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FIND OUT ON PAGE 26

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NEWS & VIEWS

6

CREATION

20

MANAGEMENT

24

DISTRIBUTION

28

X-PLATFORM

32

WORLD IN BRIEF

DVB forms liaison with SAT>IP Alliance

GENEVA – DVB and the SAT>IP Alliance have entered into a formal liaison agreement on the future development of the SAT>IP specification. The deal states that future promotion of the technology will be conducted jointly, and will allow the DVB community to contribute to next-generation SAT>IP features and services.

New JV pushes for best HDR experience

LOS ANGELES – 20th Century Fox, Samsung and Panasonic are in a new partnership to create an “open, royalty-free” dynamic metadata platform for high dynamic range (HDR) through an associated certification and logo programme, tentatively called HDR10+. Starting next January, the entity will license the metadata to content companies 4K/Ultra HD (UHD) TVs, Blu-ray disc players/recorders and set-top box manufacturers.

Professional media over IP: Building a future-proof media facility



With the first standards within SMPTE ST 2110 now approved, will this development encourage more broadcasters to work in IP, and what must be done to ensure that future-proof media facilities can be built?

BY SHAWN LIEW

NEW YORK – The ongoing transition to broadcast IP has been given a shot in the arm, after the Society of Motion Picture and Television Engineers (SMPTE) announced the approval of the first standards within SMPTE ST 2110, Professional Media Over Managed IP Networks.

The new standards suite specifies the carriage, synchronisation and description of separate elementary streams over professional IP networks in real time, for the purposes of live production, playout and other professional media applications.

Matthew Goldman, president of SMPTE and SVP of technology, TV and Media, Ericsson, said: “Radically altering the way professional media streams can be handled, processed and transmitted, SMPTE ST 2110 standards go beyond

the replacement of SDI with IP to support the creation of an entirely new set of applications that leverage information technology (IT) protocols and infrastructure.”

The use of IP enables the transition to 100% software-based, virtualised and software-defined functions, which in turn allows for the dynamic re-assignment of resources to maximise utilisation, Michel Proulx, former CTO of Miranda Technologies, told APB.

An industry veteran with 35 years of experience working in the broadcast TV industry, Proulx has been consulting for a number of broadcasters and broadcast industry vendors since his retirement as CTO of Miranda Technologies in 2012. His current focus is helping broadcasters understand and navigate the rapidly evolving OTT distribution landscape and

» 8

Taiwan PTS' 4K/UHD TV trial of games a success

BY JOSEPHINE TAN

TAIPEI – At the 29th Summer Universiade held last August, Taiwan Public Television Service (PTS) commenced its first operation of 4K/Ultra HD (UHD) broadcast over terrestrial TV. The key objective of the experimental broadcast, Hamilton Cheng, research coordinator for PTS, told APB, is to find alternatives to enhance PTS' digital TV service.

Specific goals during the trial, he elaborated, included an assessment on the specification of 4K/UHD TV transmission

and auxiliary test, and ensuring interoperability between equipment, from headend systems to receiving devices. PTS also sought to enhance the display resolution of 4K/UHD video by integrating the HEVC/H.265 video compression standard.

PTS, Cheng revealed, has been monitoring the rollout of 4K/UHD content in Asia, albeit in a conservative manner, as they believe the genre of 4K/UHD programming has yet to be clearly defined. “In Asia, the best example

» 8

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IP works: Join us on how to best plan your IP transition

Many of the key stakeholders in the broadcast and media industries will probably agree on this: the transition to IP represents a question of *when*, and not *if*.

Initiatives such as the IP Show Case at IBC2017, and the Broadcast IP Inter-Op Lab at Broadcast-Asia2017 have gone a long way to prove that IP can work today. What remains to be resolved, perhaps, is how broadcasters plan their respective migration plans to IP.

Much like the transition to HD, the rate of IP transitions across regions, and indeed between countries within regions, will differ simply because different broadcasters will face different requirements, needs and constraints.

For those moving to a brand-new broadcast facility, is an all-IP approach the way to go? Or will a hybrid SDI/IP approach be a more pragmatic option, allowing broadcasters to gradually integrate IP into their SDI-based systems?

Regardless of the time line that you have set for your transition to IP, you may well look back on 2017 as the year that produced *the* seminal moment for IP broadcast technologies. At IBC2017, the Society of Motion Picture and Television Engineers (SMPTE) announced the approval of the first standards within SMPTE ST 2110, regarded by many to be the eventual *de facto* standard for broadcast IP.

While SMPTE ST 2110 will not eliminate overnight all the challenges and concerns surrounding IP, it is certainly a big critical step in the right direction, and will alleviate key issues such as interoperability and the use of open standards.

However, broadcasters need to understand and appreciate the fact that converting to IP is much more than just about replacing SDI, Michel Proulx, told *APB*. Many of you may know Proulx, an industry veteran, from his days as CTO of Miranda Technologies. In broadcast facilities, he

added, there are two transitions at play — replacing SDI infrastructure with IP, and replacing dedicated hardware devices with software and virtualisation.

Proulx will also be the keynote speaker at a series of seminars that *APB* will be holding in Hong Kong and Singapore — this Nov 3 and Nov 6 respectively.

Organised in collaboration with systems integrator Ideal Systems, the seminars are titled *Professional media over IP: Building a future-proof media facility*, and will see Proulx discuss issues such as how IP is now being considered as a replacement for SDI for the transport of real-time video and audio inside TV facilities, and the benefits of using IP for real-time video and audio.

Having completed the move to Mediacorp Campus, a new 79,500sqm production and digital facility, Wang Yin, assistant vice-president, broadcast engineering, Mediacorp, will also grace the Singapore seminar to offer insights into the role IP is playing in Mediacorp Campus.

While slots for the Hong Kong seminar are already filled up, we encourage you to join us in Singapore to find out how you can best plan your IP transition. The seminar will provide you with much food for thought and an Ideal opportunity to interact with Proulx and your peers over a networking lunch. To secure a seat, please contact Lynn Chee at lynn@editecintl.com.

Let's live and learn — and dive into the digital domain so as to be ready for the 4th Industrial Revolution!

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contents

October 2017 (volume 34 issue 8)



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News & Views

- 6 VIEW FROM THE TOP: StarHub's journey to IP**
Chong Siew Loong, CTO of StarHub, charts the pay-TV operator's continuing journey to IP.
- 10 PROMPTINGS: Astro embraces changes in IoT world**
Phuah Aik Chong, CTO of Astro, explains how Astro is understanding and engaging their audience in the digital space.
- 11 EVENTS: Review of IBC2017, CASBAA Philippines in View 2017 and Calendar of Events 2017/2018.**

Creation

- 20 FEATURE: Bringing images to life with a palette of colours**
In the world of video, colour is more than just human visual perception. Using colour, colourists in post production are able to highlight subjects and enhance emotions, thereby conveying a more engaging story.
- 23 Zeiss adds metadata technology into its CP.3 XD lenses**
At IBC2017, Zeiss highlighted the Zeiss Compact Prime CP.3 and CP.3 XD lenses, the latter equipped with the Zeiss eXtended Data metadata technology.

Management

- 24 FEATURE: Today's switchers tackle multi-format production and delivery needs**
The DNA of the modern production switcher is built around ensuring that all operational needs are met, regardless of the multiple formats broadcasters find themselves working in today.
- 27 Nagra empowers pay-TV operators to maximise their content value**
Nagra, a Kudelski Group company, has launched OpenTV Signature Edition, a turnkey, cloud-based and multi-tenant solution for pay-TV operators.

Distribution

- 28 FEATURE: Satellite and technologies co-exist to deliver groundbreaking news**
For decades, the use of satellite for newsgathering has been the dominant delivery platform for live TV news. But with the convenience cellular technology offers, is satellite still relevant to newsgathering?
- 31 Chinese Television System (CTS) employs Net Insight's Nimbra for the broadcast of the 2017 Summer Universiade**
Taiwanese terrestrial broadcaster deployed Net Insight's Nimbra 140 solution to broadcast World Universiade 2017 Games.

X-Platform

- 32 FEATURE: 5G: Bridging mobile broadband and broadcast networks**
While perhaps not designed entirely for broadcast applications, a number of industry projects and initiatives have highlighted the role 5G can potentially play in delivering broadcast services.
- 34 Predicting the future of broadcast through sports**
Olivier Suard, VP Marketing, Nevision, details why sports can have a key role to play in the future of broadcast.

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StarHub's journey to IP

BY CHONG SIEW LOONG

Why IP?

In the face of increased competition from over-the-top (OTT) service providers, broadcast operators have to constantly innovate to provide a richer viewing experience with more personalisation and deeper customer engagement. Typically, broadcast operators would leverage SDI technology at the TV headend to process the broadcast channels before distribution to set-top boxes and other devices.

With the development of video-over-IP standards and solutions, operators can now adopt IP technology at the TV headend to reap the benefits of flexible routing, scalability and agility. This also lowers the cost of ownership with commercial-off-the-shelf (COTS) IT and IP infrastructure, which helps to ensure a better return on investment (ROI).

StarHub's adoption of IP

At StarHub, we have been embracing IP as part of our TV headend architecture and delivery platform. Our journey began in 2003, when we launched our digital TV channels.

