2ND QUARTER 2020

# JOURNAL

113

REPRESENTING THE BROADCAST AND MEDIA TECHNOLOGY INDUSTRY WORLDWIDE

# Connect

## Special Report: Connect on the move

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**The Essential Shift to Cloud – the COVID Push?**

**Preparing for the future of high-quality live streaming**

**Dreaming big**

Rogers Sports & Media makes the leap into DTC

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# Index






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Darren Whitehead has now taken over direct responsibility for all of the regional members' councils – EMEA, APAC, Americas, DACH and UK

# Keep the conversation going!

**Peter White**
*CEO, IABM*

Welcome to the summer 2020 edition of the IABM Journal. It's been some year so far. The effects of the pandemic and lockdowns are being felt in nearly every country around the world – all our lives have been changed. And it's becoming clear that many of those changes will be carried through into the new world that emerges when the coronavirus is eventually brought under control – which I have every faith it will indeed be.

The broadcast and media industry has moved very much center-stage. Consumption of news has increased dramatically, and most OTT entertainment services have seen a massive surge in subscriptions and viewers as millions around the world seek entertainment in the confines of their homes. On the downside, sports broadcasting has predictably suffered with the cancellation of all major events and leagues.

Amidst it all, IABM research is pointing towards a major acceleration in the move to the cloud. What was once seen as too risky by many is now a business necessity for even the most traditional broadcaster – and all the signs are that it will stick. Judging by what the contributors to the APAC feature in this edition have to say, this is certainly very much the case, with OTT, the cloud and IP seen as unstoppable developments in the region – reflecting the changing broadcast and media landscape around the world.

The pandemic has caused your association to reevaluate how it can best support members in these rapidly transforming times while facing up to the realities of inevitably reduced funding avenues as many economies continue to contract – and all events are cancelled for the foreseeable future. We are concentrating our efforts on providing an enhanced flow of business-critical intelligence and providing members with a Virtual Platform to showcase their new products and services to end-users. In parallel with this, IABM continues to work hard to attract end-user broadcast and media companies into the conversation to provide an unmatched, worldwide BaM technology community where collaboration will work to the benefit of all.

Another key strand of our policy is to get ever closer to all our members to better understand their needs and aspirations. Our membership engagement initiative, spearheaded by Lisa Collins, is providing invaluable feedback which we are constantly assimilating into our activities; we are indeed stronger together.

We have had to make some prudent changes to contain costs without damaging our effectiveness. One of our great successes over the last few years has been the formation of Regional Members' Councils in major markets around the world. Darren Whitehead has now taken over direct responsibility for all of them – EMEA, APAC, Americas, DACH and UK. Darren is working closely with council members in all of them to ensure that they continue to provide the effective local representation that is essential to maintaining our international reach.

Our special feature in this edition is very timely given the current situation – spotlighting the Connect segment of the BaM Content Chain®. According to our data, Connect is the only segment which is currently growing since the lockdowns began around the world and you can read about how vendors in this segment have been helping broadcast and media companies surmount the challenges of remote working and the massive increase in demand for media workflows.

Following on from the enlightening interviews in the last edition with Globo, DISH TV and ITV, in this issue we talk with Pierre Fortin of Rogers Sports & Media in Canada about the challenges and opportunities facing this market-leading Pay-TV provider as it faces up to changing business models and looks to the new technology solutions to enable them. Unsurprisingly, the coronavirus pandemic is playing its part in accelerating this process.

We also have some very interesting member articles – from OWC, Matrox, IBM Aspera, Magewell and EditShare – as well as one from Ian Sharpe at Promethean, our first start-up member a couple of years back. We asked him to look back at what worked and what he might have done differently with hindsight; it's a fascinating, entertaining read!

I look forward to continuing to engage with as many members as possible over the coming months, as does the rest of the IABM team. We are your association – let us know how we're doing, what we can do better for you; and keep the conversation going!

**Peter White**
*CEO, IABM*

# The Essential Shift to Cloud – the COVID Push?

**Stan Moote**
*CTO, IABM*

The whole world has suddenly gone Cloud Crazy – was it strictly by necessity? Or did all the stars align and the timing was simply perfect to have a gentle push?

Most media companies were terrified of using 'The Cloud' for any operation that involved generating revenue not so long ago. Early pioneers suffered failures, moderate success, then jumped ahead of the masses with their shiny new cloud-based operations that were instantly scalable with virtually no CAPEX investments.

In discussing cloud with broadcasters, I quickly found many could not get away from the 'lift and shift' mentality. Basically cloud provides very little benefit (if any) if you only attempt to take existing workflows into the cloud. To get successfully into the cloud – you need to think outside the box. Look at your past, your future possibilities and where technology is going. This is exactly why IABM developed the industry technology roadmap, to help both business and technology leaders think outside the box. Building 'cloud native' solutions that are designed to leverage the many advantages that the cloud can imply is key...but it's also a much more significant undertaking than the 'lift and shift' solutions out there.

All this being said, as an industry, we have always been quite cautious when it comes to big shifts, but once the momentum is there, things can happen relatively quickly.

Looking at disaster recovery (DR) within our industry, we find it has been all about power outages, natural disasters, terrorism, and equipment failure. Redundancy was key – dual power supplies, backup generators, two physical locations, secondary feeds and conductivity, etc. Pandemics, quarantines and social distancing weren't in the mix and these have quickly proven the value of cloud and service-based media systems well beyond simple cost savings.

MediAnswers' Chris Lennon has been at the leading edge of microservices within cloud environments via the new Open Services Alliance (OSA). Chris states: "Shifting things to the cloud would seem to be a pragmatic thing to do, and perhaps falls more in the 'must have' rather than 'nice to have' category than before."

Chris went on to describe how OSA member Lee MacPherson of San Francisco PBS member station KQED has had some recent real-world experience with this.


Building 'cloud native' solutions that are designed to leverage the many advantages that the cloud can imply is key

While working remotely, Lee has found that having shared resources (including the media) that are organized and accessed equally by everyone makes it all seem easier. Commonality in metadata schemes and user interfaces is something he believes will eliminate a whole inefficient layer of translation between different groups' ways of organizing their assets. Time will be saved. Time-wasting communications will be reduced. This bigger effort to make media interchange standards seems to offer the same potential advantages to a much wider group in the same way.

Whether cloud operations are private, on-prem, off-prem or hybrid, service-based media applications need to interoperate in a seamless manner, just like EDLs and SDI connections do. This becomes even more important as we move more into cloud environments as sadly media services are far from being plug'n'play.

Chris explained that the OSA is a collection of media companies, vendors, platform providers, consultants, and other like-minded organizations and individuals that is laser-focused on making sure that service-based media applications interoperate.

There are fundamental challenges to making media services interoperate. Some that OSA have begun to tackle are as basic as taxonomy. Referring to things by the same name across services is a must if you're going to avoid a cumbersome layer of middleware and translators in your workflows. Here's a simple example. You identify your content with an in-house identifier. The services that could touch that content might call that a House ID, a House Number, a Content ID, a Media ID, and well, you get the picture. Multiply this by the increasing number of metadata elements we use to manage content, and it's easy to see the potential scope of this challenge.

The OSA has also made great strides in developing common approaches to dealing with Interoperable Master Format (IMF) packages from a services perspective, and also harmonizing status reporting across vendors and services.

Suddenly with the whole industry being Cloud Crazy, we are still very much in the wild west with each vendor doing their own thing. I encourage everyone who has encountered challenges in the area of interoperability among service-based media systems to join OSA, be heard and help the industry focus on making the cloud truly plug'n'play; that way we'll all get the full benefits – never mind whether it's the result of COVID or perfect stellar alignment! For more information on the Open Services Alliance, see www.openservicesalliance.com or contact Chris Lennon directly at chris@openservicesalliance.com.

# Preparing for the future of high-quality live streaming

**Mike Flathers**
*CTO, IBM Aspera*

With commodity internet available everywhere, we've recently witnessed an explosion in internet content delivery. But for broadcasters that need to deliver content with the highest levels of quality and reliability – and with negligible delay – achieving both cost-effective streaming and the best-quality experience poses significant challenges.

As live content continues to become the core tool in engaging the modern generation of digital users, more enterprises are placing a higher emphasis on key performance indicators related to economies of scale, such as driving widespread efficiencies and cutting costs.

These challenges are further supplemented by the fact that margins are under great pressure as media enterprises strive to maintain their market position while experiencing massive shifts in content production workflows and audience acquisition processes.

According to a recent Ovum industry survey and report in partnership with IBM Aspera – Delivering Cost-Effective Premium Live QoS at Scale 'Anywhere, Everywhere' – building a highly profitable and scalable live media engagement ecosystem is the top business priority for 41% of media enterprises over the next 12-18 months. However, there are some barriers standing in their way.

## The state of play

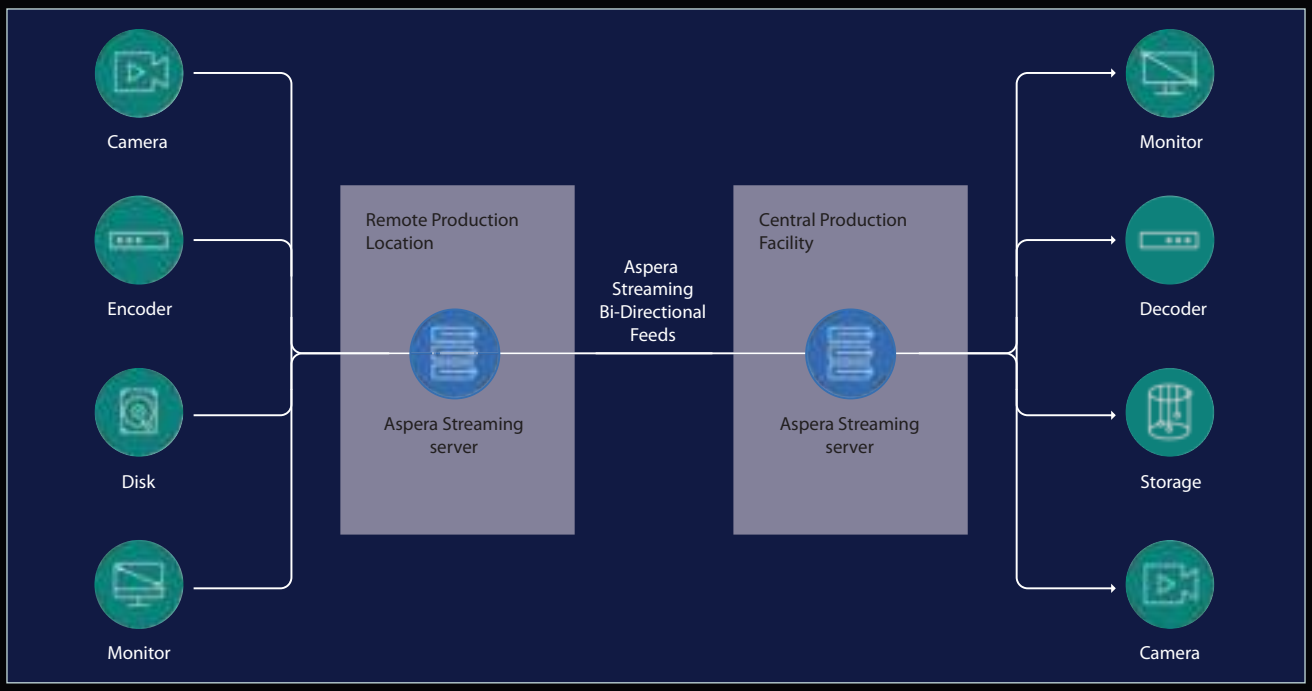
The current live streaming environment can be characterized as one of change. In this highly competitive and fragmented world of TV and video services, implementing differentiated content strategies are essential. This is particularly true when it comes to achieving average revenue per user and per advertiser (ARPU and ARPA) targets.

This pressure is driving premium content owners to acquire niche media assets – illustrated by the fact that one in 10 enterprises expect their live content repositories to be worth more than $5 billion by 2023 (up from one in 100 in 2018). Social networks, sports franchises and digital service providers are set to be the biggest content spenders, with 19%, 16% and 14% respectively intending to hit the $5 billion mark in three years' time.

As live content continues to become the core tool in engaging the modern generation of digital users, more enterprises are placing a higher emphasis on key performance indicators related to economies of scale, such as driving widespread efficiencies and cutting costs. Indeed, 71% of enterprises highlight reducing the total cost of ownership (TCO) of premium content delivery via remote production as one of their leading business objectives.

However, achieving these goals is still a long way off for many, as nearly 80% of enterprises are dissatisfied with their existing live media transport solution deployments. The increasing fragmentation of media consumption between traditional and non-linear models is driving up the cost and inefficiency of traditional content delivery routes for a variety of reasons. For example, many current live media transport solutions lack unified collaboration, testing and visualization capabilities, as well as having poor public network interoperability.

Enterprises are responding to these limitations by embracing IP, which is currently the fastest emerging delivery route – a trend which is only set to grow in prominence over the coming years.




## The future calls

Looking ahead, two key trends are converging to shape the future of live content streaming. First is the growing adoption of cloud, which is set to emerge as the leading deployment mode by 2023. This is driven by the need to control costs, streamline media contribution workflows and ensure multi-geographical back-ups.

While 69% of enterprises preferred an exclusively on-premises deployment model in 2018, this number is set to drop to 33% in three years' time, when exclusively cloud, live media transport solutions will be the preference for 34% of enterprises. Furthermore, 82% of enterprises highlighted a combination of public and private cloud offerings as the most prominent cloud deployment modes.

However, the cloud adoption curve will vary across premium content-owner segments. More than half of enterprises will maintain their legacy on-premise deployment modes in the broadcast TV and video and digital service provider segments, while sports franchises and film studios are expected to represent the fastest-emerging segments for cloud offerings.

