrid, remotely produced events being the norm – creating more sponsorship opportunities, ticket sales, and capturing quality content for use beyond the event.

Not only is it more cost effective, but using a simple, yet effective end-to-end audience engagement strategy, featuring polls, competitions, personalised messaging, and putting the audience at the heart of the content, will create more opportunities for organisers to deliver a fantastic experience and even enhance revenue.



Object Matrix: Enter Cloud 2.0



Jonathan Morgan
CEO, Object Matrix

Over the past decade the media industry has hailed the adoption of the cloud as a way of introducing new efficiencies, as well as improving content protection and business continuity. For many media companies so far, the cloud has been all about storage. But of course, storing content is far from the only thing the media industry does.

In some ways, the current iteration of the cloud, let's call it Cloud 1.0, is not built for the needs of complex media workflows and what comes next must address these concerns. So where is cloud today and where is it heading, and could Cloud 2.0 be on the horizon?

The Cloud Environment

The Cloud is not something necessarily new, it's more of a technological evolution, but it needs to continue to evolve to offer the most value for media archives and workflows. Cloud 1.0 was never intended for media-specific use, it was born out of a need to deliver content to millions of people over the web. Currently, Cloud 1.0 represents a fragmented world of services, all operating within a framework that is still tied to this original consumer-driven infrastructure.

Within any storage environment, protection, search and movement of data is the main focus and for broadcasters and other media producers the sheer size of the data sets can be their biggest challenge. The scale of broadcasting assets exceeds most other sectors, and this intensifies the problem of transferring content between cloud services or stages within media workflows. Once large amounts of data have been stored this means that media organisations can often find themselves locked into cloud services, daunted by how overwhelming and costly a move would be.

Another challenge is that media companies need to use many different microservices for various sections of their workflow. But this can mean that content needs to be moved across services, and unexpected egress and data movement costs then

begin to spiral. According to [TVTechnology](#), one criticism levelled at big cloud companies is that "there is little or no opportunity to move data between different platforms or select specific tools from one supplier to use on another's cloud." For Cloud 2.0 to become a reality, this must change. We have after all been through this before – a dominant player creates lock-in around their ecosystem, but the community fights back against lock-in and potentially being exploited.

The Cost of Cloud 1.0

As AI capabilities advance, organisations are looking to capitalise on these tools to make the most of resources. Tools such as AI-based transcription services have the potential to maximise efficiencies, saving media organisations both time and money. However, if the footage is stored in the public cloud and a user wants to train AI databases, or say to transcode a 5PB archive, the content would need to be downloaded or moved to a transcode farm. To move or download a 5PB data set could cost a staggering \$450,000. Once media production companies begin to move things around, they quickly realise that although it is their data, there is a charge to every time that they want to access it.

Currently the media industry is attempting to make this consumer-focused model of Cloud 1.0 appropriate for its business requirements. Unfortunately, Cloud 1.0 simply doesn't do the job that media companies need it to do. Organisations are facing a toss-up between being able to store data on a tier where they can access it quickly (which comes at a cost) or storing data on a slower



tier, making it more difficult to access. This is a choice they simply shouldn't need to make.

What Should Cloud 2.0 Offer?

Moving forward, industry-focused cloud solutions will become commonplace and will take into account the impending 'cloudification' of entire production workflows. Cloud 2.0 should be able to support the whole content management process, from ingesting live content into the cloud for editorial through to all re-versioning, distribution and archiving. This can make production processes much more efficient, as well as more robust from a business continuity perspective.

Media production is moving towards high levels of collaboration between multiple micro teams and between individuals and companies that can be based all around the world. Within live content production, cloud-based editing is becoming increasingly efficient, and even live content is both ingested and distributed via the Cloud. Cloud 2.0 will

provide this as a service that joins up with other aspects of media workflows seamlessly, and without needing to move content in and out of tiers of storage.