Six years later, we implemented Transport Stream over IP (TSolP) after the encoder and playout servers, and leveraged COTS IP switches for redundancy. In this configuration, all channels were routed to the baseband system to support master control functions, SDI ad-insertion and video switching.

2017 has been a landmark year as we moved our TV headend into our latest facility, Hubtricity. The centrepiece at Hubtricity is the Converged Command Cockpit, where we can monitor how our fixed, mobile and pay-TV networks are performing. We implemented an IPTV headend architecture (bypassing the traditional SDI baseband system) and delivering Transport Stream over IP after the IRDs (integrated receiver decoders) for turnaround linear channels. With this design, our master control graphic functions are operated directly from the encoders through the control switching software. We also have the capability to monitor the IP streams at the IP and

“In everything we do, our priority is to deliver a world-class viewing experience and as the technology matures, we will enhance our TV headend to go full IP to meet the future entertainment needs of our customers.”

MPEG video layers so that the team can detect any video or audio loss at all times.

Sharing experiences on our journey to IP at our Converged Command Cockpit

When we were planning our new TV headend in 2015, uncompressed video-over-IP technology was still evolving with multiple proprietary solutions in the market. This presented us with interoperability challenges. Hence, we did not implement uncompressed video-over-IP at the time.

Instead, we decided to adopt the strategy to build an IP-enabled headend platform with the capability to deliver the channels directly to the compression system, bypassing the traditional SDI baseband routers. We conducted extensive proofs-of-concept for this IP-enabled headend. Through the testing and assessment, we identified several key success factors for an IP-enabled TV headend. The key design considerations are video quality, latency, seamless IP video switching, IP ad-insertion, video formats conversion, master control functions, stability of redundancy design and skillset change.

The following key considerations shaped our IP deployment at Hubtricity:

■ **Graphics functions on IP** — One of the biggest challenges in adopting a transport over IP solution is how to enable graphics capabilities on the IP platform instead of the traditional SDI baseband system. Fortunately, as the technology matures, an increasing number of compression manufacturers can incorporate the graphic and channel branding capabilities, such as crawlers, dynamic text, station logos, and multiple layer graphics in the encoder.

■ **Closed and open captioning** — One of the advantages of going to IP is the easy implementation of closed captioning. However, pay-TV operators

may face constraints in supporting the different formats of closed captioning from the various content providers. As such, open captioning is still required and the responsibility of the subtitle burn-in function needs to be supported by the compression system.

■ **Ad-insertion on IP** — Most Asian pay-TV operators implement ad-insertion in the traditional SDI baseband system. Moving towards IP, it becomes more cost-effective to implement the MPEG splicing on the IP domain. On the other hand, compression vendors are also incorporating the ad-insertion capability in the encoders. This provides the option to deliver the channel with ad-insertion over IP.

■ **End-to-end control and monitoring** — As most broadcasters have a hybrid SDI/IP system, it is essential that the control and monitoring system is able to support both SDI and IP. This covers important functions such as graphics control, redundancy switching, status monitoring, error correlations and performance reporting.

■ **Format conversion** — Two considerations to go IP are how to address the conversion from NTSC to PAL, as well as from a 1080i60 to 1080i50 frame rate. Currently, conversion still has to be done at the uncompressed video level. Hence, we are using traditional SDI for such channels.

■ **Video switching for TS over IP** — Many compression vendors demonstrate the capability of switching the TS over IP. However, the switching is sometimes not seamless and the control system of switching is not as comprehensive as the traditional A/V routing system. For channels which require real-time video source switching, we maintain the channels at SDI.

■ **SDI over IP** — With the increasing need to support 4K/Ultra HD (UHD) content, it is anticipated that the latest models of production equipment will support SDI over IP and an increasing number of production facilities will be



selecting the COTS IP networking approach. However, legacy SDI routers and new Ethernet/IP networks will coexist for a number of years during the migration to a COTS switch infrastructure. During the transition, it is important to carefully select the scalable IP-based equipment, ensure a reliable IP network design, and have a flexible control system to manage the migration.

Today, we have built an IP backbone to connect the channels from IRDs to the encoder farm while bypassing the SDI baseband router. This design has reduced the infrastructure cost and reduced the amount of coaxial cabling. It is also flexible and allows us to reap the benefits of ease in configuration, IP routing from any source to any destination (without many input and output interfaces) and cabling in a traditional SDI architecture.

As part of the IP headend transformation, we trained our broadcast engineers and operators on the new IP video workflow and seamlessly migrated all the channels from our old headend to Hubtricity in 2017.

Transforming towards IP gives us the flexibility to expand our capacity to support future 4K/UHD channels, which are bandwidth-intensive. In everything we do, our priority is to deliver a world-class viewing experience and as the technology matures, we will enhance our TV headend to go full IP to meet the future entertainment needs of our customers. **APB**

Chong Siew Loong is CTO of StarHub, and is also an APB panellist.

VIEW FROM THE TOP

The centrepiece at Hubtricity is the Converged Command Cockpit, where StarHub can monitor how its fixed, mobile and pay-TV networks are performing.



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What's on Screen



Thrill is airing *Unbreakable* as part of its Halloween Special, alongside *The Conjuring*, *The Sixth Sense*, and many more classic horror movies.

Halloween is home for more Thrill

HONG KONG – This Halloween, Thrill is welcoming viewers to the home of horror with a line-up of horror movies, including *The Conjuring*, *The Sixth Sense*, *Unbreakable*, and *Sweeney Todd: The Demon Barber of Fleet Street*.

Viewers can also catch *Dead Again*, a TV series produced by *Law & Order* creator and executive producer Dick Wolf. *Dead Again* follows a team of detectives who re-examines controversial murder cases in which unresolved questions still linger long after the verdict was determined.

HOOQ launches first Thai original movie *Saranair Love You*



Cinematic comedy *Saranair Love You* is HOOQ's first Thai original movie, and stars Willy McIntosh and Kiattisak Udomnak.

BANGKOK – In collaboration with Thailand's movie studio Tech Digital Corporation, HOOQ has released its first Thai original movie — *Saranair Love You* — a cinematic comedy directed by Kiattisak Udomnak.

With Udomnak also taking the role as Peng and Willy McIntosh as Rang, *Saranair Love You* follows the adventures and misfortunes of the two best friends whose world changed after getting caught in a diamond heist. The duo is joined by a medley of stars, including Tonhom Sakuntala, Sun Prachakorn, and Mario Maurer.

HBO Asia premieres SENT

SINGAPORE – HBO Asia has debuted its first comedy drama series, *SENT*, on HBO on StarHub TV.

Set in Singapore, the eight-episode half-hour series tells the story of Jay Bunani (played by Haresh Tilani), a financial compliance officer whose only way of coping with the stresses in life is to draft honest emails to anyone who aggravates him. This backfires one day as his draft emails are

accidentally sent out, turning him into an Internet sensation overnight — and not a good kind.

SENT is HBO Asia's third original production this year, following the second season of *Halfworlds*, an action fantasy drama series, and *The Teenage Psychic*, HBO Asia's first original Chinese series set in Taiwan.

Viewers can also catch *SENT* on HBO on StarHub Go and HBO On Demand.



Directed and co-produced by Alaric Tay (second from left), *SENT* features an ensemble cast of actors such as Haresh Tilani, Carla Dunareanu and Alan Wong.

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Media 2020 addresses major issues facing today's broadcasters

SINAIA – Disruption is the new watchword for the broadcast and media industries, said Dr Javad Mottaghi, secretary-general of the Asia-Pacific Broadcasting Union (ABU).

Welcoming delegates to the Media 2020 conference held last month in Sinaia, Romania, Dr Mottaghi added: "The world is both divided and interconnected as never before. We are in the midst of a new world order where media and the Internet reaches people like never before.

"The only certainty is uncertainty, [and] media companies need to navigate the uncertainty."

Jointly organised by the ABU and Radio Romania, Media 2020 welcomed more than 150 delegates

from 32 countries across Europe and Asia to discuss various issues and the major challenges facing broadcasters in the 21st century.

Public service media remains "the glue in our society", suggested David Jordan, director of editorial policy and standards at the BBC. He pointed out that while some media tended to polarise the community, the job of public service broadcasters had never been to coalesce the population to a single view, but to reflect the many views of people in the country.

Fayyaz Sheheryar, director-general of India's Prasar Bharati, shared that the biggest problem facing his country's national broadcaster was to "reach the last man" — to get media to every person in the

country at the lowest cost to them.

He urged broadcasters to continue to focus on content, saying that the problem of people in South Asia is the loss of identity in the face of so much foreign media, which the media could correct by bringing them the world in their own dialects.

In the face of new media challenges, some traditional strength, such as bringing people together and quality storytelling, is still important to broadcasters, reminded Sally-Ann Wilson, CEO of the Public Media Alliance.

She called on broadcasters to "invest in media literacy" to let people know who was selling something and why, including the selling of political policy ideas.

4K/UHD TV trial a success – but not at expense of HDTV

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of 4K/UHD programme is demonstrated by sports event with live broadcasting," he explained. "However, without technologies like high dynamic range (HDR) or high frame rate (HFR) in place, the change in resolution really does not make any difference when compared to an HD programme."

The Summer Universiade trial broadcast, which was conducted over the period of two midnight hours, aired the delay-live opening and closing ceremonies of the games, using the DVB-T terrestrial broadcasting standard.