The second key industry trend is the growing role of agile live media transport over IP networks, which will enable businesses to safeguard profitability and extend the reach of their content. Given the level of investment required when acquiring premium live content for tier-1 sports, such as the English Premier League, NFL and IPL, building horizontally and vertically diversified live content repositories is vital to maintaining market competitiveness and increasing ROI. In addition, existing live media transport solutions must enable premium content owners to exponentially increase the reach of their repositories at the lowest possible TCO to improve long-term operating margins. This is where IP networks come into their own. More than half (56%) of enterprises believe that single media asset reach can be enhanced by 1-5% using a cloud live media transport solution on IP, while 37% say it can also reduce workflow TCO by up to 5%. This can equate to a significant long-term cost saving, particularly for enterprises streaming a high number (1,000+) of live events each year.

## Leading from the front

Taking all of these factors into consideration, what can media companies do to help them cut costs, increase audience engagement rates and remain competitive in today's marketplace?

It's clear that legacy delivery routes won't be able to support lasting, highly scalable TV and video streaming ecosystems as investments in live content repositories continue to increase. These legacy technologies are also proving unable to deliver a robust, premium quality of experience to live audiences across multiple screens in a cost-efficient way.

Simply put, media companies must address their live media transport workflows – or risk losing out to those that do. For example, embracing IP networks and reducing their reliance on traditional delivery modes will provide the cost savings that many enterprises are currently struggling to achieve.

Also, leveraging a unified live media transport workflow can streamline media contribution. This will reduce production to distribution TCO (which now stands at 32%) and give businesses the guarantee of premium QoS/QoE with negligible pre buffering, packet loss, and round-trip delays.

Finally, leveraging diverse media production workflows (such as remote) will enable premium content owners to improve both their audience engagement rates and ARPU. This, combined with leveraging cloud-based live media transport over IP, will give media enterprises the tools to enhance real-time collaboration, reduce time to market and ensure more efficient media asset management.

## A new streaming architecture

Aspera's streaming technology is a breakthrough alternative for Internet transport that guarantees timely arrival of live video and data with negligible start-up delay/pre-buffering. At the core of the software is the patented IBM Aspera FASP® transfer protocol, which is widely used and proven for high-speed long-distance file transfer.

This new streaming architecture enables media companies to achieve both cost-effective streaming and the best-quality experience for high bit-rate live contribution, primary distribution, and remote production.

Users can deliver, monitor, and configure source streams easily and efficiently over any IP-based network. By leveraging existing infrastructure and built-in 'cloud-ready' capabilities, distribution is significantly more cost effective and efficient than ever.

IBM Aspera Streaming enables customers to centralise remote production of high bit-rate live programming, eliminating the need to co-locate costly production staff at remote venues. It supports in-line transcoding and packaging to accelerate live video delivery and facilitates open file workflows for real-time editing and production. By lowering the production costs for all kinds of events, broadcasters can create and deliver new content targeting new audiences.

Ultimately, Aspera streaming solutions put media companies in the best position to capitalize on the technological opportunities available and lead the way in the TV and video streaming era of tomorrow.

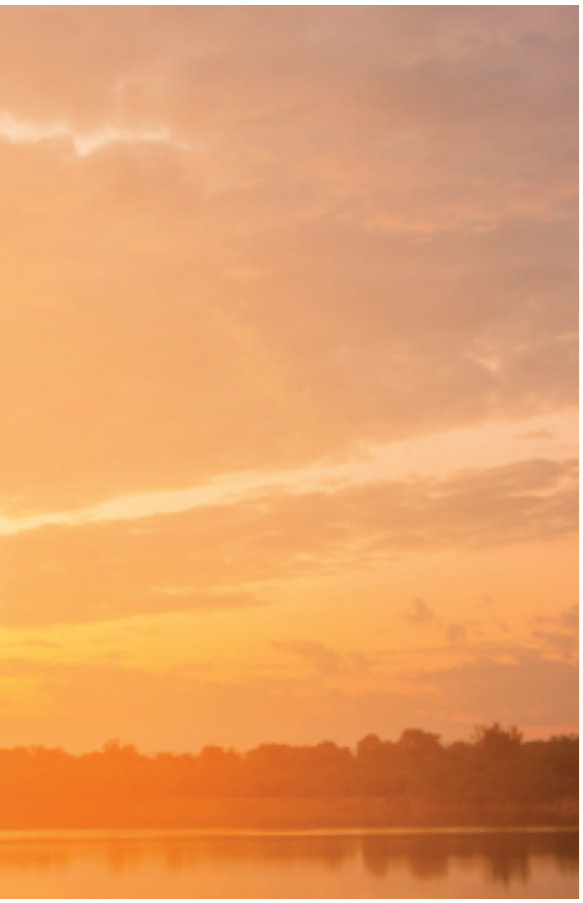
At the end of the day data is a huge part of the future of business; it's everything really

# Dreaming big

## Rogers Sports & Media makes the leap into DTC

**Pierre Fortin,**
*Vice President, Media Technology and Operations at Rogers Sports & Media – Canada*

Lorenzo Zanni, IABM Head of Insight & Analysis, spoke with Pierre Fortin, Vice President, Media Technology and Operations at Rogers Sports & Media in Canada about the challenges and opportunities facing the company – where it's heading, what role the cloud and AI are playing – and what it needs from technology vendors to help it get there. The interview took place in March 2020 as the Coronavirus pandemic was taking hold – accelerating many processes that were already in train. Following is a synopsis of this eye-opening interview; the full article can be accessed on the IABM website, and there is also a video of the interview there.



**What are the challenges and opportunities for a Pay-TV operator in the media business today?**

The biggest challenge is the fundamental shift in business models that's occurring. It's a little bit difficult when you've built a multi-decade business around a B2C model where you're transacting with other large telcos and distribution undertakings to market and distribute your signals. And then this disruptive direct to consumer, over-the-top phenomenon comes into play and all of a sudden, your infrastructure isn't really built around supporting that. The distribution side of your infrastructure isn't oriented towards DTC and then there's all of the other elements that come into play – how you support people, how you transact etc.

These are fundamental pieces that just aren't there in a traditional media company, but where the opportunity lies is if you can get past all of the technical and operational hurdles. Having that solid, albeit slowly diminishing, recurring revenue base to fuel your future growth is a real advantage – you can invest those proceeds into the innovation cycle and do some really interesting things. And in general, it also means that you have already an established portfolio of rights. They may not be all the correct rights but you have something to start with. So, from our perspective, those are the real challenges but also a significant opportunity.

**You mentioned some technical challenges and some changing technology priorities as well. Could you expand a little bit on that?**

When you're building a traditional broadcast distribution system, you're handing your signals over to a couple of dozen end providers, and you're worried about quality control in that handover and then after that, you do some monitoring, and maybe 20 odd phone calls you need to make if there's a problem. Now all of a sudden, when you move to a DTC model, it's a completely different animal – you're worried about the multitude of devices and bit rates and aspect ratios, user interfaces and quality of experience. And you need to build relationships with a whole new set of technology suppliers – hyper cloud scale technology providers, but also things like CDNs; it's a whole bunch of new things that enter into the mix and frankly at times stretch the limits of the knowledge base of your existing team.

So you have a skills gap that needs to be resolved. And if you really want to compete on a global level in the DTC market, you really need to sweat the details. Things like scalability and elasticity become really, really important. And a particular engineering skill set is required to do that. We're fighting for the same talent that the big Silicon Valley companies are fighting for. So what's our differentiating proposition to get Tom to come to us versus Google? It's multi layered – change at so many different levels.

**Data – and people to extract and analyse it – is a key issue for many media companies. Is this true for Rogers too?**

There's been a significant shift in our business over the past 12 to 24 months around data, initially around market segmentation and go to market from a sales perspective. But the data tentacles are everywhere: predictive analysis of failures – all chaos theory engineering, all sorts of things that are enabled by telemetry data from systems. And then the biggest piece for data is around us as predominantly a sports broadcaster. The whole element of data and the role it plays in fan engagement and user engagement is significant. It's going to be a really big piece of the future.

You need to rethink things like your content origination, because it used to be that you would worry tremendously about audio and video quality, but now you have to worry about data integrity making its way to the end customer. There are so many more elements to it and data is pervasive in all of this. And the challenge is collecting and aggregating the data. And then, what do you do with this data? How do you extrapolate useful learnings and put them to use and to make smart business decisions? Back to the hot skills – data scientists,

mathematicians – all the people who can help tease out important insights from this data – they are super high demand skills; all the problems converge in this very elegant way. At the end of the day data is a huge part of the future of business; it's everything really.

### What about AI and ML?

AI/ML is another one of those things that's permeating every single aspect of the production chain. We're seeing AI microservices finding their way into the media supply chain to do metadata augmentation. And we're using AI to do data cleansing. We're currently doing a massive migration of our legacy media asset management system in our sports business over to a next gen system. And one of the big decision points that's sitting on the table right now is, what's the AI angle to this? We have seven and a half million assets in this database that we're about to do a one-year long migration from one system to another. We're going to be generating High Definition proxies of every last frame of video. Now seems like a pretty good time to do an AI extrapolation of this, but it's really quite fascinating to watch the debates emerge from that – what is of value? What isn't of value? And then there's the cost to it all as well. If you use hyper cloud providers to do these kinds of services on that size a library, it's a significant cost; how can I get return on that investment? From a business modeling perspective, all this stuff is quite involved, but it's super interesting.

### On-prem or cloud?

I vacillate from week to week on on-prem versus cloud. We have a bit of a unique proposition in that we are a vertically integrated company. Our media business is effectively one of the pillars inside a large wireless and cable business; all the financials roll up. The analysts in the market have a certain baseline expectation around how to look at the numbers of a telco which generally has a much higher degree of Capex intensity and higher operating margins and higher expectations around operating margins offset by Capex intensity. So, it's difficult at times to get people on side with the idea that we're going to shift out of those resources to cloud and it'll be an operating expense versus a capital expense. There is obviously an increasing sophistication in the business around that, so the business case is getting easier to make – but cloud is not a resource that's easily capitalizable and that makes cloud adoption a bit of a challenge.

*If you use hyper cloud providers to do these kinds of services on that size a library, it's a significant cost; how can I get return on that investment?*

The second piece to cloud adoption being a challenge is cultural. We come from an industry that just loves to build things. We have large broadcast engineering teams and infrastructure. We see ourselves as builders of these things and so there's at least initially a cultural resistance; some of these groups, they love their boxes! So there's some convincing, some cajoling to do but we're making progress. For our online presence, it's a no brainer – it all has to be in the cloud. In other instances, though, we're going halfway: we're standing up hyper-converged computer clusters in our environment, and running an on-prem private cloud. And, and in some respects, that solves a little bit of the Capex versus Opex problem.

But it also brings me to the third issue, which is that the sophistication of media and entertainment products, and software in particular, is not where it needs to be. Now, everyone is trying hard and doing their best to make the transition but my view is that as a media and entertainment industry, our technology stack is in some respects woefully behind and our adoption of cloud was really, really slow compared to other industries. We're coming around now, but even our approach to solving problems always has a kind of an on-prem lens to it. If you look at recent standards ratifications like 2110, the initial versions of the standard are all uncompressed video, which is all really awesome. I mean, we built a very large 2110 content origination facility, but there's no way I can take those 2110 uncompressed streams and pump them into AWS. These fundamental kind of disconnects that have occurred along the way are getting corrected now but that's certainly been an impediment to cloud adoption.

The media and entertainment vendor ecosystem has changed a lot first and foremost because of consolidation – which I think is

There's a lot to be said about just well documented open APIs; standards can be a necessary evil – they are certainly helpful in certain instances

essential. We had too many small and mid-size players that just did not have the R&D muscle to fund the transition to cloud. And we've seen that there's been mergers, takeovers, acquisitions – there's a lot of consolidation happening. But I still think there's room for more consolidation; the benefit of that consolidation is concentration of R&D dollars.

I also think that we've been slaves to our way of thinking. We've grown up as an industry built around bespoke hardware and standards; it's pretty ingrained in the DNA. And so design of video over IP standards by committee that don't take into account the elasticity of cloud and the payloads of data that are being generated by these standards that are being designed is problematic. And then you get these splinter companies that say 'this is madness', and they come up with their own way of doing things and it ends up being scattershot. And then good luck putting an ecosystem together!

There's a lot to be said about just well documented open APIs; standards can be a necessary evil – they are certainly helpful in certain instances. But I do think that we've over-indexed on standards, and the other challenge to technical innovation and cloud adoption is again – dare I say – cultural, but this time cultural in the media and entertainment vendor space, where there is still, to this day, far too much fierce protection of the walled garden – 'I can do everything end to end for you, and I've built an ecosystem that works fabulously together, but doesn't interoperate with anything'.

### What characteristics do you look for in a vendor?

First and foremost, I look for a culture of full openness and transparency – there is no room for hiding things; own the problem and be there with us. Some of the best vendor relationships I have right now are with companies that have thoroughly let me down, which is perverse in some respects but in letting me down, they've also owned it and have committed to fixing it and have worked hard at it and are making progress at it. Is it fast enough? It's never fast enough – when there's problems you need them fixed. But that kind of transparency and honesty and ownership of issues is absolutely essential.

The second thing I look for is a bit of a risk-taking culture. There is a real conservatism in traditional broadcast around technology; everyone wants to be first, but no one wants to be first – and it always has to work perfectly. The expectation in viewers is that broadcast is super slick and highly refined and is a perfect presentation. The challenge is that as you move to DTC and OTT, controlling that level of perfection becomes exponentially harder. You get caught in a trap of between perfection versus good enough.

There's a lot of overhead that goes into software and systems engineering when you're aiming for perfection – multiple layers of redundancy and all that sort of stuff; it's just the problem gets infinitely bigger to solve, and that slows down your innovation. Whereas if you can rapidly iterate and do something innovative like a Chaos Engine that just wreaks havoc on your system, but allows it to self-heal, perversely it ends up being probably more resilient.