A media-based business model for Cloud 2.0 must inevitably be set-up differently from a Cloud 1.0 B2C business model, for instance reducing and eliminating egress fees. Other areas to focus on are the demand from media organisations for less latency and higher bandwidth, and integrated media services (rather than bolt on additional complexities and costs). Cross-horizontal services which are provided by very large public cloud suppliers may not meet expectations, and this is where specifically aligned services will come to the fore.

Cloud 1.0 carried a lot of promise, and to some extent it did deliver. But now it's time for the next stage of evolution. If it's developed with the end user in mind, Cloud 2.0 will empower media producers with the freedom to create their best content yet.

Inside dock10: The UK's leading television facility and media services company



Mark Senior
*Chief Executive,
dock10*

We spoke to Mark Senior, Chief Executive at dock10, about how dock10 has grown into the UK's leading television facility and media services company since it opened its doors in 2011, how it coped with the pandemic-induced lockdowns, and its future plans.

How did dock10 get its name?

dock10 is built on the site of the former Manchester Ship Canal docks. Construction of the canal began in November 1887, and it was dug largely by hand over the next six years being officially opened by Queen Victoria in May 1894. Construction of dock10's facility began in 2007, and it was ready to go on air in January 2011. It was officially opened by Queen Elizabeth II, accompanied by the Duke of Edinburgh, in March 2012. Our name, dock10, comes from the site plan of over 100 years ago that proudly states, "SITE OF FUTURE DOCK NO. 10" where it was envisaged that a new dock would be built alongside the existing Dock No. 9. Our facility is built on the same site – it may not be the shipping dock originally envisioned, but we are proud to call ourselves dock10.

Please give us a quick run-down of the history of dock10

The origins of dock10 lie in the BBC's plan to move key elements of its television operations, including BBC Children's and BBC Sport, outside of London to Salford Quays in Greater Manchester. Amid criticism that the BBC was too focused on producing content within the M25, Mark Thompson, the then Director-General of the BBC, was keen that the corporation should, in his own words, "serve and represent the whole country, not just its capital." This ambition, however, required a major television facility that could support the creation of world-class content outside of London – dock10.

Tell us about Media City and dock10's responsibilities and facilities

Here at dock10 we have ten studios – eight television studios and two specialist audio studios – a total of more than 43,000 sq ft of studio space. This includes the UK's largest multi-camera television studio at a massive 12,540 sq ft. Our award-winning post production facilities have over 50 edit suites, as well as sound, VFX and extensive media management capabilities. Media City also has a future-proof fibre network with over 20 global network providers, making it one of the best-connected sites in the world and perfect for the needs of broadcast and media.

What changes did you have to make as a result of the lockdowns and how many of them will stick for the future?

When the global pandemic prompted the lockdown in March 2020, we knew this was going to bring challenges for our customers and the way television was made. We remained open throughout the crisis and adapted quickly to support our customers. BBC Bitesize was on air in record time with the virtual set being designed and built from the homes of the design team in a matter of days – a feat that demonstrates the fantastic flexibility of our next generation virtual studio capability. We had also already been testing remote gallery production with the FA Cup and so when the lockdown's travel restrictions came into force we were able to hit the ground running and keep live sport and events on-air. Other large-scale events, such as the Sports Personality of the Year,

dock10



were broadcast from the studios with special Covid-safe working measures including temperature checks, one-way systems, Perspex screens and extra office space to support social distancing. Our media infrastructure comfortably supports remote working, and this enabled our post production team to offer customers the flexibility to work anywhere they wanted with remote editing and secure viewing.

We have a team of around 160 people and everybody who could work from home was asked to do so, keeping as much space free for our customers and visiting productions as possible. We are very lucky to have a large building which has meant that we have been able to host all of the visiting productions in a socially distanced and Covid-safe way.

In the light of changes you made during the pandemic, how different does dock10's future look now compared with early 2020?