To enable the operation of the 4K/UHD channel, PTS had to suspend two HD channels off-air, which, in Cheng's opinion, is an "unnecessary sacrifice". He urged: "If the regulators and policymakers are able to allocate the spare spectrum obtained from ASO (analogue shutdown) in 2012 and restacked it, the market is feasi-

ble enough to be equipped with another 18 channels, each at the bandwidth of 6MHz. The amount of spectrum available can then support a new thriving platform, and not at the expense of current HDTV services."

Cheng also believes that DVB-T2 would be a better choice to support 4K/UHD services, because in comparison to DVB-T, DVB-T2 offers a number of technical enhancements, including support for SD, HD, 4K/UHD, mobile or any combination thereof.

Taiwan completed the digital switchover (DSO) in 2012, and Cheng lamented how broadcasters in Taiwan do not have the opportunity to propose the migration to DVB-T2 "due to political issues".

He continued: "Faced with a political stalemate, PTS struggled with the challenges of conducting the 4K/UHD trial over the DVB-T standard. However, the trial is timely, as it allows us to leverage the economic value of sports broadcasting."

Prior to the Summer Universiade trial, PTS organised a workshop in August last year. With the stated aim of demonstrating the capability of DVB-T employed on HEVC/H.265-equipped 4K/UHD TV sets, PTS' lab researchers found that the adoption of different bitrates — from 13.5Mbps-18Mbps — would enable PTS to export broadcast streams comparatively.

Following the successful trial, Cheng explained that the majority of the 4K/UHD TV sets sold in Taiwan were able to capture the broadcast stream. Additionally, the trial has enabled TV sets manufacturers to continue the integration of the DVB-T standard with HEVC/H.265 on their displays, he suggested.

"This trial is a reasonable proposal from us to the government in seeking for their revision on policies regarding Taiwan's terrestrial broadcast industry. However, PTS might not take another step forward on the launch of 4K/UHD TV before the government resumes talks on the future of digital TV industry," Cheng concluded.

Seminars to discuss how IP can future-proof media facility

1 ▶▶

transitioning to IT and IP-based infrastructures.

Welcoming SMPTE ST 2110, Proulx stressed: "Converting to IP is not just about replacing SDI, because there is a bigger transition at play. Inside a TV facility, for instance, there are two key transitions taking place — replacing SDI infrastructure with IP, and replacing dedicated hardware devices with software and virtualisation."

As to why broadcast TV facilities should transition to IP, he cited the following reasons: the ability to leverage IT innovation and scale; "dramatically reduced" cabling and infrastructure; putting in place a future-ready, format-agnostic facility; and to enable the transition to software and virtualisation.

And virtualisation, Proulx believes, is what IP is truly about. While IP brings benefits such as reduced wiring, scale and flexibility, he argued that virtualisation and software-defined networks bring even more flexibility, agility and serviceability.

"I visited NBC Universal in Nov 2016 to talk about playout and virtualisation," Proulx recalled. "They are aggressively pursuing virtualisation not only in playout, but across its entire media operation, and recently moved a virtualisation expert from IT to the TV Engineering Group."

He also cited a presentation at NAB Show 2017, where Thomas Edwards, VP of Engineering and Development, Fox Networks

Engineering and Operations, USA, said that in Fox's network centre, the real interest in IP stems from the virtualisation of Fox's media processing. "IP is the on-ramp to virtualised media processing," Edwards explained.

To enable virtualisation, however, broadcasters need to start replacing SDI infrastructures with IP, Proulx stressed, and suggested that IP today, might be most appropriate for a facility of "significant size", for facilities already operating in 4K/Ultra HD (UHD) or planning to in the near future, as well as a greenfield installation.

In Singapore, terrestrial broadcaster Mediacorp has completed its move to Mediacorp Campus, a new 79,500sqm production and digital facility located within the Mediapolis@one-north digital media hub.

The broadcast systems in Mediacorp Campus are sitting on a multi-layer network architecture, where IP is playing a key role in the broadcast environment, from production to playout, revealed Wang Yin, assistant vice-president, broadcast engineering, Mediacorp.

For example, Mediacorp "relies heavily" on IP to automate daily operations, as Wang explained: "With studio automation and broadcast control systems that adopts IP infrastructure, we effectively unite technical devices and operators under one roof to greatly reduce human errors and improve production efficiency."

"It is also crucial to have network/server monitoring embed-



Michel Proulx, former CTO of Miranda Technologies, will headline two seminars on Professional media over IP: Building a future-proof media facility that will be held on Nov 3 in Hong Kong and Nov 6 in Singapore.

ded in the broadcast ecosystem to prevent unplanned happenings, and to mitigate the risks before they develop into crisis or a full-blown disaster.

"By leveraging IT-based platforms and IP networks, we are able to monitor mission-critical components in our network for abnormalities. Information such as server health status, application logs and service availability are retrieved via IP, and closely monitored and analysed with IT service intelligence."

Overall, IP has enabled Mediacorp's operations to be flexible and cost-effective while offering a future-proof broadcast infrastructure, Wang reviewed. Because systems are designed on common standards, Mediacorp is able to rapidly deploy software-based equipment using standard network connectivity, at a fraction of the

cost of traditional baseband ones, he added.

The current infrastructure in Mediacorp Campus is still deploying SDI for live video distribution because live IP video distribution was not matured at the point when Mediacorp was designing its system for the new facility, Wang said, adding: "Moving forward, we will progressively implement IP distribution as and when the need arises."

"All-IP is definitely the way to go in our future, but it will be driven by business instead of technology."

"In live production, where SDI baseband still dominates, an all-IP transition will probably only take place after we move into 4K/UHD."

To delve deeper into how broadcasters, particularly those in Asia-Pacific, can more effectively plan their transition to IP, APB, in collaboration with systems integrator Ideal Systems, will be holding two seminars — one in Hong Kong on November 3 and the other in Singapore on November 6.

Titled *Professional media over IP: Building a future-proof media facility*, the seminars will be headlined by Proulx, who will discuss issues such as how IP is now being considered as a replacement for SDI for the transport of real-time video and audio inside TV facilities, and the benefits of using IP for real-time video and audio.

For the Singapore seminar, Wang will also share more details and insights into the role IP is playing in Mediacorp Campus. For more information, turn to page 9.



During the 2017 Summer Universiade held in Taipei, Taiwan, last August, Taiwan Public Television Service (PTS) conducted a broadcast trial of the opening and closing ceremonies in 4K/UHD over terrestrial TV.

Start your transition to IP today

SINGAPORE – While IP has been debated extensively across the broadcast industry for several years, it had been largely regarded as an “experimental technology”.

This, however, is changing, suggested Mark Moore, vice-president, international sales, Dejero. “We, as consumers and communicators, now expect access to high-speed connections whenever and wherever we are,” he told APB. “For the media and entertainment industries, [the transition to IP] means that we can connect cameras and sound over blended networks, including cellular, Wi-Fi and portable satellite connections to provide live content to ever-demanding viewers from virtually anywhere.”

For this to be effective, it is important that broadcasters can integrate systems from multiple vendors, Moore added. Manufacturers who are serious about IP should advocate open standards, so as to “really take advantage of the many possibilities that exist across an all-IP ecosystem”.

But as with all emerging technologies, IP can only show its true

“Manufacturers who are serious about IP should advocate open standards.”

— Mark Moore,
Vice-President, International Sales,
Dejero



“At the moment, expect to see islands of IP being deployed, although ‘big IP projects’ involving major rebuilds are already happening.”

— Denis Pare,
Vice-President of Sales, Embronix

worth when it enables users to work smarter, faster or more cost-effectively. The signs, nevertheless, are generally encouraging, as Moore explained: “There are more and more proof-of-concepts being published across the industry and this in, itself, has built confidence.

“However, we’ve seen hesitation in the areas of signal processing and core infrastructure. Some broadcasters, especially those with deep pockets, are still concerned about the cost of an all-IP infrastructure.”

In this case, a hybrid SDI/IP that allows broadcasters to transition to IP at a pace that best suits them might be the best solution, Moore concluded.

The IP transition is drawing

similarities to the transition from analogue to SDI, suggested Denis Pare, vice-president of sales, Embronix. “Then, there were a couple of standards available to convert signals and everybody wanted to test every piece of equipment. With IP, we are seeing this again,” he elaborated.

Pare also pointed out that IP control switchers, which perform different functions compared to a traditional router, are currently available only in limited numbers. It will be three to five years before there is a peak in IP deployments, or when there is a decrease in the gateways required, as much as an increase in native-IP equipment, Pare predicted. At the moment,

expect to see islands of IP being deployed, although “big IP projects” involving major rebuilds are already happening, he added, while urging broadcasters to start planning for their transition to IP today.

“Interoperability between manufactures is already quite good and with SMPTE ST 2110, you don’t need the embedders and de-embedders required for SDI anymore,” Pare said. “IP needs less cabling and can be cheaper in the long term. And for those looking to go 4K/Ultra HD (UHD), IP just makes more sense.”

Both Pare and Moore will be discussing and providing more insights into IP at a special seminar to be held in Singapore this Novem-

ber 6. Titled *Professional media over IP: Building a future-proof media facility*, the seminar is jointly organised by APB and systems integrator Ideal Systems, and will also feature keynote speaker Michel Proulx, former CTO of Miranda Technologies, who will provide some useful tips on how you can build a future-proof media facility that supports professional media over IP.