It's also interesting that you're looking at the fringes of the industry, not necessarily to the large companies, but the small innovators; that's where the innovation is. There's an impressive tech start-up community particularly around AI/ML related stuff emerging out of Israel, which is really interesting. There are hotbeds all over the place, but I'm particularly interested in some of the thought leadership around sports and sports tech coming out of Israel.

### How will the coronavirus shock affect the broadcast and media industry?

What we're learning is around where things like elastic compute and cloud and all that can play a role in dramatically increasing your resiliency to these types of events by virtualizing a lot of this big iron, and you can also very simply virtualize the user environment.

This is absolutely a wakeup call that we need to go all-in on cloud and virtualization. Because my biggest liability in the business right now in this global pandemic is the fact that in order to keep our key properties running, I need to have bodies go into offices, and we're desperately trying to mitigate against that as best we can. But I want to see a day where bricks and mortar are a place we gather around to create content and to create a culture for a company. But it isn't essential for the functioning of the company.

### What's your top technology priority this year?

There are two big initiatives that I think are fundamental to the future of our business and our OTT DTC aspirations. The first is ruggedization and expansion of our media supply chain. This includes content

To allow things like AI to really work and also to unlock new value in our libraries

acquisition, so ingest of content, content modification – editing etc., content discovery – the elastic search capabilities that tie around it, and content prep and QA. So everything that goes into generating various versions of that piece of content and guaranteeing its quality. The reason why that's so important is that for a lot of traditional media businesses, that is a tremendous amount of manual work. That is a not insignificant problem to solve in order to allow things like AI to really work and also to unlock new value in our libraries. That is one big initiative that's underway and it's an ongoing concern. We started down this journey a year and a half or so ago, and I don't see an end to the road just yet.

In 2018, we opened our new national Media Operations Center, all built on 2110. It's a beautiful facility, and we've consolidated almost all of our assets in there save for our sports. So the second piece for us is a big focus in the coming year on sports channels that are still running in their legacy environment, and we need to move them over. This is where we have the most significant innovation opportunity in terms of everything we've talked about throughout this interview around fan engagement, data, AI – all that sort of stuff. There is just a seemingly insatiable appetite for live sports content. It's very valuable content we have; we're privileged in that we have an expensive rights portfolio for Canada. In building the next generation of content origination facility for these sports properties, we need to dare to dream big and just building a traditional master control isn't going to cut it in my mind. We need to fundamentally rethink the roles and how the facility works and how the technology enables everything that everyone's talking about. It's a daunting task, but that's what's at hand for us at Rogers Sports and Media in the next year and beyond.

"Promethean.tv is a remote organization, with staff in the US, Canada and UK servicing a major Telco in Thailand"

# In these unprecedented times, be wary: absence doesn't make the heart grow fonder

**Ian Sharpe**
*CEO, Promethean.tv*

Back in 2018, Promethean.tv was one of the first companies to take advantage of IABM's then-new Start-Up membership category. Two years on, we asked Ian Sharpe, CEO at Promethean.tv, to give us the benefit of his experience – what worked, and what might he have done differently with glorious 20:20 hindsight? The following article is Ian's response – it's heartfelt and doesn't pull any punches. Whether you're part of a start-up or long-established multi-national business – particularly in these times of enforced remote working – we think it will amply reward the few minutes it takes to read.

**"Those who cannot remember the past are condemned to repeat it".**

When I founded Promethean.tv, for my second stint in the Big Chair, I imagined I had learnt a lot about mistakes and how to avoid them. I like to think of myself as a historian – after all, I write Norse novels in my spare time, scribbling down intricate detail in the nooks and crannies of far-flung airports. In fact, even the brand Promethean comes from antiquity, named for the Greek Titan who defied the gods by stealing fire and giving it to humanity.

The Promethean founders saw ourselves as bringers of fire, at least in the early days. As something new and exciting that would ignite video commerce and deliver ROI to broadcasters. We were going to bring the lessons of our brave new world of eSports to the staid and slow world of traditional broadcasting.

But to do so, we had to learn a whole new way of working. We had to somehow get up close and personal, detailed and direct while never actually seeing each other in the flesh. You see, Promethean.tv is a remote organization, with staff in the US, Canada and UK servicing a major Telco in Thailand. We 'follow the sun', with calls and Slack messages from the early morning through the late night.

Of course, in these days of COVID-19 and social distancing, who isn't a homeworker? But perhaps our experience will help others adjust in this time of unprecedented change.

**Between 2013-2016, I ran Azubu – an eSports streaming company backed by Private Equity. I still joke on calls about how we were the company that *didn't* get sold to Amazon for a billion dollars.**

I saw the company through the lens of Patrick Lencioni. His book, the Five Dysfunctions of a Team, describes the many pitfalls that teams face as they seek to 'grow together'. It calls itself a Leadership Fable, a series of succinct and pithy stories that explore the fundamental causes of organizational politics and team failure. Azubu was an HR helter-skelter, a kaleidoscope of chaos, but through it all, I keep faith with my management bible. Absence of Trust, Fear of Conflict, Lack of Commitment, Avoidance of Accountability, Inattention to Results: you simply had to name your demons to control them. I had started bravely, full of optimism. I hired people I trusted into key roles in my attempt to turn the ship around.

But no fabulist can prepare you for the reality on the ground. No parable can help predict how people behave under stress. Despite my best efforts, we weren't so much a fast follower as a dawdling failure – we ran the A-Z of an eSports F*up. And we were truly international in our incompetence: we had narcoleptic Koreans, financially suspect Germans and greenhorn Americans. We were the sort of company that didn't simply embrace pencil-pushers, we signed up pencil-hurlers into the management team. Debates were solved in much the same fashion as a darts match. Unsurprisingly, every day we teetered on the brink of some egregious contract dispute or funding catastrophe.

Staff can exist in siloes by dint of human nature, separated not just by geography or distance, but by inclination

Azubu had an appalling them-and-us culture, often eSports versus engineers, or Old School versus Young Blood. Some staff behaved like humanoid proximity mines: the Korean office was a constant war zone, riven with factions, requiring near constant relief missions. I began to suspect Lencioni had missed out a dozen more dysfunctions of a team, all of them exacerbated by language barriers and baroque video conference systems.

By 2016, I had come to the end. Götterdämmerung. My own personal Ragnarök. I resigned and determined to move on without PE baggage and HR headaches. I had learnt a great deal – and had a compelling technology that was proven to drive phenomenal CTRs with the eSports audience. We had created a lean-in experience, made a virtue of interactivity and dispensed with the passive past. And there was an opportunity – if eSports were paving a way, surely the rest of the broadcasting industry would be watching?! This was a multi-billion-dollar industry after all – the fusion of technology and new models of consumer behaviour – and I determined I would not cease from Mental Fight, nor would my Sword sleep in my hand: till we had built Promethean, In Broadcasting's green and pleasant land. And of course, our new company would be built in Lencioni's image. This time, we would be free of the devilish Dysfunction. We would be gloriously free of the office and all of its headaches.

**"Those who cannot remember the past are condemned to repeat it".**

In case it is all Greek to you, Prometheus actually means forethought – in myth, he had a twin brother called, Epimetheus (afterthought). In the spring of 2017 when we incorporated the new company, I boasted of 2020 Foresight, citing changes expected by the end of the decade. Video was a boundless sea; broadcasters were embracing streaming technology like never before. The world was full of cord-cutters and constant streamers, of eSports fanatics and binge-watchers.
I am now Seven Years a CEO, and have revised my maxim:

*Familiarity may breed contempt, but insularity enshrines it.*

We set out bullishly. In the past few years, we've won an IABM Bammy, launched a multiplatform service in South East Asia, been invited to join the Sports Innovation Lab, and assisted a Telco with Digital Transformation.


But what I have had to quickly learn is this: it's not lack of customers, or evolving technology or trends that will ultimately sink a company. It is its own culture. We often hear coaches and man-managers say there is no 'I in team'. But there is: listen hard enough, or long enough, and it comes through loud and clear. Staff exist in siloes by dint of human nature, separated not just by geography or distance, but by inclination. People have their own pet peeves, their own agendas, their own vision, missions, and goals. You can try and overlay those with a corporate mindset and cheerleading, to shoehorn collectivity into the latest JIRA ticket, but the fact of the matter is, when you are out of sight, you are out of mind. I came to understand that the problem Korean office wasn't a cultural misunderstanding or anomaly. It was the norm.

Remote working magnifies the essential problem. People can have their camera on, but it doesn't mean they are listening. They might be staring at the screen and reading the news for all you know, wilfully ignoring all direction. Your own staff might be indifferent, apathetic or even contemptuous. Every problem you had in the physical workplace is now strangely amplified in an echo chamber comprised of a billion – often muted – screens. Despite working in online video, Promethean.tv suffered just as much as any company: our All-Hands meetings, designed for sharing and bonding, had long proven a mirthless, unquestioning void.

And now, as we all sail merrily into our world of Zoom calls and Webinars, this will be the new norm. As I write

Facebook and Google have already told employees last week that they will have the option to stay clear of the office until the end of 2020

this article, with the pandemic barely receding, Twitter has announced that all of its staff can work-from-home forever. Silicon Valley companies were among the first adopters of remote working policies when coronavirus began to spread, and they're in no rush to bring workers back to campus. Facebook and Google have already told employees last week that they will have the option to stay clear of the office until the end of 2020.

I wonder how long forever will turn out to be. Certain job functions, even in technology, require human interaction. Certainly, Lencioni's toolset seems an inelegant solution to this frightful new world. Communication in a remote team becomes bunker-busting, and raising morale can seem like an inverse game of whack-a-mole. Bizarrely, it took the pandemic to make us realise what our internal All-Hands calls had been missing. We weren't practising what we preached – we weren't interacting with our video!

Our CTO quickly threw together some interactive tools on top of Zoom, by way of a quick showcase. It was a simple enough experiment, and in moments, people were voting in real-time on the best Powerpoint slide. It was a breath of fresh air. Staff were engaged again!

**What makes this different from every other Zoom gimmick – the standard amusing avatar or virtual background?**

Meaningful, contextual ***interaction***.

Because for all its faults, the office provides interactivity. It provides contact. It offers relevance. It is all too easy for a remote workplace to become a place of passivity. So, as we drift into uncharted territory, don't throw out the old management books. They might not make the perfect paddle, but with a bit of ingenuity, you can adapt them for the new norm.


# CTO Panel – **the vision for 2020 and beyond**

In this informative panel, hosted by Rob Ambrose, leading broadcast and media CTOs and technology leaders shared their priorities and vision for the coming year and beyond. They talked about project plans, where they'd be investing, what they need from technology and service providers, and revealed their own initiatives for change and transformation. Panelists were: Morwen Williams, Head of UK Operations, BBC News; Nick Haworth, Head of Group Technology Product Management, ITV; Andy Beale, Chief Engineer, BT Sport; and Michael Harrit, Lead Architect, BBC.

Three strong themes emerged – bringing all sides of a business together to enable it to reach its goals, facilitated by a new kind of product management or 'bridge' role, being agile to be able to keep up with evolving consumer demands, and the growing importance of partnerships and collaboration with vendors in supporting these new business models. Rounding the session out, the panellists then revealed where their priorities lie for 2020 and beyond.

## Bridging

Morwen Williams came to her operations role from a background in journalism and sees her position as "A sort of translator between journalists and technology. The journalists tell me what they really need to deliver the stories – the technology is ultimately there to enable us to tell stories for our audiences in a better way".

Nick Haworth defined his role as "The bridge between the business and the technology. That means working our core enterprise systems, which you want to make better for our users and the people within ITV...it's developing a product management capability within ITV so we have people not just in technology, who can develop products, but also developing people in the business as well... so that we can build systems that are more responsive."

## Partnerships

Michael Harrit was clear that "Partnerships need to be commercially vested to be real – both parties need to have 'skin in the game' with money on the table sharing the risk – with the objective of enabling the organization to reach its business goals through technology and development." Andy Beale agreed, reflecting on the move in the relationship from supplier to partner – "An ongoing relationship with joint values and visions – going on a journey together." He recognized that things can still go wrong, "but with a strong relationship you can come through difficult periods stronger".

Partnerships are also important to ITV. "We will build products where we can't find them in the market but still very much work with vendors, using both their products and their expertise. It's a partnership model," Nick Haworth said.

## Engaging with vendors

Rob Ambrose asked each of the panellists for one sentence of advice for vendors. Nick Haworth advised vendors to show how they innovate and can add value to what ITV does and work in partnership. For Morwen Williams, it's all about partnerships too – "working together". Andy Beal appealed to vendors to "understand our business" before approaching him. Michael Harrit advised vendors to "Tell me why this is interesting and why we should pick you to deliver this – and cover the business mechanics of how you are going to make money and we grow our audience."

## Agile engagement

"Where do we have the highest engagement already – where do we have audiences already?" asked Michael Harrit, explaining that his focus is on "growing engagement in these areas rather than spreading out across lots of products; that is what drives product development today."

Andy Beale agreed, referencing BT Sport's 'Ultimate' channel: "It's about how you get your customers really immersed and engaged in key moments. The product is a suite of things – an editorial story driven by good production teams while understanding the model of social engagement combined with technology that enables the audience to see it in the best possible way."

For Morwen Williams, it's about shifting audiences. "Audiences for linear TV new bulletins are falling off the cliff – even among older demographics," she said. "You can create great content to attract younger people – but they're still not going to come to a linear bulletin. So how do we get those audiences back – to justify our licence fee? When we do get it right on Instagram or

Twitter and people like it, they don't necessarily know it's from the BBC so you have to hammer brand as well."

For Nick Haworth, speed is of the essence: "We need to change throughout the business to be able to work faster, with the user at the front across everything we do. It means thinking in different ways about how we work and engage with our users internally and externally so we can do things faster."

### 2020 shopping lists

Nick Haworth is looking to continually develop ITV's content supply chain to support its strategy including BritBox and Planet V and also its international production businesses. And where tech refreshes are required, "We're always thinking – where can we innovate?".