This year, we're really looking forward to getting the team together to celebrate 10 years of dock10. It feels like only yesterday that it all started with a studio in the middle of the Media City building site! Today we are the UK's leading television facility at the centre of a world-class media hub – we have come a very long way in the last 10 years. It's interesting that the pandemic has really driven some significant changes in the way people work, with remote galleries, remote working and virtual



studios all leaping forward years in just a few months. These big changes have been fully embraced by production and proven to work, so we think they are here to stay.

Tell us about your virtual studio capabilities and move into Esports events production

We took a different approach with our Virtual Studios, in that rather than building a small green box and having a fixed virtual studio, we have



enabled all of our studios to be virtual on demand. The new capability has been very popular with productions looking for the ability to make regular set changes without the traditional build costs. This enables any size of production to add virtual elements, large or small, that can significantly enhance its look and feel – it can give a daytime show that Saturday night feel on a daytime budget. These advantages have seen us take bookings from a wide range of customers including sport, children's television, entertainment, creative agencies and live events.

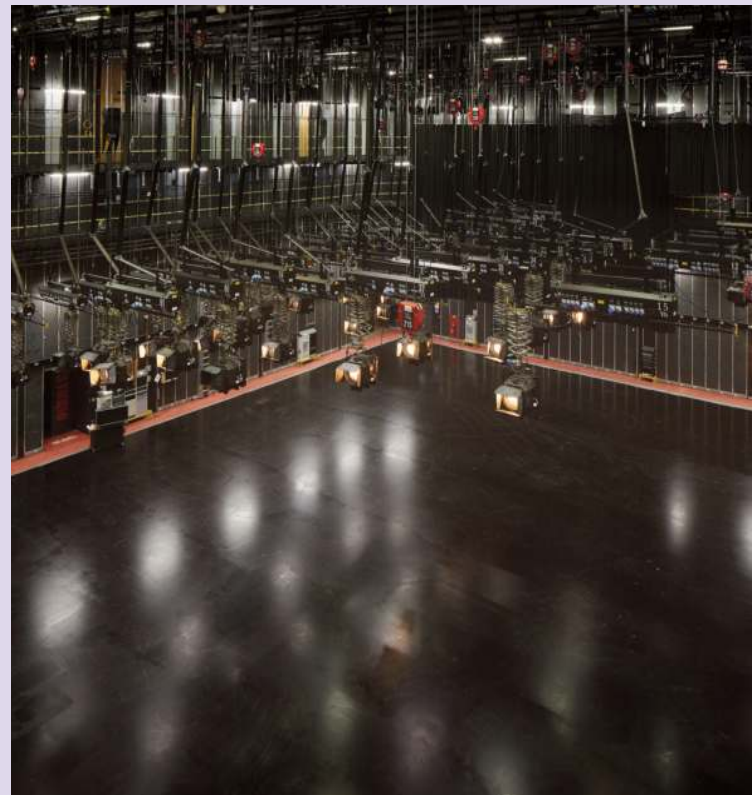
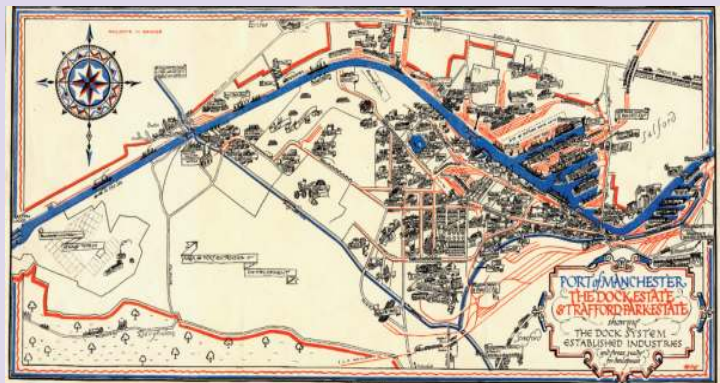
Esports has been very popular during lockdown, and we hosted a number of tournaments from our studios. What started as a small home-made broadcast with gamers sharing screens has become a global hit and dock10 is providing the studios and core infrastructure to bring broadcast quality production values to these events.