Also speaking at the seminar will be Wang Yin, assistant VP, broadcast engineering, Mediacorp, who will share the role IP is playing in the new Mediacorp Campus.

For more information, visit www.apb-news.com/event/ip-seminar, or contact Lynn Chee at lynn@editecintl.com.

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SUPPORTS AND CHOOSE YOUR POINT OF VIEW
360

Astro embraces changes in IoT world

First of all, can you share with us your vision for the future of TV — how will consumers' consumption habits continue to evolve, and how is Astro preparing itself to face future challenges?

Phuah Aik Chong: In the age of the fourth industrial revolution, we are seeing business models and skill sets being challenged by digital disruption. Technology, demographic and socio-economic trends are affecting business models and consumer behaviours globally with revolutionary pace. Mobile Internet and cloud technology, as well as processing power and big data, have hastened the growth of a sharing economy. This results in crowd



If computerisation can be described as the third industrial revolution, then perhaps the Internet of Things (IoT) is heralding the fourth industrial revolution. IoT basically links consumer lifestyles onto digital applications across smart devices. For the media industry, it represents an opportunity for media companies to understand and engage their audiences in the digital space. APB prompts Phuah Aik Chong, CTO of Astro, for more details.

sourcing, and changes the nature of work and skill sets needed to support it.

Coming into 2017, Astro recognises that our operating environment is undergoing rapid disruption, and we must proactively shape the world we operate in. The competitive landscape in the local Internet and media spaces is now more challenging due to the entrance of global digital challengers, who have lower barriers to entry. Astro, and other local media players, now effectively compete in a landscape of global competition.

As an organisation, we must be resolute in addressing the challenges of this new digital age. That means we must be bold in the face of global competition, or risk rendering ourselves irrelevant and obsolete. Our approach is to first identify our strengths that can be consolidated and built upon, and more importantly,

our weaknesses that we need to address in a revolutionary way. We are doing this via our three strategic imperatives of digitising our business, acquiring scale in an increasingly global marketplace via digital startups, and deepening our verticals, which comprise differentiated content, as well as products and services that our customers want and are willing to pay for.

Technology never remains static, and has been advancing at an unprecedented pace. Broadcast has gone through a series of transformations — with satellite, cable and over-the-top (OTT) — that have irrevocably altered consumers' viewing habits, accelerated the shift from linear to on-demand consumption, and driven lay-back to lean-forward consumption behaviour. Also, the growth of broadband and smart device penetration will continue to spur the change in consumption behaviour.

I believe cloud and data analytics will continue to be important in enabling an organisation like us to continue to innovate, and deliver best-in-class experiences to our customers. We are also investing time and resources in artificial intelligence (AI), as we believe it will be key in enhancing customer experience, as well as improving operational efficiency.

Can you elaborate on why Astro is utilising AI to enhance the customer experience? Particularly,

“As an organisation, we must be resolute in addressing the challenges of this new digital age. That means we must be bold in the face of global competition, or risk rendering ourselves irrelevant and obsolete.”

— Phuah Aik Chong,
CTO, Astro

how can AI be beneficial for an established broadcast company such as Astro?

Phuah: Machine learning and AI will further accelerate Astro's capability to leverage data to gain actionable insights and competitive advantages. We will continue to invest in analytics, and gather data from our various digital products and services.

On top of the traditional data warehouse, we have recently built a Data Lake in the cloud. The Data Lake will enable Astro to capture vast amounts of data to support personalisation, providing personalised recommendation, and the enhancement of overall customer experience. The data we have gathered will help us to further refine our understanding of our customer base across both households and individuals while supporting our quest to provide tailored services at an individual level.

For instance, we have enabled personalised content recommendation across our video-on-demand (VoD) service on connected set-top boxes (STBs), and OTT video streaming services such as Astro GO and NJOI Now. Similarly, personalised product recommendation is available on our Go Shop e-commerce site.

We are accelerating the pace of building AI-driven, intuitive experiences for our customers while optimising internal efficiencies through the automation of repeatable tasks. AI has been adopted to provide virtual assistants (chatbots) across several products and customer self-serve solutions. Although there are a lot more in the pipeline, this is clearly an exciting area in which the team is having lots of fun experimenting and building new services.

Astro has also recently embarked on a three-year digital transformation journey. Can you provide an overview and explain the key drivers for Astro to commence this initiative?

Phuah: The future of business-to-consumer (B2C) companies, including media, is inextricably linked to

digital and the Internet. At Astro, we are embracing digitisation, as well as the spirit of innovation, invention and re-invention. We have put in place a company-wide three-year digital transformation programme, and have partnered with global experts such as Amazon Web Services (AWS) to accelerate our group-wide digital and business transformation.

Astro's Digital Transformation programme is a three-year transformation journey that we have embarked on to transform Astro into a digital, cloud, mobile-first and analytics-driven company.

Additionally, we have set ourselves aggressive targets, such as the one to digitise at least 75% of our current technology infrastructure, applications and processes by year-end to better serve our customers, and ensure agility and customer-centricity in the introduction of new content, products and services.

In parallel, we are revamping our business models and product constructs, developing new delivery platforms and focusing on improving user interface and user experience (UI/UX), in keeping with the heightened expectations of our new age customers.

Today, technology is evolving at a pace never seen before, enabling rapid shifts in consumer behaviour and trends at speeds that were unthinkable just a few years back. Part of our roles in the media and entertainment industry is to find new and creative ways to bring content on any type of devices, at any time.

We want to get closer to our customers than ever before, and to that end, we are reinventing the way we work, and the Digital Transformation programme is aimed to accelerate this process. We will continue to improve and enhance our existing offerings and services, and we are also developing new capabilities to introduce new products that will surprise and delight our customers.

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IBC2017 indicates IP shaping the future of broadcasting

BY JOSEPHINE TAN

IBC marked its 50th anniversary with a record attendance of more than 57,000 visitors walking the halls of the RAI Exhibition and Convention Centre in Amsterdam, The Netherlands from September 14-19 this year.

One key announcement at this year's show was the approval of the first standards within the ST 2110 specifications from Society of Motion Picture and Television Engineers (SMPTE). Designed to deliver media over managed IP networks, the new standards suite specifies the carriage, synchronisation and description of separate elementary essence streams over IP networks in real time for the purpose of live production, playout and other media applications.

Calling the approval a "big milestone" for the broadcast industry, Howard Lukk, director of engineering and standards for SMPTE, stressed that the approved standards will give broadcasters the confidence that equipment will interoperate from one manufacturer to another while providing reliability for broadcast applications.

He further revealed, in recent times, SMPTE has fast-tracked its development of software standards. "The speed of software and software development is faster compared to hardware," Lukk explained. "Today, users are able to develop software within a week, and have it out as a product."

He added: "It also means that we have to look at our standards process, and explore possibilities to keep pace with the industry, which is now moving faster than ever."

Acknowledging Lukk's point on the speed of evolution sweeping the broadcast industry, Joe Khodeir, vice-president sales, Asia-Pacific, Imagine Communications, urged traditional media players to be "more reactive" in adapting to changes in the media landscape.

He explained: "The future of TV will become even more targeted and fragmented — with data and analytics playing a critical part in reaching and retaining audiences. Hence, the agility to launch new channels quickly and react to what the market wants will be key."

At IBC2017, Imagine Communications unveiled additional enhancements to its Open Zenium programme, which allows media companies to design and deploy



IBC marked its 50th anniversary with a record attendance of more than 57,000 visitors at this year's show.

"next-generation" workflows and services while gaining access to a software community backed by teams of developers, architects and DevOps (a software engineering practice) engineers.

The company also demonstrated its Selenio Network Processor (SNP). The SNP platform offers IP-to-IP processing capabilities, managing uncompressed 4K/Ultra HD (UHD) signals based on the SMPTE ST 2110 specification. Along with IP-enabled video processing, the SNP offers advanced audio processing, timing, synchronisation and conversion capabilities, such as HD to 4K/UHD upconversion, and 4K/UHD to HD downconversion.

Another company who showcased IP interoperability at its booth was Axon Digital Design. While IP is now a reality, Jean-Pierre Nouws, senior product manager at Axon, pointed out that there are still some challenges to overcome, including switching and network management, as well as IP control and monitoring.

To help broadcasters migrate their legacy SDI equipment to IP, Axon presented the Synapse NIO440 module, an eight-channel, bidirectional Ethernet/SDI bridge. SDI sources will be able to be converted to IP through the NIO440, from 3G/HD-SDI to uncompressed Ethernet video transport with decentralised routing, or via Embriox's small form-factor pluggable (SFP) SDI to IP gateways.

Also part of this hybrid IP environment is Axon's SynView modular multiviewer, which is capable of managing 4K/UHD and

IP video formats. Available in two versions — SDI I/O and Ethernet I/O — these versions can be combined to build a hybrid multiviewer.

How do we allow our customers to do things faster and more efficiently? This is one of the key questions that Ross Video continues to answer as the company presented its now familiar *Smart Production* theme.

Making its IBC debut is the Graphite production solution, which combines the capabilities of Ross Video's Carbonite production switcher, XPression 3D motion graphics, two channels of clip servers and the RAVE audio engine — all within a single 4RU chassis.