Morwen Williams is looking at remote production, connectivity and trucks/vehicles – the latter to transform what were the BBC's radio cars into 'content cars'. "Our focus is also on exploiting our new Wolftech News planning and deployment tool, linking metadata all the way through from sending someone right through to archive," she said. 5G is also high on Morwen's list – how BBC News can exploit it so it doesn't have to transport heavy equipment around the world.

For Andy Beale, the focus is on enhancing BT Sport's Ultimate proposition by "bringing customers closer to the heart of sports – the more they are engaged the happier they are. Remote production is also a key focus, looking at ways to decentralize the production hub without losing all that's good about it. This also plays to sustainability and we're going to challenge all our suppliers in 2020." Andy also noted that the skills problem needs to be solved at grass roots level.

Michael Harrit looked beyond 2020. "The BBC is still siloed – marketing, production etc. The challenge is how we tie it all together. Key to this is rights – managing rights across acquisition, managing and selling is the key to making us agile," he said.

# Smoke & Mirrors – how to Build and Buy

Visual effects post production boutique Smoke & Mirrors began life in 1995 as a small, creative-led post production facility. Since then it has grown into a global company with 350 staff in six offices around the world. In 2015, it had reached saturation point in terms of meeting demands in a timely manner. Its core business is commercials and a typical project will require 6-8 different versions for each of up to 40 markets – all adding up to 10s of 1000s of masters produced every year. It was time to automate. In this session, Bea Alonso of Dalet interviewed Steve Faulmann, Senior Software Developer at Smoke and Mirrors, about how the company adopted a 'Build and Buy' approach to meet its unique needs.

The hybrid solution has the Ooyala Flex media workflow orchestration engine at its heart, running under Smoke & Mirrors' own Atlas custom app. Telestream Vantage transcoding, Tektronix Aurora Automatic QC and Dalet Manual QC provide automation with intelligent role-based task management, fully integrated with the Ooyala Flex platform.

"What was particularly useful with Flex was that it is highly extensible both internally and externally," Steve Faulmann explained. "You can write scripts that run as actions inside the workflow and these are not just shell commands to run a Python script – they are groovy scripts that run in the same JVM as the application server itself and you can call internal APIs so you can do deeper integrations, which we've made extensive use of. There's also


a REST API, which is what Atlas uses to communicate with Flex to kick things off and get back reports etc.

"We very much run the entire platform ourselves," Faulmann continued. "Whenever we want to roll out a major new feature, we'll do the design work ourselves and then engage professional services just to make sure we haven't missed anything obvious."

The result has been an 85% reduction in project delivery times, a flexible architecture to react to new challenges, simplified processes through automation and reduced human error and duplication. It all adds up to reduced production times so that Smoke & Mirrors can cost-effectively scale.

What is Faulmann's advice to other companies based on his experience? "Don't be afraid to spend money on professional services throughout the project and train your whole team and bring them along with you. We have a continuous integration continuous deployment pipeline which can be problematic integrating third party systems. Dalet has been really, really good around licencing. For each feature we're working on, we have a branch repository with its own environment. This allows our developers to work on their feature and test it without worrying. It's harder with some other third party systems because the licencing model doesn't work like that."

Advice for vendors? "Not all APIs are created equal. APIs are much more powerful if they have demo applications or sample projects rather than just simple lists of what you can do. They should also offer a choice of languages beyond just Java or maybe C#. Getting the engineers on both sides talking as early as possible is always really helpful," said Faulmann.

"I love the extensibility that the Flex platform provides but I always want more extensibility and flexibility – more opportunities to extend the system. Also, REST is not always the best way to expose an interface – GraphQL is really exciting. With so many different systems, today we have to make five or six calls to join data together and that's starting to become a bottleneck. If everyone exposed the GraphQL endpoint, we believe we can make more efficient queries across multiple systems," Faulmann concluded.

"What we see is trends that were happening already are simply being accelerated. Remote production and remote collaboration, cloud adoption, streaming, etc. were already moving quickly. The pandemic has simply accelerated these things out of necessity and those that were already moving in these directions, seem to be in a much better spot."
*Jon Finegold – Signiant*

# Conc

"While remote production was mainly used for sports production before the Coronavirus, we now can see it for News, Interviews, Entertainment TVs, etc. Remote production seems to become a standard workflow for all TV stations." *Ronan Poullaouec – AVIWEST*

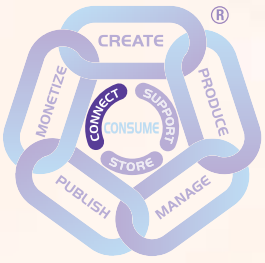
"We see the use of cloud-based solutions now accelerating, something that the industry has been relatively slow to adopt."
*Jon Finegold – Signiant*

SPECIAL REPORT

# Connect – on the move

**Roger Thornton**
*IABM*

The Connect segment of the BaM Content Chain® encompasses the moving of content, whether real-time (live) or file-based, within and between facilities. This covers a wide range of products and services including IP (and SDI) infrastructure, routing, interfacing and conversion, file-based delivery as well as bandwidth and connectivity services including internet, fiber, satellite, microwave, and cellular.




THE BaM CONTENT CHAIN®
from **Creator** to **Consumer**

"Distribution has expanded dramatically as content is delivered to many new platforms, across more borders, and in new formats." Jon Finegold, Signiant

Connect was already one of the fastest growing segments of the BaM Content Chain®, and the Coronavirus pandemic lockdown has dramatically increased demands on connectivity; according to the most recent IABM survey, Connect is the only BaM Content Chain® segment that is still growing during the pandemic. We spoke to IABM members about the drivers of change and trends in this BaM Content Chain® block, what effects they have felt to their business as a result of the pandemic, how they are responding, and what we can expect next in this dynamic sector.

## Drivers of change

In the latest IABM Buying Trends Report, buyers' overall top considerations are ROI, agility and efficiency – along with training. Chiming nicely with these desires is Dejero's VP Marketing, Richard McClurg: "In the Connect space, it's the macro-level drivers that are at play: the desire for more content; the need for greater flexibility in being able to move content around, faster, and more efficiently; the ability to quickly scale up and down operations; and the need to reduce costs," McClurg says. "While fibre and dedicated satellite links have been used extensively for moving content in the past, the level of flexibility and cost of these solutions don't always meet the needs of content providers in the new, often digital-first world. The use of the public Internet, and less expensive broadband and cellular connection paths, bolstered with on-demand satellite when needed, and augmented with technologies that boost the reliability such as Dejero's *Smart Blending Technology*, now make this approach viable, helping to achieve the efficiency and cost savings that broadcasters and media organizations are striving for."

Signiant Chief Marketing Officer, Jon Finegold, also sees "Quite a few macro-trends driving change:

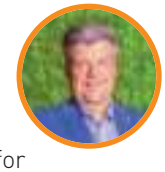
1. There is far more collaboration as content creators can easily tap into a global network of highly specialized companies and talent
2. Distribution has expanded dramatically as content is delivered to many new platforms, across more borders, and in new formats
3. The storage landscape is far more complex as content now sits in a variety of storage types from many vendors across multiple locations along with a growing trend towards using multiple cloud providers
4. And, of course, file sizes continue to grow as do security challenges

"While none of these things are new, they all continue to evolve quickly. As a result, workflows are more global and more complex and that is driving massive change in Connect," Finegold adds.

For Ronan Poullaouec, CTO at AVIWEST, the drivers in Connect are "5G and more generally IP workflows," he says. "Indeed, we can see more and more remote production uses cases that rely on IP architectures and low latency live video broadcasting solutions. Of course, 5G will speed up the use of cellular networks for live and file operations with better confidence in the transmission and higher video quality. The use of Non-Public-Network with private frequencies (as CBRS in the US) could be also a game changer for live transmission from private areas."

### Going virtual

For Bitmovin, the lockdown has accelerated the trend to more and more virtual events, which will be here to stay. Says Bitmovin's Digital Marketing Specialist, Joshua Shulman, "The global pandemic was a huge influencing factor towards how all (in-person) events function, but this is likely to carry over to events once the virus is firmly under control. Although virtual events have existed for some time, this has opened up the opportunity for innovation. However, the general technological shift towards online marketing and sales initiatives should carry these changes in the future. Having more virtual events like Connect.by allow more of your target audience to actually attend and participate in these events."



Jan Eveleens, Director Business Development Video Solutions at Riedel, has no doubt where the major trend lies. "Obviously the most important driver in Connect is the move to use more and more standard (COTS) IT equipment for both networking and also processing," Eveleens says. A quick look at IABM's recent Supply Trends Report tends to back this up, with software now accounting for a larger

"IP is kind of a moving target. Initially the industry focussed on HD and 10G networks, which has now shifted to 25G and UHD with manufacturers redesigning their systems accordingly." Jan Eveleens, Video Solutions


share of vendor revenues than hardware for the first time since the report was introduced – over 10 years ago.

## How big a driver is IP?

According to IABM research data, IP is a big driver of spending in the Connect segment, but with its adoption still being slower than expected, what is the real rate of adoption of IP technology in the Broadcast and Media industry – and how is it changing operational practices?

Riedel's Jan Eveleens is forthright. "The transition from SDI to IP is now increasingly gaining momentum! Adoption had been rather slow as there was unclarity and uncertainty about technological standards and concerns about interoperability between vendors. But there have been other essential factors having their effects on the progress of IP:

1. First, IP technology requires very different skillsets and many organisations that want to transition to IP need to (re)train their personnel, hire new talent, or trust third parties [note that this also reflects the fourth pillar of end-users' top priorities – training]
2. Then IP is kind of a moving target. Initially the industry focussed on HD and 10G networks, which has now shifted to 25G and UHD with manufacturers redesigning their systems accordingly. These systems are only now coming to market
3. And, as is the case for any new technology, IP solutions still require a premium in terms of costs that so many organisations have not been able to be convinced enough to pay. This premium is expected to decrease over time enabling more organisations to decide to invest in IP technology."

### At a price

Cost is also an issue identified by AVIWEST – particularly with uncompressed video, but other areas can see real advantages now by leveraging the company's technology, Ronan Poullaouec contends: "The use of IP technology in the B&M market is taking a step forward but its adoption has a cost and it can be quite complex to define the right architecture. For instance, the changeover to IP technology as uncompressed video over IP (e.g. SMPTE ST2110) can be extremely complex and expensive," he says. "This is not the case for all the market areas in the B&M industry. As an example, it has become easier and easier to manage live transmissions over IP networks from anywhere. Of course, this example requires the right solution to guarantee the transmission. This is the case with our (double) Emmy Awarded SST protocol that guarantees the highest performances over unmanaged or managed IP networks. This protocol enables broadcasters to reliably and securely transport live video over any IP networks (thanks to packet loss recovery mechanism, jitter correction or multiple-networks bonding). Moreover, the time synchronization algorithms integrated in SST allow to manage multi-camera workflows without the need for external synchronisation sources (like genlock signals or other sync signals)."

According to Jon Finegold at Signiant, the rate of take-up of IP depends on a number of factors, and he explains why it has not been as rapid across the board as some expected. "If you look at the newer providers, they are building everything IP from the ground up while more traditional players are adopting IP, but typically driven by some catalyst – new facility, new projects, etc. Companies are still getting value from their existing infrastructure and using tools to bridge between old and new so there isn't a hard line when the existing equipment will be shut down. IP adoption will continue but probably more as a step function tied to specific events."

## Coronavirus – accelerant or drag-anchor?

Because of the Coronavirus pandemic, work on new facilities has essentially stopped. As a large share of investment in new IP infrastructure is focused on greenfield projects, we asked our correspondents if the crisis have a negative impact on IP technology investment and, with media organizations leapfrogging into the cloud due to necessity, how will this impact the demand for IP technology post-pandemic?

"Yes it may delay some big investments (as mentioned: work on new facilities, new TV studios, etc) but it will boost other investments as remote production workflows, live transmission from outside or cloud-based solutions," says AVIWEST's Ronan Poullaouec. "The changeover to cloud solutions will of course speed up the deployment of IP-based workflows to manage the transmission between local/ on-premise equipment and hosted cloud services."

### Moving faster

Riedel is seeing more positive movement on IP investments and the coronavirus pandemic fuelling a move to the cloud – at least for now. "Riedel still sees a healthy appetite of media organisations to invest in IP technology," says Jan Eveleens. "Probably the move to IT based systems is stimulated by the Corona crisis as many organisations are now re-thinking their future operations. This is also true for using cloud-based technologies, certainly as some Corona-imposed measures make the use of other solutions and workflows very difficult or impossible. But it is to be expected that post-pandemic organisations will re-assess what is most efficient in terms of workflow and cost."

"The move to IP is often driven by the requirement to support UHD or at least to be future-proof for UHD."
Jan Eveleens, Riedel

Signiant has plenty of direct evidence of the rapid changes wrought by coronavirus, and fully expects that this is not a temporary move. "While new facilities are on hold during the pandemic, adoption of new technologies, specifically cloud and SaaS, are growing fast," says Signiant's Jon Finegold. "What we see is trends that were happening already are simply being accelerated. Remote production and remote collaboration, cloud adoption, streaming, etc. were already moving quickly. The pandemic has simply accelerated these things out of necessity and those that were already moving in these directions, seem to be in a much better spot.

"Signiant has a unique lens on this in that our tools are used widely for remote production, remote collaboration and of course to move data into and out of the cloud," Finegold continues. "We watch these trends closely and all have been rising in our customer base but things took a steep, hockey stick upward curve in March as the world moved entirely remote. Because a lot of this was already in motion, we expect it to stick post-pandemic."

## Is IP helping drive 4K/UHD adoption?

Riedel's Jan Eveleens certainly thinks so: "Being ready and prepared for UHD is an important requirement for most customers now. As the majority of customers do not want to invest in an entirely new 12G SDI infrastructure, the move to IP is often driven by the requirement to support UHD or at least to be future-proof for UHD."