Any other new or developing business areas dock10 is looking towards?

dock10 is well known for providing world-class studios and post production to the broadcast industry and during lockdown we have been enabling live broadcasts, content creation and media management for a wide range of new customers. Our remote production capabilities have been very successful in the last 18 months, and we think this is going to take off even more in the future as organisations realise the advantages of remote galleries, remote edit and other remote production methods and seek to integrate them permanently into their ways of working.

Finally, will Brexit cause dock10 any issues?

The most direct impact we have felt to date has been around border issues, with some delays and uncertainty in getting technology supplies from overseas.





IABM shortlisted finalist for International Association of the Year

IABM has been shortlisted as a finalist for the International Association of the Year at the annual Association Excellence Awards. IABM joins five other associations in competition for the award; the final results will be announced at a ceremony at the Kia Oval in London on Tuesday 29th June 2021.

The Association Excellence Awards salute, celebrate and encourage the vital work that associations, trade organisations and industry bodies do for and on behalf of their members to ensure their voices are heard and their causes are championed. The criteria for the International Association of the Year Award include a clear strategy, workforce and member engagement, a proven track record and excellence in leadership.

In its submission to the awards panel, IABM highlighted the leadership and support to both members and the wider industry that it rapidly mounted at the outbreak of the coronavirus pandemic. This included a raft of innovative digital initiatives to help members continue to promote themselves and new platforms for engagement and collaboration to mitigate the loss of the in-person events upon which our industry relies. IABM's Business Intelligence Unit also introduced a range of constantly updated trackers and reports to help companies understand and navigate the rapidly changing business and technology landscape. Key to the success of this was the fast-growing family of IABM

Global Engaged Partners – top technology and business executives from Broadcast and Media companies engaging and collaborating with IABM members to plot the path forward.

"Being shortlisted for this award is a real affirmation that IABM is doing things right," said Peter White, CEO at IABM. "The way our fantastic team has worked together in the last twelve months to support our members has been nothing short of amazing. The number of great initiatives our small team has produced and then carried through has moved IABM forward several years in the space of just one, and made our membership offering even more compelling. I am delighted that IABM is being recognized for this in these prestigious awards, but this does not mean we're complacent; we'll be bringing more significant initiatives to fruition over the coming months – to the benefit of the whole industry."



Member Speak – CP Cases: A summer of sports returns



As the heavily awaited easing of restrictions is well underway, the landscape for sport and Outside Broadcast is starting to open up again with worldwide events being scheduled in throughout the summer and autumn months. From the Olympics to Formula 1, Wimbledon to the Euros – sport is set to return with a bang this summer and travel is set to resume. With this in mind we wanted to ask the question...is your equipment protected? Don't worry if it hasn't been your number one priority, CP Cases are on hand to cater to your needs.

Whether it is waterproof camera covers or shower hoods for use at the most prestigious sports and live events, portable and rugged cases for equipment protection in transit, or 19-inch rackmount enclosures for OB communication – our range has got you covered for the return of live sports this summer.

Introduction to CP Cases

CP Cases Ltd design and manufacture high-performance 19" racks, cases and rugged textiles for OB, EFP and ENG broadcasting equipment and cameras. We are trusted when it matters for the protection, storage and transport of your valuable equipment. We cater to a variety of needs for different Broadcast professionals – from ENG news cameramen to the high-end broadcasters. We provide a wide range of bags, camera covers, rotomoulded cases and TV cases with practical designs; using quality tested materials that provide ease of transportation whilst keeping maximum protection.

2021 is a key year for us as it marks our big 50th milestone, and what a year it is to celebrate. We are proud of what CP Cases has achieved in the past 50 years, working hard to get to

the footing we are at today. This foundation has shaped an exceptional business model that's providing engineering solutions to companies and assisting in different industries. We are honoured to be building on that foundation and creating CP Cases' next phase of growth and evolution. Here is to the next 50!