» 12



Joe Khodeir, vice-president sales, Asia-Pacific, Imagine Communications: "The future of TV will become even more targeted and fragmented — with data and analytics playing a critical part in reaching and retaining audiences."



Axon's Jean-Pierre Nouws: "While IP is now a reality, there are still some challenges to overcome, including switching and network management, as well as IP control and monitoring."

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2016: Rebooting mindset on IP

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Modernising production control room workflows



The way content is consumed has dramatically changed over the past decade as social media and mobile viewing is becoming the new trend of content consumption.

For many broadcasters, studio automation has become an invaluable platform to deliver live content faster, with less margin for human error. The system coordinates all devices in the production control room and simply presents all relevant information and options in the software user interface; the director can focus on content, while the system is taking care of all technical complexion.

The simplicity of the user interface allows anyone to operate any broadcast, from a journalist to an experienced operator. For broadcasters and publishing houses, this has proven to be highly effective, as more employees can operate the broadcast, minimising the reaction time for going on-air at any given moment. When news breaks, a single operator can start the broadcast and operators can be added, as they become available while the programme is live. Being on-air first is imperative, and studio automation enables exactly that.

Vegard Elgesem,
Product
Manager,
APAC, Studio
Automation,
Vizrt



flexible enough to work with all of our other systems and share these resources to help streamline our operation.”

The technology choice was not only going to affect Mediacorp’s production control room, but also to free up resources to create more content overall.

Hollis continued: “As much as we were able to reduce our crewing requirements in the control room, what was key to us was to relocate the manpower to other more creative positions such as jib operations and technical support roles, which ultimately improve the quality of our output.”

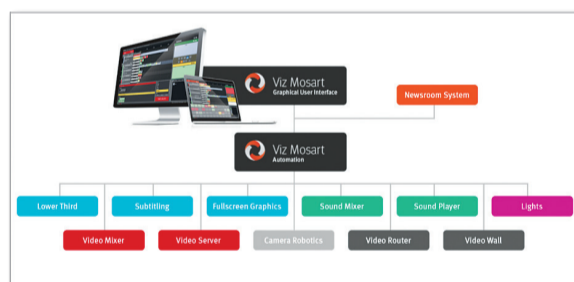
A step towards cloud production

The next step of production optimisation is focused on the backend. While studio automation connects existing equipment, the software interface and backend workflows allows further modernisation of the production. The next generation studio automation fulfils all production requirements in a single solution, reducing capital investment, deployment time and usage of space.

Broadcasters can upscale systems without increasing their budgets. In addition to the reduction in size and cost, this new line of systems increases flexibility to address new challenges without further hardware investments, for example, live streaming to social media with custom graphics for specific devices.

When migrating to the cloud, it is a given that there is no conventional hardware panels or mainframes; all will be running in software environments with software interfaces. Introducing studio automation now is preparing broadcasters for the next generation of production, and bridging the gap between current and future methods of creating content. □

To read more about the Viz Mosart and Viz Opus studio automation, go to Vizrt.com



Changing the pace of Channel NewsAsia

When Mediacorp in Singapore was building its new facility, studio automation was a technology that fundamentally modernised live content production. Different systems were considered to fit Mediacorp’s vision for the future and to integrate with the preferred broadcast equipment.

James Hollis, VP, production services, Mediacorp, shared: “Viz Mosart was the obvious choice for a number of reasons. Firstly, our studio crew felt that from an operational point of view, the system interface was the most user-friendly and highly configurable to our specific needs.

“Then, from a functionality perspective it was able to cater to our demanding production requirements across our multiple studios. Finally, from an integration point of view, it was

IP-based video services the next big revenue for content makers

11 ▶▶

And while Ross Video is also keen to highlight its IP and interoperability initiatives this year, Andrew Tan, director of sales, Ross Video, stressed: “We want to help our customers understand what are the benefits of going to IP for them, so they can make a proper transition.”

In an increasingly IP world, consumers will demand new, diverse types of content, and will expect opportunities to interact with their content. Instead of dying, live TV is beginning to shift to connected devices and globally, IP-based video services will be the next big revenue pool for content makers. And for video services to have a successful future, artificial intelligence (AI) will have a key role to play.

These key findings were revealed in a recent white paper released by Parks Associates and sponsored by Ooyala. The only definite is the digital world we live in, said Belsasar Lee, founder and SVP of products and solutions, Ooyala. Otherwise, content consumption patterns continue to evolve; currently, long-form content is dominating time spent across devices, even as more premium content is being streamed, he added.

In five years’ time, everything might be in IP. The question is, how do we get there?, asked Tom Flaherty, director, field marketing, Arista Networks.

Working with partners such as Lawo, Snell Advanced Media (SAM), Imagine Communications, Riedel, Grass Valley and EVS, among others, Arista Networks demonstrated an interoperable IP workflow process enabled by the Arista Extensible Operating System (EOS) and Arista Universal Cloud Network.

Founded in 2004 to pioneer and deliver software-driven cloud networking solutions for large data centre storage and computing environments, Arista Networks has in recent years, Flaherty revealed, adapted its APIs to work with broadcasters,

and to provide the ability to run existing protocols over existing networks.

A congratulatory mood surrounded the Lawo booth, as the company celebrated its mc²96 Grand Production Console winning the IABM Design and Innovation Awards in the ‘Audio’ category.

“At last, a console that takes account of the fact that audio mixing for TV requires the ability to see, as well as hear an incoming source before taking the audio to air,” said the jury of the awards.

Designed to provide “optimal performance” in video production environments through native support for all relevant IP standards — SMPTE ST 2110, AES67, Ravenna and Dante — the mc²96 console is available in frame sizes with 24-200 faders.

Other highlights from Lawo include the vsmSOUL orchestration and unification layer, which adds an overarching orchestration service for IP-based production environments to the VSM control system.

For TSL Products, the company has updated a number of its control, audio monitoring and power management solutions to support media operations during this IP transition. For instance, TSL Products’ MPA1 Dante audio monitoring series is now equipped with support of AES67, which is the IP audio transport layer for SMPTE ST 2110.

Additionally, its PAM-IP audio monitoring devices, which feature twin Ethernet ports, can also be deployed either in Dante or AES67 modes.

Commenting on the development of IP in the media industry, Mark Davis, director of products and technology, TSL Products, said: “We’re seeing more media operators testing proofs-of-concept; however, the fear of shortage of skills to bridge between the migration is one reason why the implementation of IP solution is progressing at a slower pace.”

Cobalt Digital presented its 9934-AUD-PRO 3G/HD/SD-SDI audio processor. The hardware features Dolby Real-Time Loudness



Lawo’s Christian Struck (left), senior product manager, audio production, and Andreas Hilmer, director, marketing and communication, were in a joyous mood as the company’s mc²96 Grand Production Console won the IABM Design and Innovation Awards in the ‘Audio’ category.



Tom Flaherty, director, field marketing, Arista Networks, found time to read APB's monthly publication, and explain how the company is supporting the broadcast industry's transition to IP.



TSL Products' Mark Davis: "We're seeing more media operators testing proofs-of-concept; however, the fear of shortage of skills to bridge between the migration is one reason why the implementation of IP solution is progressing at a slower pace."



Adder's John Halksworth: "Even if broadcasters are not using IP now, they will be in five years time simply because IP is a perfect carrier."

Leveling (RTLL) automatic loudness processing, Dolby E/D/D+ encoding and decoding, and Linear Acoustic UPMAX automatic upmixing.

The company also exhibited the 9902-UDX-DSP-CI Channel Integrator, a 3G/HD/SD-SDI/CVBS up/down/cross-converter. Channel Integrator provides the signal conversion and processing tool set required to conform analogue and digital A/V inputs, alongside their metadata, to meet content- and channel-delivery requirements.



For video, enhanced video processing abilities include up/down/cross-conversion with noise reduction and detail enhancement. And for audio, features such as analogue and AES audio embedding and de-embedding, with multiple mixers and per-channel delay, are incorporated in the Channel Integrator.

In any IP-based facility, KVM (key-board, video and mouse) solutions will provide the flexibility to enhance workflow efficiencies and distribution of signals, said John Halksworth, senior product manager

for Adder Technology.

He continued: "Even if broadcasters are not using IP now, they will be in five years' time, simply because IP is a perfect carrier. Asia is not different compared to the European or North American markets, as broadcasters should take advantage of what IP may bring."

Adder Technology showcased the Adder-Link XDIP matrix solution that runs on IP technology over a CATx network cable,

▶▶ 14

SAM. Straight Talking:



Snell Advanced Media

Alchemist XS

The Best Live Streamed Conversion.

Perfection in Motion

- Motion compensated framerate conversion for live IP and SDI media streams
- Supports SDI, HD, 1080p and UHD
- COTS-based turnkey solution - **Alchemist has evolved!**



Adder's John Halksworth: "Even if broadcasters are not using IP now, they will be in five years time simply because IP is a perfect carrier."

IP-based KVM solutions, OB truck systems, SNG connectivity and more featured at IBC2017

13 ►►

enabling users to extend and manage their workstations. XDIP nodes can be configured as an extender, distributed KVM switch, KVM sharer, or any combination up to eight computers and eight users.

Another KVM solutions provider, Guntermann & Drunck (G&D), highlighted the DP1.2-Vision extender, which is compatible with G&D's digital matrix switches, allowing extension, switching and distributing of 4K/UHD video signals through the matrix systems.