### Future-proof

For Signiant, 4K/UHD isn't a destination – it's just a waypoint that can be supported by flexible, agile infrastructures. "IP offers more flexibility in general and given the world we're in right now where there are new formats and new platforms popping up all the time, it just makes sense to be thinking about an IP future," says Jon Finegold. "4K/UHD is certainly a catalyst for technology investment but simply having agility is the best way to think about the future. Don't build out infrastructure simply to support 4K/UHD, build out infrastructure that will enable you to support whatever comes next."

"4K and UHD are seeing an increase in usage overall, as expected to match the hardware available on the market," says Bitmovin's Joshua Shulman – but it doesn't have to be all about IP status, he contends: "Sure, this is something that IP may support better at this time – but technologies like Bitmovin's Multi-pass Encoding and Web/OTT Player are built to support high-quality content while reducing bitrate expenditure with more efficient compression techniques and multi-codec distribution strategies. 4k and UHD will grow regardless of IP status, as other technologies are developing to support these formats without an immediate need for WiFi enhancements."


"Deployments of 4K/UHD are finally starting and we expect to see a ramping up in the adoption of 4K/UHD," agrees Ronan Poullaouec at AVIWEST – although primarily via the internet rather than OTA. "Of course, IP technology will make this adoption easier and cheaper for broadcasters. OTT may simplify the distribution of 4K/UHD and HD programs to a wide public and in comparison with the DTT technologies, there is a big gap."

## Remote Production

At first glance, one would expect remote production to make big gains during a period of lockdown – and, if the benefits are felt, not rolling back to previous 'norms' after the world gets fully going again. While sports events – major drivers in the drive to remote production – have been cancelled, other production genres have indeed embraced remote production according to our correspondents. "With Coronavirus, we recently have noticed a huge interest in remote production solutions," Ronan Poullaouec says. "While remote production was mainly used for sports production before the Coronavirus, we now can see it for News, Interviews, Entertainment TVs, etc. Remote production seems to become a standard workflow for all TV stations. This is good news for our business."

"Remote production is one of those trends that has been steadily growing for some time and that's been a great

"We can't predict when remote production will go back to 'normal', but we do think that broadcasters will rethink some of their workflows, seeing the success of what's been done during the pandemic." Richard McClurg, Dejero

trend for Signiant," says Jon Finegold. "With the pandemic, remote production has accelerated dramatically out of necessity and we expect much of that to stick as it was already trending in that direction. Signiant software is used widely in remote production workflows allowing remote editors to pull clips from the live feeds in near real-time using standard IP networks as well as for getting graphics, quick edits and clips back to the truck or to the venue for playing on the jumbrotron."

## The new normal

Richard McClurg at Dejero also notes wide adoption of remote production and doesn't see things changing back to the way they were pre-pandemic. "While the term 'at-home production' is used by some to refer to remote production, little did we know at the beginning of the year that it would take on a whole new, literal meaning.

"This unprecedented situation of the pandemic presented major challenges for broadcasters striving to continue live news and weather reporting while staff adhered to government requirements of social distancing. Technical teams had to quickly figure out new workflows and technologies to adapt to the current situation as many broadcast facilities had to be evacuated. They had to quickly enable presenters to successfully broadcast from home, often relying on consumer broadband for connectivity. Smartphones replaced high end cameras and tripods, lighting, mics, IFB communication and teleprompters had to be arranged and often improvised," McClurg explains.

And the numbers back up the scale of the move to remote or at-home production. "Dejero has seen a ten-fold increase in the use of its mobile apps to provide live broadcasts in these scenarios and our Smart Blending Technology has proven itself well in this scenario, with the ability to blend any IP connection type: broadband (either directly or over Wi-Fi) as well as cellular," McClurg says. "We're delivering the reliability that wouldn't be there if using just a single connection. Since fibre or satellite connections are not available, we're proving that public Internet links can be made just as reliable with the right technology in place. In a sense, it's been a great way to demonstrate our capabilities."

Remote production is of course not just a one-way street – the return path has to be interactive too. "We've also seen a big increase in demand for our return video/teleprompter solution," McClurg adds. "We're able to deliver extremely low latency (as low as 250 milliseconds) program and teleprompter feeds to tablets, smartphones or computer monitors that presenters have on hand, instead of more traditional purpose-built equipment. That way they can check their position when live to compensate for graphics and overlays, as well as read teleprompter scripts controlled and updated remotely at the broadcast facility.


"We're also seeing greater demand for our general-purpose connectivity solutions. Some broadcasters have deployed our GateWay network aggregation devices to presenters in areas where Internet service is not so reliable, or where cellular connectivity from a single carrier can be spotty. We're able to use whatever bandwidth they have and blend in cellular connectivity from multiple providers to deliver the bandwidth and coverage that's required for high-quality video transport as well as provide a much more reliable connection to the broadcaster's private network and general-purpose access to cloud services and applications.

"While these GateWay devices typically provide the connectivity for encoders, receivers, return feed servers and any other equipment in production vehicles and portable flyaway kits used in typical remote production scenarios, they are now being redeployed to support broadcast-from-home workflows," McClurg adds.

What will the future look like? "We can't predict when remote production will go back to 'normal', but we do think that broadcasters will rethink some of their workflows, seeing the success of what's been done during the pandemic," says McClurg. "We also think they'll reassess their business continuity and disaster recovery plans to have portable kits that can be quickly deployed and connected should the need arise. Dejero is well positioned to help achieve this higher level of preparedness."

Pandemic or not, the move to remote production is already an important driver for Riedel. "With the transition from SDI to IP and bandwidth becoming more

"5G's lower latency for all communication and applications between the station and the field crew will enable more to be done remotely in live broadcasts."
Richard McClurg, Dejero

abundant and cheaper, remote production will increasingly become a standard workflow for many media organisations," says Jan Eveleens. "Quite a few media organisations are using it already for some events or are experimenting with it. We see this as a positive development as all our products are very suitable for use in remote production applications."

## 5G – Connect gamechanger?

"For Dejero, 5G is simply the next evolution of wireless technology, another connection that can be aggregated with other 3G and 4G cellular connections, along with any other IP connections that may be available, to reliably deliver the bandwidth that broadcasters and media organizations need when operating remotely," says Richard McClurg. "In the broadcast world, 5G is fuelled by the exponential growth of video over IP and the growing consumption of high-quality video through traditional channels and new media. Its benefits go beyond resolution and will transform field and mobile broadcasting, making scenarios possible which were previously reserved for wired environments. For example, 5G's lower latency for all communication and applications between the station and the field crew will enable more to be done remotely in live broadcasts.

"The incredible 'Holokid' performance that took place in Romania last year is a good example of this," McClurg continues. "Working in combination with Vodafone Romania's 5G network and Musion 3D's holographic technology, Dejero's transmitters and receivers helped create a live, life-sized, 3D holographic video stream, which allowed a stage-shy 11-year-old guitar player to join a rock band live on stage from a studio 2km away, bringing alive a perfect human hologram. Dejero's extensive experience of live outside broadcast and mobile broadcasting in challenging conditions was key to the success of this show. The combination of various technologies and 5G delivered the confidence and low latency needed to get a high-quality live stream across networks in a reliable way that creates realistic end results."

McClurg however tempers his enthusiasm with a note of caution: "But due to the cost and effort required from operators to make a full transition to 5G – not to mention the many technical and regulatory decisions yet to be made – it will take some time to implement and become widely available. Therefore, the 4G LTE and LTE-Advanced infrastructures, as well as 3G infrastructure in many areas, will still be relied on for many years to achieve the bandwidth required for broadcast quality video, broader availability of cellular signals, low latency, and the high reliability needed by all."

### New creative avenues

Ronan Poullaouec at AVIWEST also sees great potential for 5G in broadcast and media – as well as many other areas. "5G brings higher bandwidths and lower connection latencies to users. This will serve applications and services that need high reactivity and high bandwidths: online & interactive gaming, video conferences solutions, AR+VR live videos, etc. But compared to 4G that already provides high bandwidths and low latencies under certain conditions, 5G will allow a lot of new services like the network slicing that will be a real 'game changer' for professional usage. This slicing will allow professionals to use their own network in the network with dedicated bandwidths and characteristics even in overcrowded areas. This will guarantee the quality of service for professional applications like live content production for the media & broadcast market."

Like Dejero, Riedel sees 5G as a useful addition to range of connections available, and open up new creative avenues. "5G is an interesting new technology in the total available network technology mix," says Jan Eveleens. "It will allow certain parts of the chain from content creation to content consumptions to go wireless, where this was not possible yet. Being no longer bound by wires will create new opportunities for new creative or more efficient workflows."

"We have seen a big evolution since the beginning of the pandemic and TV stations have changed their working method and adapted their programs to face the extremely complex supply chains."
Ronan Poullaouec, AVIWEST

While Signiant is yet to see 5G having a major impact, it is certain to add another powerful connectivity choice in the future, and perhaps become dominant. "While we don't see a ton of 5G in play yet in the B2B supply chain, we are having a lot of conversations about it," says Jon Finegold. "For Signiant, this is great news as the more bandwidth that is available, the more our intelligent transport can add value, maximizing throughput on whatever pipe is there. 5G will offer more versatility and with Signiant software that combination could be very disruptive to other types of networks used in the B2B supply chain."

## The impact of Coronavirus on supply chains

Given the fast-growing complexity of media supply chains, we asked our correspondents whether the industry was unprepared – or not connected enough – to deal with the Coronavirus crisis. Signiant reports that its customers were already well prepared and its customer base has also expanded substantially in recent months: "Signiant has a unique perspective on this in that our Media Shuttle product is widely used for remote work and remote collaboration, now connecting more than 25,000 businesses across the media and entertainment industry," Jon Finegold explains.

"We believe no business, institute nor government was prepared enough for a crisis as we currently are experiencing," says Riedel's Jan Eveleens. "There will be important lessons learned once we've come out of it. These will certainly also apply for the media supply chains."

### Playing catch-up

Bitmovin concurs. "Many were unprepared!" says Joshua Shulman. "Stay at home orders came hand-in-hand with bandwidth caps – thereby forcing organizations to reduce the quality of resolution in many countries. Other tech-oriented problems that we identified through our customer-base were immense drop-offs in Video Start-Up time and an increase in data downloads. Although some organizations were able to shift and update their technologies to match new restrictions and usage requirements, many are still playing catch-up."

"We have seen a big evolution since the beginning of the pandemic and TV stations have changed their working method and adapted their programs to face the extremely complex supply chains," says AVIWEST's Ronan Poullaouec. "Again, thanks to IP technology, TV Stations are able to easily and quickly share live content, to manage interviews with people without dedicated and expensive production equipment or also to produce high quality content with Mobile Journalism Solutions (like the MOJOPRO application by Aviwest)."

### Security matters

Keeping those signals secure remains a key issue for everyone in the media supply chain, which is exacerbated by more reliance on remote connectivity. "Security remains a concern and it only grows more challenging with remote work and more inter-company collaboration," says Signiant's Jon Finegold. "Again, having the right tools in place is critical which is one of the big drivers for Signiant as our commitment to enterprise-grade security and offering much better controls and visibility to operations teams makes it much easier to manage these collaborations in a secure fashion."

AVIWEST also has security high on its priority list. "Security is of course an important topic when using IP technology and especially public IP networks," says Ronan Poullaouec. "Our solutions not only guarantee a high level of security (with optional content encryption & watermarking) but also an excellent robustness with the management of redundant systems. As an example, our encoders and transmitters can use multiple networks with different level of priorities for each network to manage the live transmission. This is very useful to secure the transmission if the main link fails."

For Jan Eveleens, the answer lies in standards: "Riedel sees security of networked (IP) systems as very important and are following and promoting all guidelines and recommendations from JT-NM, SMPTE, AMWA and EBU."

"In the broadcast and media world the adage 'content is king' is held dear. That being the case, we like to think that 'connectivity is the kingmaker'."
Richard McClurg at Dejero

## What's next in Connect technology and workflows?

Connect is not only the fastest growing segment of the BaM Content Chain®, it's also one where the technology is moving at breakneck speed too. We asked our correspondents to gaze into their crystal balls for what to expect next.

### Connectivity is kingmaker

Richard McClurg at Dejero has a very clear idea – and how his company can facilitate it. "In the broadcast and media world the adage 'content is king' is held dear. That being the case, we like to think that 'connectivity is the kingmaker'. While there is demand for an increasing amount of content, the cost to produce that content must come down. The economics of falling advertising revenue demand it. The traditional way of doing things with large crews and lots of equipment on location is coming to an end, and quite possibly has ended with this pandemic.

"Live feeds from smaller crews will be brought back to a centralized location and that location may not be a single geographic location, but may shift across a continent or even around the world. We see the use of cloud-based solutions now accelerating, something that the industry has been relatively slow to adopt.

"This all requires reliable connectivity to move content around. While 5G is seen by some to be the solution, coverage challenges and the need for diverse connection paths remain. We see our Smart Blending Technology and Hybrid Encoding Technology playing an increasing role in transporting broadcast-quality video in the emerging workflows, being able to respond in real time to fluctuating bandwidth, packet loss, and latency differences of individual connection paths.

"Our solutions are not just being used for contribution from the field, but the distribution of content as well; blending broadband, cellular and satellite links depending on the connectivity that's available at source and receive site. Our solutions will naturally evolve to address the changing needs of our customers," McClurg concludes.

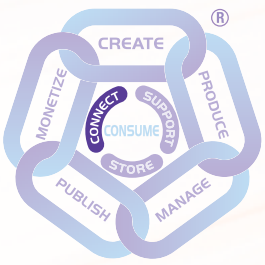
"In live broadcasting, the combination of 5G, IP technology and remote production makes sense for a lot of different workflows: live content production for News, Sports, Entertainment, Multi-camera workflows, MOJO solutions, etc.," says Ronan Poullaouec. "AVIWEST has been working on live broadcasting solutions with bonded cellular transmitters and encoders able to work on any IP networks. AVIWEST already announced the introduction of its 5G transmitter AIR and PRO3 with up to 6 embedded 5G worldwide modules. A new ultra-compact rackmount encoder will be soon introduced with disruptive performances & features (among others: Video IFB, VPN for remote control of equipment, low latencies, premium VQ thanks to HEVC hardware encoder, etc). Our unique StreamHub application is now available as a hardware appliance, as a cloud service or as a software container that can support a wide range of IP protocols (SST, SRT, TSoIP, RTMP, etc) and up to 16 inputs and 16 outputs simultaneously. This makes it perfect also to manage live distribution and content sharing over IP networks. A typical use case is the distribution network between HQ and network affiliates."