With 5 decades worth of expertise in the manufacturing industry, we are confident we have the perfect formula. The innovation, durability and high-performance materials guarantee that CP Cases is the case provider of choice for transport, operation and storage situations.

We strive for innovative designs using new advanced materials to produce tougher, lighter, more cost-effective products. Whilst keeping our eye on the practical nature of our products, we realise that presentation is highly important and directly reflects on our customers, so we ensure that our product not only works effectively but also looks the business as well.

We have worked with a range of different clients within the Broadcast industry including large television companies, news gathering organisations, large manufacturers, hire companies and freelancers. Our



products are specially tailored to meet the exact requirements of any professional users within this sector and we work together with the customer to achieve the optimum end result.

19" portable racks & enclosures for OB communication

Our 19-inch **SatRack** is a lightweight rackmount enclosure specially designed for satellite uplinks and other applications where 19-inch electronic equipment needs to be transported with ease and deployed without damage.

The SatRack is encased in a featherweight, weatherproof, honeycomb PP shell with a ruggedised fabric outer cover for maximum protection, operation and transportation.

The inner chassis is suspended with 8x elastomeric shock-mounts to provide optimum sway space & isolation between the chassis and the outer shell. Alternative suspension configurations are available to suit different payloads.

The 19" SatRack represents a leap forward in 19" portable rack design that allows high levels of protection for the transportation of 19" equipment as checked airline luggage. This benefits broadcast companies when travelling overseas for events as all equipment can be safely packed up and easily transported.

There are a number of different hurdles that have to be overcome within outside broadcast projects, and at CP Cases one of our specialisms is manufacturing industry-leading equipment that allows you to do this.

Waterproof OB camera rain covers

Our [ruggedised Camera Rain Covers](#) protect outside event broadcasting equipment from extreme weather conditions including fast wind and driving rain; perfect for that unpredictable British weather.

From HD to 4K cameras, our custom covers can be specifically designed to protect remote camera heads and all types of camera bodies and lenses. Each cover is designed to provide sufficient internal airflow, and also minimise the risk of overheating by a variety of venting solutions.

Advances in textile manufacturing technology ensure custom designs provide cameramen with free and ergonomic access to controls and connections, without compromising operation and protection.

All of our camera covers can be manufactured in a variety of coloured textiles and be branded to any



customer requirements. We also offer transparent pockets for identification labels that can be accommodated to customers' requests, and we offer a range of accessories which include Over Night Covers and Zipped Storage Pouches for all our covers and shower hoods.

Portable & rugged camera cases

We manufacture a range of standard size aluminium and rotomoulded cases for the film and broadcast industry. These are used widely in OB trucks by large electronics technologies companies. Our aluminium [AluCurve Cases](#) and in-house rotomoulded [Amazon Cases](#) offer exceptional protection with a modern and stylish finish.

Our AluCurve Cases are manufactured without a corner weld to prevent seam splitting and to give a smooth finish and come with pre pressed corners for extra strength that can be customised and branded with corner 'smarties'. Our Amazon Cases are rotomoulded from a high-quality polyethylene polymer that is extremely tough and waterproof; perfect for protection during transit.

Our [ruggedised weatherproof rotomoulded cases](#) are designed to securely house cameras and ancillary equipment. All cases are lightweight, transportable and conform to IATA standards. Protective cases can also be supplied with CNC custom routed foam inserts. These inserts are made from the highest quality CNC routed foam designed specifically cut for each individual camera or piece of equipment and can be customised should you need a different configuration in your case; this gives our customers the confidence that their equipment will be completely protected during travel and against the elements.

Contact

At CP Cases we pride ourselves on meeting the exact needs of clients across a huge range of industries, and we've been developing and improving our products for over 50 years.

We have a wide variety of products for the broadcast and professional media market – take a look [via our website](#) or you can [talk to our friendly team](#) with any customisation enquiries or questions.

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