The KVM extender system is equipped with G&D's HDIP compress technology, which is in the latest development stage — Level 3. This compression mode, according to G&D, allows the loss-less transmission of video signals with a resolution of 4K/UHD at 60Hz, thus requiring less bandwidth to transmit signals.

Alongside DP1.2-Vision, G&D exhibited another KVM extender — DP1.2-VisionXG — that is able to transmit 8K resolutions at 60Hz. Available in variants with up to four video channels, the DP1.2-VisionXG uses optical fibres for dedicated transmission of signals, thus providing sufficient bandwidth for high-resolution DisplayPort 1.2 video signals, keyboard/mouse, RS232, USB2.0 and audio.

Over at the sonoVTS booth, the Munich-based systems integrator (SI) shared some insights about the company's recent outside broadcast (OB) truck project for Swiss broadcast service provider tpc. Dubbed UHD1, the IP OB truck is designed to support uncompressed HD and 4K/UHD signals over IP based on the SMPTE ST 2110 standard.

Tobias Kronenwett, head of business development for sonoVTS, commented: "Almost everything is different in an IP world. Although the general work-

spaces within the truck are somewhat similar, the infrastructure required for an IP-based workflow is radically different.

"It's challenging to plan such a truck because the planning necessarily runs ahead of the technology, but the technology is changing, too, and sometimes goes in a different direction, which may require the planning to be revised, or completely changed."

Additionally, the SI also introduced a remote control app for its HDQLINE of broadcast displays. The control app is a graphics-orientated tool that controls all parameters on individual displays, as well as pre-defined groups of monitors in a larger system or OB van. Using the app, display walls can be created by dragging and dropping application icons into a layout to provide an overview of the settings of each monitor.

Another SI at the show is Megahertz, who has been tasked to deliver more than 25 newsgathering OB vehicles to a European broadcaster. Designed to combine VSAT (very small aperture terminal) satellite-based IP connections that can be switched between Ku- and Ka-band, the OB truck is fitted with bonded cellular



Following the announcement of the integration of HDR10+ support in its solutions, Bryce Button, director, product marketing, AJA Video Systems, affirmed the company's commitment in moving parallel with where the media industry is heading.

connectivity via a 3G/4G cellular roof-mounted IP connection, creating its own Wi-Fi network and the option to be powered while the vehicle is in motion.

Robert Stopford, sales director for Megahertz, said: "IP is taking off, but a widespread roll-out is hindered by questions over standards and latency issues. Nonetheless, we're seeing more IP solutions being implemented in the news environment

for remote production, especially in the UK."

Also enhancing satellite newsgathering (SNG) connectivity through IP is Newtec, a manufacturer of equipment for satellite communications. Its Newtec Dialog solution allows operators and service providers to leverage the advantages brought forth by IP, and offers a variety of services in a single platform. The platform, which combines the Mx-DMA

return technology, allows satellite links to "dynamically scale" to higher bandwidths when terrestrial bandwidth becomes congested.

Another highlight at the Newtec booth is the MCX7000 multi-carrier satellite gateway, which supports DVB-S2X and Channel Bonding. Kerstin Roost, director, strategic marketing and public relations, Newtec, said: "Consumer expectations are increased by the widespread availability of 4K/UHD TV sets. And as more programmes are now available in 4K/UHD, the higher bitrates required to deliver this service mean increased efficiency gains will be crucial."

Channel Bonding is one such method of optimisation, Roost pointed out. Using the DVB-S2X transmission standard to split a transport stream into two or three parts over the satellite and recomposing it on the receive side allow multiple carriers to be combined into one, to manage the rigours of 4K/UHD transmission.

For Caton Technology, the company provided a taste of Asia by screening live TV feeds from Singapore, Beijing and Taiwan through the Caton engine. "We have been developing IP-based transmission technologies for the past six years," said Eric Hamilton, COO, Caton Technology. "IP-based distribution is becoming more and more common as more broadcasters see the need to consider IP."

Caton Technology's solutions to power open Internet broadcasting include the IVP-300 integrated video processor, a broadcast and transmission platform; and the R2TP, a distribution server designed for Internet video transmission.

Lynx Technik highlighted its 12G-SDI portfolio that is optimised



Commenting on UHD1, the IP OB truck sonoVTS designed for Switzerland broadcast service provider tpc, Tobias Kronenwett of sonoVTS, highlighted: "Although the general workspaces within the truck are somewhat similar, the infrastructure required for an IP-based workflow is radically different."



IP is not new to Caton Technology, who has been developing IP-based transmission technologies for the past six years, according to Eric Hamilton, COO, Caton Technology.

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for 4K/UHD broadcast applications and video processing.

Highlighting the company's offerings is the greenMachine Titan, which accepts either 4x 3G-SDI (quad-link) or 12-SDI (single-link) inputs. Users can also use greenMachine apps to convert between single-link and quad-link 12G-SDI signals. For Lynx Technik's highly recognisable yellobrik series, the new DVD 1417 universal 12G-SDI reclocking distribution amplifier is suitable for SDI video up to 12G for carrying 4K/UHD video on a single cable.

For those preferring IP over SDI, Lynx Technik also demonstrated how its greenMachine platform can support an IP-based infrastructure over the SMPTE ST 2022-6/7 and SMPTE ST 2110 standards.

Moving in parallel with where the media industry is going is AJA Video Systems, who has released a new v2.0 firmware for the Ki Pro Ultra Plus multi-channel HD recorder and 4K/UHD/2K/HD recorder and player. The new update adds support for the latest high dynamic range (HDR) formats with hybrid log-gamma (HLG) and HDR10 playback, alongside enhanced capabilities, such as recording and playing ProRes 4444 XQ up to 2K60p.

AJA Video Systems also exhibit-

ed FS-HDR, a 1RU converter/frame synchroniser, which is designed to meet the HDR and wide colour gamut (WCG) needs of broadcast, over-the-top (OTT), post and live event A/V environments. Developed in partnership with Colorfront, the FS-HDR's HDR/WCG functionality is powered by Colorfront Engine video processing algorithms.

AJA Video Systems also announced HDR10+ SDK support for its KONA 4, lo 4K, lo 4K Plus, and Corvid 4K developer cards. HDR10+, enhanced from HDR10, delivers dynamic metadata and more, allowing for scene-by-scene or even shot-by-shot variation. ARRI is one company who has been integrating HDR support across all its cameras since 2010. The company has released an Amira SUP 5.0 software update that further enhances the Multicam mode.

Available across all Amira models, the Multicam mode provides the image quality of ARRI's Alev III sensor — also used by Alexa — to power productions within the multi-camera broadcast sphere. Through a Multicam set-up, the Amira's dynamic range and colourimetry are capable of capturing a cinematic look for live broadcasts, music concerts, TV series and



Augustine Cheung, senior sales manager, Hong Kong and South-east Asia, ARRI Asia: "With 100 years of experience, ARRI is a leading manufacturer specialising in professional motion picture equipment ... This spirit, I am confident, would bring ourselves forward in another 100 years."

other multi-camera productions.

This year, ARRI is marking a significant milestone as the company celebrates its centennial birthday with numerous celebrations taking place across the globe, from Germany to Amsterdam.

Augustine Cheung, senior sales

manager, Hong Kong and South-east Asia, ARRI Asia, said: "With 100 years of experience, ARRI is a leading manufacturer specialising in professional motion picture equipment. We have endeavoured to bring unsurpassed image quality to the entertainment industry

for all segments. This spirit, I am confident, would bring ourselves forward in another 100 years."

Another company who demonstrated its HDR-equipped camera is Datavideo, a Taipei-based manufacturer of equipment for the broadcast, A/V and live production environments. Datavideo's Night Hawk series of cameras are equipped with a 4/3-inch CMOS sensor, and HDR with sensitivity settings that are designed to capture shadows and highlights in detail.

Available in two versions — NH-10 with HDMI outputs and NH-20 with SDI outputs — the Night Hawk cameras are integrated with real-time messaging protocol (RTMP) streaming over 4G networks, enabling users to stream directly to their choice of content delivery network (CDN).

Going "beyond definition" is Sony, who exhibited the UHC-8300 8K camera system. Equipped with three 1.25-inch 8K sensors, the UHC-8300 is capable of managing all the features necessary for "premium" productions, including live broadcasts, entertainment and documentaries. Its 8K 120p capture format delivers high-resolution footage within a deep depth of field and wide dynamic range for HDR footage for both S-Log3 and

▶▶ 16



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Broadcast India 2017 - Booth A.115

Cine Equipment introduces the World's first true all-in-one digitizer for film archives. Transform film archive asset monetization with Artificial Intelligence

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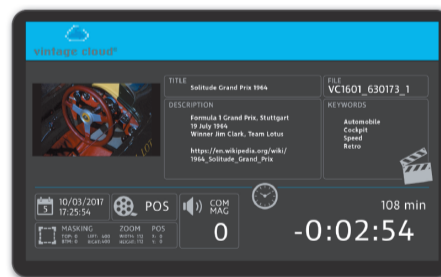


Vintage Cloud Steenbeck is the only system capable of digitizing separate image and audio at the same time at up to 4K resolution and up to 60 fps.