Bitmovin's Joshua Shulman sees his company having an impact right across the segment. "As Connect is working towards improving device reach, resolution quality capabilities, and content security features – it's more important than ever to leverage new and constantly evolving solutions. Bitmovin's Multi-pass encoding and Multi-codec supported player tie in seamlessly with the highest quality resolutions and best-in-class DRM platforms. Bitmovin's product suite supports the newest codecs on the market (AV1, VVC, VP9, and the incumbent EVC and LCEVC codecs). Our encoder yields top resolution quality while expending minimum bitrates."

For Riedel, it's back to commoditization. "The trend towards even more COTS is unstoppable. Next steps may include virtualisation of processing and also networking, based on mechanisms and technologies that are deployed in the cloud already. Artificial Intelligence (AI) and Machine Learning (ML) will also have an influence in Connect most notably in control and monitoring," Jan Eveleens concludes.

## To conclude

Final words to Signiant, who are focusing on making it "easier and more secure to do an inter-company content exchange," says Jon Finegold. "While our Media Shuttle product has long been used for people to send and share assets between companies our newest product, Signiant Jet is making it easy and secure to set-up automated, hot folder content exchange between companies. All managed from our SaaS control plane, companies can make a secure request to a partner and once accepted, the companies can set-up mutually agreed upon transfer jobs. Each company maintains complete control of their own environment without having to share passwords or open up their networks to partners. With 25,000+ companies on the platform, Signiant has become the trusted broker for secure, inter-company content exchange."

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"Traditional broadcast media is still important, but online content is growing at an exponential rate."
Joshua Shulman, Bitmovin

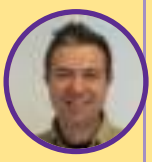
# APAC Region – Feature

We spoke with five IABM member companies either based, or with operations, in the APAC region about the business environment, trends and requirements of this diverse market – and what effects the coronavirus pandemic is having now, and likely to carry forward into the 'new normal' world.

### What markets do you cover and what changes are you seeing in the way your customer base is operating?

For Abdul Haleem, Director of Strategic Accounts – Asia, at Accedo, which helps the world's leading video service providers deliver and grow engaging video experiences across Broadcasters, Content Owners & Aggregators, Pay TV and Telcos, the answer is very much tied to its core business – "The transition into OTT and Monetization of it," says Haleem. Headquartered in Stockholm, Haleem adds that, "Accedo is a truly global organization, having worked with over 400 customers on deploying more than 1000 video apps worldwide. Over the years, we have formed open and unbiased partnerships with a wide range of expert video technology vendors, and this enables us to help our customers scale and customize their offerings as the market and their needs evolve. We currently have offices in 16 locations across the globe, including a number of cities across North America, Asia, Europe, Australia, New Zealand, and Latin America."

Etere is also a worldwide operation providing broadcast and media software solutions. "Backed by our mark of excellence in system design, flexibility and reliability for TV stations and media enterprises, we sell globally and we have a network of customers, partners and distributors from all around the world," says Fabio Gattari, Director at Etere. "Some of our biggest and more established markets include Europe (Italy, Russia, Estonia, Netherlands, Portugal) and Asia (Vietnam, Philippines, Malaysia, Thailand, Indonesia). In recent years, our emerging markets include Africa, Middle East and South America where we have expanded our partnerships and distribution channels."



### OTT all the way

Etere's Gattari also very much sees the growth of OTT as the main market driver. "OTT content is the new frontier of media consumption that has gained traction in recent years. Etere OTT Delivery is a software solution that enables you to get a quick and easy way to export your content to over-thetop platform providers, meet all contract terms and media formatting requirements while ensuring the protection of your premium assets. The solution has been powered with workflow technology to provide automated and accurate transfer and transcoding capabilities that will allow you to make your media suitable to match the requirements of any OTT video delivery platform. OTT Delivery can be seamlessly integrated with your existing broadcast workflows to easily expand your multiplatform product offerings.

"Additionally, there have been demands for cloud compatibility and Etere has responded with an integrated cloud support," Gattari adds. "Etere's integration with Microsoft Azure and Amazon Cloud allows users to access the cloud storage directly, without the use of third-party tools or drivers. Etere systems are designed to promote connectivity and collaboration across distributed work environments. Etere playout and archive solutions are cloud-ready; it supports a hybrid cloud setup that allows you to use a combination of public and private cloud services."

Bitmovin's headquarters are split between Klagenfurt, Austria and San Francisco, US – however, the company has "Multiple offices around the world and support nearly every region you can

think of," says Joshua Shulman, Digital Marketing Specialist at Bitmovin. "Built for technical professionals in the OTT video market, Bitmovin's software solutions are designed to optimize customer operations and reduce time-to-market, resulting in the best viewer experience imaginable. "We have sales support in the Americas, LATAM, Europe, the Middle East, and Asia – at the moment the US is our largest market, with European countries coming in at close second. Broadly speaking – the Asian Pacific market is showing some of the largest growth – specifically in places like China, Hong Kong, Japan, and Australia. These are all markets where traditional broadcast has always been king – however, with the growth of streaming services like Netflix (and now Disney+) more and more content distributors are looking to enter the streaming market – especially as a result of Covid-19," Shulman adds.

Bitmovin's customer-base ranges widely across the video streaming and OTT industries, offering solutions for broadcasters, streamers, and most content distributors alike – including media outlets, sports broadcasters, and eLearning platforms/services. "Our customer base has seen a large increase in streaming impressions and shifts to the cloud – with a special focus on reducing costs (especially in terms of bitrate expenditure and general delivery). Traditional broadcast media is still important, but online content is growing at an exponential rate," Shulman says, reflecting on the effects of the pandemic lockdown.

The pandemic "Is a huge opportunity for Bitmovin, we operate at the infrastructural level for many streaming organizations, and working with us is an opportunity for these organizations to reduce their costs of content delivery and/or to monitor their current performance – thereby yielding great opportunities to optimize their workflows," says Shulman. "We're taking advantage of this by getting the word out there about our solutions and how they're slated to help! In fact, we're running an Asia Pacific-focused virtual event series that displays this information specifically.

"Fewer people than ever are available to meet in person and come up with solutions to their streaming or development issues," Shulman explains. "Supply chains are looking towards cloud and remote-based solutions. At its core, this is what Bitmovin offers – as such we've thrived under quarantine as our teams have been able to operate at 100% capacity and we've had 0 lay-offs as a result."

## Digital DNA

Because of the nature of its business, Etere and its customers are well-placed to weather the storm too, according to Fabio Gattari. "The unprecedented Covid-19 situation has halted travel all around the world and as a result, many trade exhibitions have been cancelled and business meetings have crossed over to the digital arena. Etere has been diversifying our marketing strategies since 2010 and going digital has been a part of our company DNA. This year, we will continue to focus on our digital marketing strategies and enhance our cloud and web solutions. In this first quarter, we have rolled out our upgraded remote demo, training and installation solutions. On top of that, our web platform, EtereWeb allows our users to drive their workflows and manage their media files from anywhere in the world on

"Cloud is the perfect way to launch new services remotely and efficiently. Being very elastic by nature, the cloud also helps to address the variable needs that our customers may have." Tony Berthaud, Harmonic

any internet browser. Etere offers a full range of digital solutions that allows our customers to achieve their business goals no matter where they are. These include: Remote Installation and Testing; Remote Training; 100% Software Solution; Brand Independent and High Interoperability; Full NDI without the need for SDI cables; and EtereWeb.

*"The Covid-19 situation has redefined the way we work, in some way or another. Our supply chains have responded and adapted well to our remote offerings." Fabio Gattari, Etere*

"The Covid-19 situation has redefined the way we work, in some way or another. Our supply chains have responded and adapted well to our remote offerings. While we do not schedule meetings or conduct on-site training and installation at the moment, we have been conducting them remotely over the internet and the feedback has been positive so far. We have rolled out Etere demo web interface that works on any internet browser and this has allowed our new contacts to evaluate Etere software effectively with the aid of a remote training session. As a software company, we will continue to enhance our digital solutions that will run with your business, even in the face of geographical boundaries. We make it easy for our users to install, manage, maintain and be operationally ready through our 24/7 worldwide support channels," Gattari adds.

## Into the cloud

Harmonic styles itself as "The worldwide leader in video delivery and virtualized cable access solutions, enabling media companies, service providers and broadcasters to deliver ultra-highquality video streaming and broadcast services to consumers globally," according to Tony Berthaud, Vice President, Sales and Services, APAC at Harmonic. "We have seen our customers more ready and willing to move their services to the cloud because they understand that this is the way forward for delivering high quality video in a smarter, faster and simpler way.

"With offices across the globe Harmonic's reach is worldwide, covering all regions including APAC, North America, LATAM, and EMEA," Berthaud continues. "In terms of APAC, we have customers across the entire region, served by our teams located in more than 10 offices in various locations. We are organized in six sub-regions and our business is well-balanced among these different localities.

"We have a strong and committed team of pre-sales engineers, sales managers and service engineers focusing on the customer experience and customer success. We also work closely with local partners to help design, deploy and support complex and optimized media delivery infrastructures all over the APAC region. Each market in APAC has its own specificities and sometimes its own technology standards. We consider that it is our responsibility to ensure our solutions also adapt to the local market requirements. In order to support this effort, it is important to note that we do have one of our largest R&D centers located in APAC. Overall, we strongly value the relationships we have built with our partners and customers and place their satisfaction and success at the center of our strategy," Berthaud continues.

How has the coronavirus pandemic affected the industry? It's accelerated the move to the cloud according to Harmonic. "The media and broadcast industry landscape has certainly changed as a result of Covid-19," Berthaud adds. "There is now a more holistic view to create dynamic workflows and architectures, with the purpose of guaranteeing scalability of delivery to every device at any time, even during peak hours. This is much more easily achieved when a cloud-native solution is used.

"Perspectives on redundancy and disaster recovery have also changed," Berthaud continues, "and to ensure that quality of service and experience is maintained we've seen many of our customers adopt a cloud-based solutions strategy that will not only help them now, but in the future too. We also see content providers developing a more Direct-to-Consumer (D2C) approach to diversify the way they address and engage audiences, typically leveraging OTT delivery. Covid-19 has also influenced an increase in pop-up channels emerging for very specific purposes, including news, entertainment and education."

Harmonic has been actively supporting its customers during the coronavirus pandemic. "As a global technology leader that has pioneered connected and cloud-based broadband and streaming

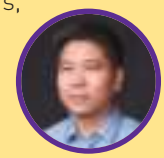
video solutions and deployed associated 24/7 DevOps capabilities around the globe, Harmonic has been uniquely positioned to serve our customers and partners during this challenging time," says Berthaud. "Through our global cloud and IT infrastructure, we are able to assure the highest level of availability and reliability for media services, helping customers to think about how they can better protect their service offerings and build for the future with cloud playing a much greater role.

"We have collaborated with customers who need to quickly turn around new channels during this pandemic. Cloud is the perfect way to launch new services remotely and efficiently. Being very elastic by nature, the cloud also helps to address the variable needs that our customers may have, for example to launch temporary pop-up channels for entertainment or educational purposes," Berthaud adds.

## IP and streaming

Magewell, the China-based developer of video interface and IP workflow solutions, designs and develops hardware and software solutions for media capture, conversion and streaming. The company has a very diverse customer base that spans both the professional production market and Pro AV. Notably, in addition to end-users, Magewell's customer base includes many OEM customers who are incorporating its video interface devices in their own broadcast and production solutions.

International sales are key to Magewell. "The majority of our business comes from outside China. We sell exclusively through channel partners, with key specialized distributors in each major region who in turn work closely with our extensive network of systems integrators and resellers," explains Nick Ma, CEO and CTO at Magewell. "Our biggest markets are the United States, followed by Europe (collectively) and China. Note that we track Europe as a whole, rather than individual countries, as our distributors in the region cover multiple countries."



While the majority of its sales are international, it's not a one size fits all approach to world markets for Magewell. "The distribution of sales is partly a reflection of how mature our sales channel is in each region, as we focused on particular regions first before developing the others.

*"The shift to IP-based production continues to accelerate not only for large broadcasters but also for smaller and mid-sized media organizations."*
*Nick Ma, Magewell*

"But an overarching factor is the varying pace at which different countries are adopting new technology trends. For example, the transition to IP is happening faster in countries such as the U.S. and U.K. than others, while the growth of live streaming in each region depends on the available consumer delivery infrastructure and non-technical factors such as the degree of government regulation," Ma adds.

Ma identifies two key changes taking place in world markets. "The two main trends affecting our customer base are the transition from baseband signal infrastructures (such as SDI) to IP workflows, and the mainstream adoption of streaming – not only for premium content but also for supporting content via social media and other digital-only outlets. The shift to IP-based production continues to accelerate not only for large broadcasters but also for smaller and mid-sized media organizations, while on the streaming side, more companies and individuals are creating live-streamed programming than ever before."

For Magewell, the pandemic lockdown has accelerated business in its Pro AV products, while throttling it back in other areas. "We have seen a significant increase in orders across all of our product lines, with sales in certain vertical markets slowing down but others ramping up," says Ma.

"With events such as sports and concerts currently on hold and many facility upgrade projects (such as conversions to IP) slowed by work-at-home mandates, demand has decreased from the professional production and entertainment side. But that has been more than made up for by significantly accelerated adoption in the Pro AV side of our business, where worship, education, government, and corporate customers are using our capture devices with web conferencing tools and leveraging streaming as a key communications medium. We are working hard to ramp up production to meet this rapid growth, which of course we could not have forecast."

## Covering the world

Interra Systems is a global provider of enterprise-class solutions that streamline the classification, quality control (QC) process, and

"Times of chaos and unease can have significant and long-lasting effects on the entire streaming ecosystem." Abdul Haleem, Accedo

monitoring of media content across the entire creation and distribution chain. "Our products are used by the majority of the Tier-1 media companies – telcos, broadcasters, cable and satellite companies worldwide," says Bibhas K Samanta, Management Staff at Interra Systems. "Today, in North America more than 70% of the content that's broadcast goes through at least one of our products. Interra Systems' solutions are deployed globally by large and smaller organisations across a range of markets including APAC, North America, EMEA, and LATAM regions. With our customers' needs differing throughout the world, we see all of these markets as important for us, and key in continuing to offer our solutions and services globally and improve QoS and QoE with assurance." Interra Systems is responding to the coronavirus pandemic with a flexible approach to support its customers. "This is a challenging time for all. Interra Systems is accommodating the new situation in multiple ways by proactively providing flexible licenses where applicable, so customer projects are not adversely affected. We have also increased resources for customers, in particular around tech support and scheduling online meetings as and when they need us to," Samanta explains.

For Accedo, while the lockdown has undoubtedly had an effect, it is taking steps to protect itself and its customers, and sees a potential upside for the OTT business.

"Accedo, like most other companies, follows the recommendations and guidance from the World Health Organization (WHO) as well as the national health agencies of the countries where we operate," says Abdul Haleem."Over the past few months, we have worked to develop a solid plan to safeguard the continuity of our business, the safety of our employees and contractors, and the commitment to our customers. As an industry, video streaming is considerably less affected than many other sectors; some even argue that this will accelerate the adoption of streaming, especially on big screen devices."

### What will be the long-term effects of the pandemic on the broadcast and media industry – and the technology vendors that serve it?

"We are seeing an increase in media consumption overall, as users want to stay informed but also turn to OTT services to pass time, seek comfort, and connect with family and peers," says Accedo's Haleem. "This increase in viewership is naturally good for the video services industry; however, times of chaos and unease can have significant and long-lasting effects on the entire streaming ecosystem. For example, AVOD models might experience a decline in advertising revenue from badly affected sectors (such as travel and hospitality). SVOD providers may be faced with increased competition as users have more time to explore and compare new services.

"Sports as an entertainment form has been particularly badly hit by the pandemic as it is hugely dependent on the release of new content. If this content is no longer available, one could argue that live sports providers have little value to their customers. If there is nothing new to watch, many users will no longer want to pay for their subscriptions and this will force these providers to re-think their business models and priorities," Haleem explains, adding that "A diversification with regards to content availability and the emergence of E-Gaming and E-Sports," will be occupying vendors' minds in the future.

### Mitigating risk

For Harmonic, the pandemic has clearly demonstrated that cloud is the future of the broadcast and media industry. "Covid-19 has revealed new risks for streaming and linear channel delivery. Its impact has accelerated the adoption of cloud computing in the broadcast and media markets, and the many benefits this brings. It has become the catalyst for a smarter way to process and deliver media content," says Tony Berthaud.

*The global health crisis will accelerate cloud adoption for service continuity applications as well as for any video workflow that is needed temporarily."*
*Tony Berthaud, Harmonic*

"Also, the spotlight has firmly been placed on service continuity. The global health crisis will accelerate cloud adoption for service continuity applications as well as for any video workflow that is needed temporarily, such as live sports

events, based on how easy and fast it is to deploy cloud workflows. Harmonic is helping the industry understand the capabilities of the cloud for service continuity – ensuring that video services and channels are available to viewers all the time. We've found our software- and cloud-based solutions strategy is resonating well with customers during this time.

"Companies like Harmonic are at the forefront of the changes taking place in the media and broadcast space because cloud-native solutions are key for the industry to offer the content consumption diversity, and quality of experience that consumers demand, from source to screen.

Leveraging the flexibility of cloud infrastructures will help service providers meet the demanding and complex requirements for media processing and delivery," Berthaud continues.


"The rapid growth in network traffic has put a strain on broadband networks. Broadcasters and service providers are adopting different approaches to meet the demands, such as reducing resolution or using AI- and ML-based content-aware encoding to deliver OTT services at a lower bit rate. This prompted us to support our customers during these unprecedented times by providing our EyeQ™ content-aware encoding (CAE) technology free for a limited time to help alleviate the extra burden placed on networks. EyeQ technology leverages artificial intelligence to reduce streaming congestion on broadband networks by up to 50% without impacting quality," Berthaud concludes.

*"For the short haul, the media and broadcast industry has weathered the storm; however, if the global health crisis continues for another two or three quarters, there could be industry cuts, cancellations, and changes in projects."*
*Bibhas K Samanta, Interra Systems*

For Interra Systems, the outlook remains unclear until some certainty over the return of 'normal' happens. "For the short haul, the media and broadcast industry has weathered the storm; however, if the global health crisis continues for another two or three quarters, there could be industry cuts, cancellations, and changes in projects," says Interra Systems' Bibhas K Samanta. "There seems to be no absolute consensus regarding the Covid-19 outbreak and what the outcomes will be specifically for the industry. We can only guess as to how long different countries and regions of the world will continue to implement strict lockdown measures and what impact this will have. In general, there is a feeling of uncertainty because nobody knows exactly what is going to happen. Things will become clearer over the coming months.

"Also, the lack of active sports leagues has meant a drastic reduction in live events taking place during this lockdown period, and therefore ad-based revenues have slowed. As sports events begin to reemerge over the coming months, this will hopefully tip the balance in terms of a positive for adbased monetization, although there is not a clear-cut path as yet," says Samanta.

## QoE the key

Looking forward, for vendors the goal has to be helping to deliver excellent QoE to the end-viewer. "There is no absolute certainty in where we are going and how things will change," Samanta adds. "I would say however, for broadcasters and video service providers to stand out, now and moving forward, they will always need to deliver an exceptional quality of experience (QoE) across all screens. The spikes in volumes we have seen put an additional burden of managing streams for quality. Problems need to be fixed quickly, and therefore monitoring tools that provide visibility and troubleshooting of streams will become more critical. In OTT streaming there are multiple hand-off points and therefore trying to navigate the performance of OTT platforms or figuring out the severity and root cause of a problem manually is just not practical, especially for providers that have recently launched streaming apps.

"No matter how relevant or popular content offerings are for subscribers, a poor streaming experience will have a negative impact on ROI, customer retention, and reputation. In the long term, a smart monitoring strategy that offers the flexibility to customize monitoring based on various stream

"Overall, while productions will eventually return to studios, we believe that a higher percentage of production will be performed remotely than it was before the pandemic." Nick Ma, Magewell

types and audience, for both live and VOD content, will be imperative in assuring efficiency and economy of operations while maintaining a high level of quality," Samanta concludes.

## No going back

In line with Harmonic's outlook, Magewell also notes that Covid-19 has speeded up already-in-motion trends, with things not returning to how they were pre-pandemic. "In many ways, the pandemic has accelerated trends that were already in progress or emerging, which we believe will have long-term effects," says Nick Ma. "For example, work-from-home requirements and the current need for productions to be created remotely rather than in a studio are speeding the transition to IP-based workflows. Since companies are already needing to put new tools and infrastructures into the remote locations, they are often choosing flexible, cost-effective IP-based solutions rather than investing more in SDI-based architectures. IP-based workflows can also be extended more easily across multiple locations than their legacy baseband counterparts. Overall, while productions will eventually return to studios, we believe that a higher percentage of production will be performed remotely than it was before the pandemic. Media enterprises that were previously hesitant about remote product workflows have now been forced to try it, and their successes will have a lasting impact."

As to the future, according to Magewell's Ma, "It really comes down to how well a particular vendor's solutions and roadmaps already aligned with emerging trends such as IP workflows and remote production prior to the pandemic, and for vendors who weren't already on the right path, how quickly they can adapt to the "new normal". In most parts of the content chain, the industry had already been transitioning from dedicated hardware to IT, IP, software, streaming, and the cloud for many years. Vendors such as ourselves, whose roadmaps already focused on those new paradigms, should continue to thrive."

Final words on the future go to Bitmovin's Joshua Shulman. "There will always be a place for traditional broadcast – however, the pandemic has really shone a light on how important streaming really is. We foresee significant growth in this particular sector and that it won't just fade once things return to normal. Consumers will likely expect to view content online at the same time as another viewer might view it via cable." For vendors, "It's adapt or die. Using the old model of broadcasting won't work alone anymore – broadcast and media vendors MUST shift to a mixed strategy of digital and standard broadcast to succeed," Shulman concludes.

**For a full run-down of the products and services offered by the contributors to this feature, go the Knowledge Hub on the IABM website and select the standalone version of this article.**

*"It's adapt or die. Using the old model of broadcasting won't work alone anymore - broadcast and media vendors MUST shift to a mixed strategy of digital and standard broadcast to succeed."*
*Joshua Shulman, Bitmovin*

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The Monarch EDGE has allowed us to update our player to provide seamless switching on the user interface

# Member Success – Tommy Hilfiger Brings Viewers to the Runway with Matrox Monarch EDGE

**Emily Engott**
*Writer,*
*Matrox Technical Publications*

In its New York Fashion Week debut, the Matrox Monarch EDGE encoder enables B Live to offer an interactive, multi-camera viewing experience to Tommy Hilfiger's global fan base

Imagine you have front row seats to the Tommy Hilfiger show at New York Fashion Week, one of the industry's biggest, most exclusive events of the year. You are so close to the runway that you can count the polka dots on a model's dress. Not only that, but you also have alternative runway views and backstage access. Now imagine you can do all of this with only a smart device or computer.

While Tommy Hilfiger showcased a '70s-inspired collection for the upcoming season, the designer's online multi-camera webcast was anything but retro. Thanks to the Matrox Monarch EDGE encoder's ability to receive multiple HD feeds and composite them into a pristine quad-split stream, and B Live's innovative user interface that allows for seamless switching between multiple camera views, adoring Tommy Hilfiger fans got to have their own show credentials just like fashion industry VIPs.

During the autumn show, viewers visited the Tommy Hilfiger website to watch live webcasts from the Apollo Theater in Harlem. On the website, live event production company, B Live provided runway, overhead, and head-to-toe views of the models as isolated feeds, as well as a director's cut that the company produced on-site.

### Giving viewers an all-access pass

In order to give fans a seamless viewing experience, B Live needed an encoder that could accept four discrete HD inputs and deliver a single 4K stream as a quad-split composition. Before the company purchased its Monarch EDGE H.264 encoder, its user interface did not allow viewers to watch multi-camera video with continuity. Instead, the player would need to buffer each new camera angle selected by the user before the video would become available for viewing. "The Monarch EDGE has allowed us to update our player to provide seamless switching on the user interface," said Jay Kopelman, Director of Digital Engineering for B Live. "Before we got the Monarch EDGE, every time the viewer switched camera angles, it loaded a new independent stream. Because we can now do quad-HD streams with Monarch EDGE, we can feed a single 4K stream into the player – which is why the switching is so seamless."

During the show, viewers could get an exclusive first look at the next season's hottest designs by visiting the Tommy Hilfiger website. The B Live user interface gave Tommy Hilfiger fans the chance to feel as if they were at the Apollo Theater runway by allowing them to select from and switch between three different isolated camera angles or the director's cut – all thanks to the robust and dynamic H.264 encoding capabilities of Monarch EDGE.


## Monarch EDGE struts its stuff

B Live's camera crew captured each angle separately. Four 1080p30 video streams, including three isolated views and one director's cut that B Live produced on-site, were sent back to the B Live office via satellite. There, Monarch EDGE received the feeds and encoded them into a single 4K, 20-Mbps stream that was then sent to the B Live platform. On the B Live user interface embedded in the Tommy Hilfiger website, fans were able to easily decide which part of the show to follow from the three isolated feeds available in addition to the director's cut – all from their mobile devices, laptops, or desktop computers. These viewers – numbering over 500,000 – were also able to watch the show live on Tommy Hilfiger's Facebook, Twitter, Instagram, and YouTube channels.

## The must-have encoder for this season and beyond

Monarch EDGE's ability to encode four 1080p30 video feeds together into one 4K stream has made B Live's work of bringing best-in-class, live, multi-camera event footage to viewers across the globe more feasible than ever. During the Tommy Hilfiger show, viewers of B Live's interactive user interface enjoyed seamless, buffer-free switching between multiple camera angles. "The experience is a lot smoother from both a technical and viewer perspective – clearly," said Kopelman. Thanks to Monarch EDGE, fans had the chance to see and shop Tommy Hilfiger's latest collection first-hand without leaving home.

Magewell devices were the first ones we used that were truly just plug-and-play, whether on a Mac or Windows system, and stable

# Member Speak – Magewell capture devices simplify live event AV productions for SEG

Based in China, IABM member company Magewell designs and develops innovative hardware and software solutions for media capture, conversion and streaming. The simplicity, cost-effectiveness and reliability of Magewell's products have made them the preferred choice of end-users, integrators and OEM customers for bringing high-quality video and audio signals into and out of IP media workflows and popular software for live streaming, production, web conferencing and more.

## SEG

Headquartered in Sofia, Bulgaria with a satellite office in Vienna, SEG – formerly known as Special Events Group – is a leading provider of specialized services for the event industry in Bulgaria and Austria. With a mantra of 'We Do Much More,' the company offers a broad portfolio of event services including: technical equipment; set and stage design; concept creation; furniture and decor rental; and systems integration and event equipment sales. SEG also owns the Sofia Event Center, the most advanced location for events in the city.

With over 100 personnel, SEG has worked on more than 30,000 events since its founding in 2001 for top-tier clients including Amgen, CPX 360, Herbalife and Novo Nordisk, and continues to handle over 2000 projects each year. In 2016, the group expanded to include a systems integration and sales arm, Syntegra Partners, that leverages SEG's extensive technical and market experience to supply proven solutions for end-customers' ongoing needs.