As such it is 3-5 times less costly per digitized

hour than other systems while delivering unprecedented image quality. It can also analyse the picture quality of a scanned film master or proxy to check for out of focus, dust/dirt level and film grain noise level, using 3rd party software Vidercert. Recognizing the nature of much archive material, Vintage Cloud Steenbeck is highly tolerant of broken perforations, fragile splices, warped and brittle film, and is also capable of handling shrunken film via a special capstan sprocket.

The system boasts a tactile, no nonsense interface giving you quick and intuitive access to what matters. Save a lot of time and money by investing in a Vintage Cloud Steenbeck digitization system.



Detects faces, concepts, written and spoken word

Smart Indexing uses AI and machine learning to dramatically increase the speed and precision with which metadata can be included within the asset – giving it substantially more value. Using a keyframe every three seconds, Smart Indexing is capable of delivering a tagging result in a fraction of a second. AI allows Smart Indexing to automatically recognize over 11,000 objects, scenes and events with an accuracy that is equal to, or better, than that of a human.

More than that: it can even recognize faces (including emotions portrayed by those faces). Smart Indexing can distinguish "known" faces, or the user can add names to faces and those faces, with their associated data, are added to the Smart Indexing database such that they are automatically recognizable in other assets.

It also automatically searches for a Wikipedia file related to the film title and links to it. In addition, it includes an advanced speech-to-text capability, providing an immediate transcript of the audio which becomes part of the asset's new searchable metadata. Smart Indexing is available integrated with the Vintage Cloud Steenbeck digitizer, or as a standalone solution that can import and enhance metadata from archives that have already been digitized.



Newsroom components and updates highlighted and demonstrated at the show

15 ►►

HLG, supporting ITU-R BT.2020 colour space.

Sony also debuted Venice to the European market. The full-frame digital motion picture camera system is designed to expand filmmakers' creative freedom through "large-format, full-frame image capture of filmic imagery with natural skin tones and expressive dark areas".

Hiroyuki Takahama, assistant general manager, content creation solutions marketing, professional solutions company (PSAP), Sony Corporation of Hong Kong, elaborated: "Sony pioneers digital motion picture production technology with the first 24p digital camera system, HDW-F900; the first RGB recording systems, HDC-F950 and SRW-1; and the Super 35mm image sensor camera, the F35.

"Venice, the latest addition to the CineAlta family, demonstrates Sony's commitment for innovation and creative freedom for feature filmmaking and drama productions."

At the ChyronHego booth, the company showcased an integration of its Silver robotic camera head with the RoboRail straight camera rail system from Mo-Sys Engineering. Together, the two companies' products form a "complete" solution for camera tracking of augmented reality (AR) graphics and virtual set in news broadcasting.

Silver is part of ChyronHego's family of virtual studio and AR tracking solutions that provide camera motion within 2D or 3D computer-generated backgrounds. Installed on the compact and economic RoboRail, and mounted

vertically or horizontally on a wall, ceiling or floor, the camera rail system simplifies news production and enlivens an anchor's newscasts with AR graphics, said the company.

ChyronHego also announced that its TRACAB image-based tracking system has been chosen as one of the technologies in Microsoft's Sports Performance Platform — a "Microsoft Garage" project. Using TRACAB's tracking and image-processing technologies to determine the position of all-moving objects in the field of play, data can be streamed in an open format to a multitude of virtualised platforms, such as broadcast graphic systems, and online or mobile platforms.

Meanwhile, Vizrt is building "The newsroom of the future" with the Viz Pilot, a template-based system for journalists to create, manage and deliver high volumes of top-quality content. Its newsroom component integrates with major newsroom systems, including Dalet, ENPS, iNews, Octopus and OpenMedia.

Other highlights from Vizrt include Viz Story 1.3, which aims to provide the best audio tools for controlling and editing multiple audio channels; and Viz Eclipse, a tool that allows sports rights holders and broadcasters to virtually replace field-side advertising boards. Initially focused on football, Viz Eclipse has been rolled out for the 2017-2018 football season in Europe.

IBC2017 was a first for Masstech Innovations, a new entity born from the merger of Masstech and SGL. Marking the debut with good news, Masstech Innovations announced that it has recently sold a number of archive and asset

management systems to five new customers.

These include the University of Arkansas, Lawrence Livermore National Laboratory, Russian film studio MosFilm, the American University in Cairo and Dinamalar, a news organisation in Chennai, India.

And it is Asia which is moving faster than any other regions when it comes to technology adoption, suggested Mike Palmer, CTO, Masstech Innovations. The merger of Masstech and SGL, he added, allows the companies to draw on each's area of strength to address not only the increasingly complicated media asset management (MAM) needs of their customers, but also to help those moving their key media assets into the cloud.

A year ago, two companies — Dell and EMC — came together and formed Dell EMC. At IBC2017, Dell EMC presented the Isilon All Flash Array, which is aimed at creating, managing and delivering content.

For instance, the Dell EMC Isilon F800 all-flash NAS storage, powered by the OneFS operating system, is designed for computing, media and entertainment 4K/UHD streaming, and interactive analytics workloads. Each Isilon F800 chassis houses 60 SSDs (solid-state drives) with a capacity of choice, with storage ranging from 96TB to 924TB per chassis.

As more media content is now being created, the demand for more data storage is growing. Thus, it is vital for media companies to utilise high-volume storage solutions to archive their content, according to a LTO Program spokesperson.

Jointly formed by Hewlett Packard Enterprise (HPE), IBM

media industry's
major provider of
giving valuable
sets.



When it comes to technology innovation, Asia is possibly moving faster than other regions, suggested Mike Palmer, CTO of Masstech Innovations. The company was exhibiting for the first time as a new entity born from the merger of Masstech and SGL.

and Quantum, the LTO Program highlighted the Linear Tape File System (LTFS), which simplifies the viewing and accessing of tape files. With LTFS, one partition holds the content and the other stores the content's index, allowing the tape to improve archive management.

With the operating system's graphical file manager and directory tree, utilising data on an LTO Ultrium tape cartridge "is as easy as dragging and dropping the file", according to the LTO Program.

Over at the Interra Systems booth, the company showcased the hybrid capabilities of its Baton QC solution. Already supporting a variety of languages, Baton is further enhanced with audio language detection. The enhancement allows Baton to be equipped with multi-language detection capability for subtitles and closed caption files, as well as new multi-language

checks of audio tracks. Baton also supports new codec and formats such as IMF App2 Extended, iTunes Subtitle, CineCanvas Subtitles, and Kodak Cineon.

Alongside Baton, Interra Systems demonstrated its Orion monitoring solutions family. Orion-OTT is a software-based OTT solution for monitoring of adaptive bitrate (ABR) content for multi-screen service delivery over networks. In addition, the company announced that it has entered into a partnership with Verimatrix to improve QoS and QoE for digital video content.

Under the partnership, Interra Systems' Orion content monitoring suite will be integrated with Verimatrix's ViewRight Web security client solution, hence empowering users to deliver their content in a more secured manner.

Anupama Anantharaman, director, product marketing and sales, Interra Systems, elaborated: "We are truly excited to be partnering with Verimatrix. We expect operators that are using the Verimatrix DRM solutions to benefit from this partnership as well. In fact, we already have a broadcaster in Malaysia that has deployed our combined solution for delivering live channels and video-on-demand (VoD) content."

For Verimatrix, the company is expanding its entry into the Internet of Things (IoT) space with the launch of Vtegrity, a cloud-based solution that offers advanced security regime for connected devices and IoT applications throughout their lifecycle. Vtegrity provides the elements to secure the device software, device communications and proactive threat detection that are essential to protect IoT-based revenue streams, said Verimatrix.

Following the acquisition of



Pham Quang Chi, product marketing manager, Asia-Pacific, Datavideo Technologies, presenting the Night Hawk camera, which is equipped with a 4/3-inch CMOS sensor, and HDR capabilities.



Straker Coniglio (left), VP, media asset management, Vizrt, and Veggard Elgesem, product manager, APAC, studio automation, Vizrt, explaining why Vizrt is continuing to help produce compelling sports content. For instance, the Vizrt Multiplay solution gives media companies a simple way to control studio screen content from a single interface.



USE OUR DATA INTELLIGENCE TO
CHART
A COURSE FOR REVENUE SECURITY



Steve Christian, senior vice-president of marketing at Verimatrix, said that the launch of Vtegrity cloud-based solution marks Verimatrix's official entrance into the IoT space.

Genius Digital earlier this year, Verimatrix has integrated a new optional component for the Verspective Operator Analytics platform — Verspective RT. This device-level analytics tool provides video service providers with information about the subscriber experience and service perception on both managed and unmanaged networks.

Verspective RT can be deployed as a standalone option, or as the front-end for client and network collection within the broader Verspective Operator Analytics solution. Supporting a 360-degree view of subscriber and device data using a common data model within a multi-platform and multi-network delivery system, this unified approach can also be used to overcome data fragmentation and silos across video services organisations.

To MediaGeniX, VoD or linear is neither a question nor a problem, as the company offers a toolset that caters for both delivery platforms. Gerrit Cornelis, business consultant at MediaGeniX, said: "This era is no

longer about filling linear channels with content, or about offering as many titles as possible on VoD services. It is about generating added value throughout the content's lifecycle."