## The Challenge

For its event rental projects, SEG provides both the technology and the crew to operate it. The company first investigated Magewell products when searching for plug-and-play solutions to reliably bring live SDI or HDMI video and audio feeds into streaming or projection mapping software on their laptops.

"With some other vendors' products that we have used, they're fine once you've configured them as long as you leave them set up and don't touch them," said Eng. Nikolay Kachamakov, CTO of SEG and CEO of Syntegra Partners. "But with the majority of our projects outside our own venue in other people's buildings, my team are travelling a lot around Europe and very frequently setting up on-site in a short timeframe. They don't have time to reconfigure a product every time, every couple of days. We needed something truly plug and play."

SEG has lots of SDI cameras, though, so using Magewell's Pro Convert SDI to NDI converters will allow is to keep using those cameras without pulling hundreds of metres of SDI each time

## The Solution

SEG initially purchased two of Magewell's first-generation X1100XUSB-PRO plug-and-play, all-in-one capture boxes in 2014. Those units are still actively used by SEG's rental team, and the company has subsequently added close to a dozen of Magewell's newer devices including the USB Capture SDI Gen 2 and USB Capture HDMI Gen 2.

SEG's array of Magewell capture devices bring SDI or HDMI signals into their laptops via USB 3.0 for use with live presentation and projection mapping software including Dataton WATCHOUT and Resolume Arena, as well as streaming to CDNs and social media platforms such as YouTube Live and Facebook Live. SEG prefers the robustness of SDI signal transport, using HDMI only when SDI isn't possible because of customer-provided equipment or venue infrastructure considerations.

## The Results

From their first all-in-one boxes to the newer USB Capture models, SEG found Magewell's devices to be much easier to use and more reliable than the alternatives they had tried. "Magewell devices were the first ones we used that were truly just plug-and-play, whether on a Mac or Windows system, and stable," said Kachamakov. "They're simply plug-and-go, with no set-up required, and their ability to auto-sense the input format means we don't even need to worry about configuring the resolution if we're using a different camera or format."

Kachamakov also noted that the Magewell devices' cost-effective price point provides excellent return on investment (ROI), while from a technical perspective their built-in, FPGA-based video processing is important for taking the computational load off the CPU on their laptops.

SEG's success with Magewell solutions in their field productions has led them to also begin offering the products to their systems integration clients. "Our systems integration group, Syntegra Partners, resells solutions that have been proven in the field as part of daily rental and production business," said Kachamakov. "Based on our own great experience with the Magewell devices, Syntegra proposes and sells them for projects such as Zoom Rooms implementations, Skype collaboration, streaming applications and lecture capture installations."

SEG is also developing a roadmap for implementing IP-based media transport based on the NDI® protocol (developed by NewTek) in their rental projects, with Magewell again poised to be part of that plan. "As CTO, I see network-based transport as providing exceptional flexibility and other advantages," Kachamakov explained. "We can easily go into a third-party venue or corporate building that already has robust CAT6 infrastructure and leverage it rather than pulling our own cables. We have lots of SDI cameras, though, so using Magewell's Pro Convert SDI to NDI converters will allow is to keep using those cameras without pulling hundreds of metres of SDI each time."

While NDI is on the horizon for the future, Magewell's USB capture devices continue to deliver valuable benefits to SEG at present. "For me, the important thing is that with Magewell I have devices in our rental fleet that, no matter what I need, I never worry about the video capture – I just plug them in and go," summarized Kachamakov. "I don't need to take care of getting the capture working, it's plug-and-play, so I can just focus on the many other tasks that go into each event."

Zoom has a useful API that can 'talk' to Editshare's Flow (a Skinny MAM). It means you can make use of Flow to manage your Zoom recordings

# Member Speak – Skinny MAM – What you've always wanted in a media management solution...and nothing you don't

**Sunil Mudholkar**
*Vice President of Product Management, EditShare*

Sunil Mudholkar, Vice President of Product Management at EditShare, discusses the company's MAM philosophy for a world requiring nimble production workflow from any location.

Media Asset Management Systems are everywhere. There's a small MAM at the heart of every video editing system (NLE). These are, after all, essentially databases whose reports are in the form of a timeline. And, on a larger scale, in every modern media production facility there will be one form of asset management system or another. Most of these solutions have grown over time adding features and functions to a monolithic software stack that may end up providing the set of features you are looking for. However, these monolithic systems also end up with a lot of stuff you don't need, and consequently, things you don't need to pay for.

As more remote production workflows are supported and as media production workflows move to the cloud, the requirements of a media management system also change. One way to address these new requirements would be to continue adding to the stack. But this isn't actually helping solve the problem.

The better path would be that of the Skinny MAM. There are two essential parts to achieving skinny software, and hence skinny MAMs. These are Microservices and APIs. Microservices are the smallest possible fragments of software that still do something useful. An API is a standardized way to exchange data between software, including microservices.

Our Flow media management solution embodies the characteristics of the Skinny MAM. It is lightweight, modular, and open – composed from the start as a set of microservices and complemented with a robust set of open APIs. Our strict adherence to a solution, composed of microservices and APIs, allows us to deliver all the advantages of this modern architecture.

Let's just drill down here into what exactly defines a microservice. How do you distinguish a microservice from another, similar-looking piece of code that isn't one?

Simply this: ask what it does. If, in the description of the functionality of a piece of software there's an 'and' (as in: 'it does this and that'), then it's not a microservice. You can't use an 'and' when it only does one thing.

Microservices would be of little use if they were like single cell amoeba, floating around in an electronic sea, with no means to communicate with each other. That's where APIs change everything. APIs are standardized, published interfaces to software modules. And because they're public and fully documented, there are no surprises: if you send the right data through an API, it will respond with whatever it is you've asked for, as long as you stay within its capabilities, and obey its rules.

APIs aren't just used for communication between microservices: they are for liaising with the outside world, too. This makes a microservice-based Skinny MAM incredibly flexible. All kinds of external services have APIs, so building a bespoke, highly customized workflow becomes simply a matter of integration. New and previously untried workflows become dependable solutions, not science experiments simply by picking and choosing from the API a la carte menu.

**What does this mean in practice?**

Imagine an educational establishment that uses Zoom for online teaching. Even though Zoom can record sessions, the options are limited and quite inflexible for anything other than a broad-brush approach.

But Zoom has a useful API that can 'talk' to Editshare's Flow (a Skinny MAM). It means that a far more granular approach is possible. Importantly, it means you can make use of Flow to manage your Zoom recordings. It makes Zoom a tool you can integrate with Flow to address your specific requirements.

Another example: Closed Captions. These are a legal requirement in the US. And since they have to be 'there' it makes sense to make use of the information they contain, treating them as free, instant metadata. Flow's openness allows you to connect with third party speech to text APIs, allowing you to build a system where it's possible to programmatically search for video footage according to what is being said in the material.

And of course, there is an almost limitless roster of ways that the Flow APIs can be used in combination with external data and other services to create an extended palette of capabilities.

EditShare's 'Skinny MAM' approach, through Flow, is the key to secure an open MAM functionality that's also able to integrate with 'Best of Breed' third party hardware, software and services, without any compromise.

Flow sits at the top of the MAM technology stack. It's equally at home on-premise and in the cloud, but it's not the only part of the EditShare technology suite. At the other end of the stack, there's storage, which can be implemented in on-prem, cloud, or hybrid configurations.

Like Flow, EditShare's file system and storage management layer, EFS, has a full set of APIs, which not only connect with the upper levels of the stack, but allow EditShare users to work across heterogeneous storage platforms in a single storage volume, with full redundancy and even the ability to add new storage without even slowing down.

With Editshare technology, there are no bubbles of inflexibility. Everything is connected, and everything is managed.

There's never been a time when flexibility and agility are more important to maintain business continuity. Today it is essential to move to a technology environment based on an ability to adapt without delays or crippling overheads.

EditShare's Flow, a product of our Skinny MAM philosophy, is the best possible approach to an uncertain future.

It's easy to get started...and free to use until July 1, 2020. Contact us at https://editshare.com/contact/ to get started today.

We are also absolutely thrilled to have received the Video Edge Special Edition Best of Show Award in the store, charge and connect category

# Member Speak –
# OWC – your new industry-first ThunderBay Flex 8

**Larry O'Connor**
*CEO, OWC*

We spoke with founder and CEO at OWC, Larry O'Connor, about the company's latest product launch, its history of environmental awareness and action, and how this has enabled the company to easily adapt and continue working at full capacity during the coronavirus pandemic.

**Tell us a little bit about your new industry-first ThunderBay Flex 8: what/who do you see as the typical user, the ideal demographic? What led your team to engineer this multi-use powerhouse?**
The engineering undertaking was driven by countless feedback from media creators, editors, and data wranglers that drove the vision of this solution. It's built to solve the challenges and needs they encounter every day, especially as the use of more data-demanding 4K, 5K, 6K, and 8K wide formats continues to rise. The Flex 8 allows users to kill three birds with one stone with this highly configurable workhorse for high-end video, VFX, on-set DIT, and finishing work. It's blazing-fast storage, a dock and PCI expansion combined into a next-gen form factor, ensuring your Macs and PCs will never be unprepared for a client job again.

Right out of the packaging, all eight bays can utilize SATA 6Gb/s 2.5-inch SSDs or 3.5-inch HDDs. The top four bays are NVMe U.2 SSD ready, which really future-proofs against whatever future workflow the world comes up with. We also have learned from our creative contacts that sending big drives to and from set is tedious, heavy and expensive. The Flex 8 is compatible with the OWC u.2 NVME interchange System, so filmmakers can keep their Flex 8 on set, easily swap drives to and from post with easy to transport containers that prevent costly wear and tear on your unit.

We are also absolutely thrilled to have received the Video Edge Special Edition Best of Show Award in the store, charge and connect category. Being validated by our customers and with industry recognition means the world to all of us at OWC.

We begin shipping the ThunderBay Flex 8 in June.

**How did your interest in protecting the environment grow? Was this something that started with your family, in your childhood, or did you have an "a-ha" moment as an adult that made you think "this is something we need to protect as a whole AND we can have a successful business at the same time"?**
It was not even an interest as much as a common-sense way of life. I had the benefit to grow up in rural McHenry County, IL and with that had exposure to and saw the benefits of our natural resources on a daily basis. When you know first-hand what's there to be protected, it's a connection that becomes an underlying element of what you do. It's really more about making the right long term minded decisions as opposed to only seeing opportunity with short term gains. Having started this business in 1988 recycling printer ink cartridges, shortly thereafter seeing the need for not only expanding my own Mac in a DIY capacity but understanding how easy and much less costly it is. Understanding that I could not only do that for myself but help other people do it as well, and that this would benefit the environment by keeping electronics out of landfills for a longer period of time, it was an easy and logical transition for the company. The fact that it took off the way that it did, with us being able to expand product lines and offer a really complete line of videos to help our customers do the installs themselves, there was obviously a giant interest from others as well.

And it's not only the products and technology with OWC. We are headquartered in a facility that is LEED Platinum certified and we are a net energy producer; with on-site wind and solar power, we actually push energy back out onto the local energy grid. We also recycle 97 percent of our waste and continually work to improve our packaging and shipping efficiencies. It's a complete effort on behalf of the entire team.

**Describe the measures you have in place that have helped your team to continue to work safely and successfully as an essential business during the COVID-19 pandemic.**

OWC's employees and customers' safety has always come first. As it now applies to the COVID-19 threat, I want to share with everyone the detailed efforts OWC has long practiced to ensure the safety of every item shipped from OWC. People have long commented on how you could practically eat off the OWC warehouse floors – cleanliness has always been the standard operating practice at OWC.

While hoping for the best, we had prepared for the worst and were able to enact aggressive protective measures before they became mandated. Even today, team members write and thank me for the COVID-safe environment we maintain, while sadly noting that they know people who work in other places that still don't have the necessary measures in place.

COVID-19 has taken us to new levels, with twice-daily employee temperature checks, and shift and space adjustments to enact work contact distancing. We have also implemented additional – twice or more daily – disinfection of all surfaces, and gloves and masks being used by our warehouse and build teams. Our build teams have always worn gloves to prevent fingerprinting units, and those gloves have whole new importance now. OWC has long had MERV air filters in place as well as a UV air purifier. Both of these combined are 99.999% effective in killing/capturing all airborne bacteria and viruses. Being a manufacturer of electronic solutions, we have always taken cleanliness seriously. It took minimal effort for OWC to step up further in response to COVID-19, and we did so well before any new safety measures became required.

Of further note: OWC has nearly 50 team members in Taipei, Taiwan and Guangdong, China. Thankfully, all of our team members and their families are healthy. Taiwan, in particular, has been extremely successful in limiting the spread of COVID-19 and is an excellent example of what good practices coupled with short term sacrifice can achieve.

I appreciate everyone at OWC. The team is amazing and I consider myself lucky to have each and every person on board. I find inspiration from their positive attitudes, flexibility, and courage as we move into uncharted territory with a can-do attitude and spirit.

**Any other thoughts you'd like to add about the pandemic, and what you see possibly changing in the future because of what is happening now?**

Work From Home was something that less than 5% of our team members were full time with, prior to the pandemic, and about 25% part-time WFH.... On the go forward, OWC (and I think many others) is going to more widely embrace work from home as a win-win opportunity for our team members and OWC both with those numbers becoming more in the realm of 20-30% and 50%. We can't move production jobs out of our operational facilities, but I am incredibly impressed with both the adaptability and productivity of our former 'office only' team members with respect to this substantial transition. I'd suggest this 'unplanned' WFH experiment has been an incredible success, and we are fortunate to have dedicated team members at all of our facilities and in their home offices.

The team at OWC would like to say to everyone out there that we hope you stay safe and healthy. And please remember to be there for each other, as we're all in this together.

# PLATINUM MEMBERS


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