To provide media operators with a "flexible and integrated" content, rights and scheduling system, MediaGeniX developed the WHATS'On broadcast management platform that is built up from integrated modules. Together, WHATS'On manages the flow of content as it moves from initial concept in the long-term plan to fully-prepared and formatted material — complete with promos and secondary events — allocated to diverse linear channels and VoD services.

Cornelis continued: "A content-centric business model will shape the future. But this business model is only viable to the extent that operators can efficiently combine platforms and devices, offer content while managing the rights down to extract level and establishing workflows to deliver the content in the right format to the various publication systems, in accordance with the applicable standards and requirements."

At the Verizon Digital Media Services booth, the company demonstrated Smartplay, a session-management system powered by Verizon technology. Smartplay enables content owners to obtain insights while creating monetisation strategies for their content. Besides offering subscribers insights, the technology also provides delivery, advertising, programming, discovery and protection by generating data for each user.

Another solution that Verizon Digital Media Services highlighted was the Volicon Media Intelligence Service. Designed for OTT content delivery, the Volicon Media Intelligence Service combines digital media transformation workflows from broadcast and OTT delivery, thus reducing the cost and complexity of multi-platform delivery.

According to Verizon Digital Media Services, the Volicon Media Intelligence Service has been deployed at more than a thousand broadcast locations worldwide, for recording broadcast content across interfaces — including SDI, transport stream and analogue — for the purpose of monitoring, compliance and review.

Additionally, the solution is integrated with the Slicer application, part of the Uplynk Video Streaming service, to empower broadcasters with the ability to ingest video, encode it into multiple bitrate profiles, encrypt it, and distribute it via OTT or VoD services, as well as through Web and social media sharing platforms.

— Additional reporting from Shawn Liew



WHATS'ON



What's on in the mind of MediaGeniX's Gerrit Cornelis? It is basically MediaGeniX's WHATS'On broadcast management platform, which manages the flow of content throughout the entire content lifecycle.

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-  Reliability
-  Sustainability
-  Scalability
-  Versatility



Unleashing the digital opportunities in the Philippines' media landscape

BY JOSEPHINE TAN

MANILA – As of end-2014, TV penetration stood at 76% in the Philippines, which is equivalent to 17.1 million households with TV sets, according to the Philippine Statistics Authority.

While the media landscape may represent a market set for growth, digitisation means the Philippines, like other growing markets, is facing challenges, said Christopher Slaughter, CEO of CASBAA.

Speaking at the CASBAA Philippines in View 2017 conference held in Manila last August, Slaughter explained: "Driven by new technologies, easy access to online video content and changing viewership habits are some of the issues media operators today have to address.

"And with its unique geographical features and peculiarity in content consumption, alongside the satellite industry's expansion into the mobile broadband environment and accurate audience measurement, all these are playing a key role in developing a healthy ecosystem for the pay-TV and broadcast industries in the Philippines."

Carlo Katigbak, president and CEO of ABS-CBN Corporation, agreed with Slaughter's point on the rise of online viewing, and reinforced that online viewing is a "great opportunity" for media operators to broaden their reach. He elaborated: "Although our subscriber base remains strong, we're also seeing our viewers being engaged in multiple services. For instance, besides being pay-TV subscribers, viewers are also accessing content from other over-the-top (OTT) services."

ABS-CBN, a Philippine media and entertainment group, has been moving its content to online platforms, in order to cater



With more OTT players entering the Philippines market, Carlo Katigbak, president and CEO of ABS-CBN Corporation, appealed to regulators and associations to revise the regulatory environment surrounding the broadcast industry.



The CASBAA Philippines in View 2017 conference, which was held in Manila in August, discussed the country's role as a continuing growth market for digital video in all its formats.



Jane Jimenez-Basas (extreme right), president and CEO of Cignal, revealed that the company is now the largest pay-TV operator in the Philippines, with a 1.6 million subscriber count as of end-2016.



Mark Lay (extreme right), vice-president, Singapore, CASBAA, with his line-up of speakers from the OTT space — including HOOQ, iflix and Viu — as well as cable TV operator Sky Cable.

to viewers who prefer watching video-on-demand (VoD), Katigbak shared. "We're also thinking about creating content specifically for digital platforms. This is not just repurposing the content, which we've already created for TV or movies, and shifting them online. It's really about creating creative content that is designed to be distributed on digital platforms."

And with multiple OTT players entering the Philippine market in the past several years, Katigbak urged both industry regulators and associations to revise the regulatory environment surrounding the broadcast industry. "Traditional TV is still a heavily regulated industry, but both distributors of pirated content and OTT providers are operating with less restrictions, including foreign ownership. It is time to think about whether

regulations for pay-TV are out-of-date, and need to be revised," he concluded.

Supporting Katigbak's appeal was Jane Jimenez-Basas, president and CEO of Cignal TV, who suggested that pay-TV is capable of achieving further success if regulators were to take the opportunity to level the playing field. She continued: "When it comes to content, we can't be as ambitious as OTT service providers because we are subjected to stricter regulations.

"There is a real need for regulators to review what are now dated regulatory rules. Right now, OTT providers are enjoying a free ride, but eventually the regulators will catch up."

Direct-to-home (DTH) player Cignal TV, who overtook Sky Cable in 2015 to become the largest pay-TV operator in the Philippines by

volume of subscriber, has attained a 1.6 million subscriber count as of end-2016, Jimenez-Basas revealed. As part of Philippine telco PLDT, Cignal TV markets its services with other relevant PLDT brands such as PLDT Home and Smart to sell bundled packages with DTH and IPTV solutions.

Calling OTT the third wave of TV, Mark Lay, vice-president, Singapore, CASBAA, commented that the combination of broadband and mobile devices has brought TV into a "whole new era", and asked his panellists — comprising speakers from Viu, iflix, Sky Cable and HOOQ — to share about the role and focus of mobile devices in their business.

"Over 80% of consuming time is via mobile devices," said Sheila Paul, head of marketing for HOOQ. "Initially, we tried to balance be-

tween desktop and mobile, but we noticed usage was weighted towards mobile, so we redeveloped our product and relaunched it last year. Moving forward, we foresee growth of mobile viewing on a Wi-Fi connection, as broadband penetration is getting better and more affordable."

With consumer power continuing to grow, the market "is getting more affluent" as viewers might be subscribing to more than one service, Paul elaborated. Hence, there is definitely space for operators to grab a share of their viewers' attention throughout the day, she predicted.

Another mode of video consumption is via mobile data, which Philippine telco Globe Telecom has been delivering since 2012. Nikko Acosta, senior vice-president, content business, Globe Telecom, com-

An APB Special Publication

broadcast technology

DEC 2017

To participate contact:

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Nikko Acosta, senior vice-president, content business, Globe Telecom, stressed the importance of enhancing mobile and wireless broadband infrastructures as consumers' lifestyle will be more digitally connected in the future.



Virat Patel, managing director of Pioneer Consulting Asia, and author of the CASBAA Philippines in View 2017 Market Report, pointed out that broadband will be the key driver in moving the Philippine media industry forward.



Both Stuart Jamieson (extreme left), managing director, South-east Asia emerging market cluster, Nielsen; and Nick Burfitt (centre), managing director, Asia-Pacific, Kantar Media, agreed that audience measurement has to include the measurement of online video consumption.

mented that the digital lifestyle of a Globe subscriber, both at home and on mobile, is now shifting along with the waves of data.

Mobile data has always been one of Globe's core businesses, he highlighted, and the wave of mobile data enables consumers to access the services and media content at their convenience, thus complementing their consumption habits.

He also revealed that the company has started to commercialise creative products and experiences that are data-related, and has been establishing strategic partnerships in order to enhance the overall "digital, connected lifestyle" for Globe's subscribers.

As broadband services are currently being rolled out across the Philippines, Acosta declared that "broadband will be the blue sky for everyone to tap into" going forward. He explained: "In the future, consumers will be demanding services anytime and anywhere,

regardless if it is on mobile or on home-sharing devices. Thus, the investments to accelerate mobile and wireless broadband infrastructures must be in place, to enable us to better serve our customers."

Acknowledging Acosta's point about the growth in broadband services, Virat Patel, managing director of Pioneer Consulting Asia, who also authored the *CASBAA Philippines in View 2017 Market Report*, pointed out that the fast-evolving business environment for pay-TV and broadband video is no longer being driven by standalone pay-TV services.

According to Patel's report, 75% of new video connections within the Philippines are for broadband alone, or broadband bundled with pay-TV, with room for growth as traditional pay-TV services retain a penetration rate of just 14% of all TV households.

Patel continued: "Apart from the larger players who have been selling broadband services

aggressively, we found out that some members of the PCTA (the Philippine Cable TV Association) in the provinces were selling more broadband than pay-TV, to the extend where TV is even bundled in for free. Therefore, it is broadband driving the market forward, instead of TV.

"And with the combination forces of 3G, 4G and 5G, as well as fixed broadband increasingly moving into fibre, there will be many more broadband connections than pay-TV. We definitely see significant growth in broadband, and with government and operator initiatives, the roll-out of fixed broadband is going to be more aggressive."

The consumer experience was highlighted in the *Looking to the Future Revenue: Advertising Viewing and Measurement* panel, with representatives from Kantar Media and Nielsen who both emphasised their companies' work towards including measurement of

online video consumption. Stuart Jamieson, managing director of Nielsen's emerging markets South-east Asia cluster, said: "The challenge with the industry is to rethink the way of using data, the types of data obtained, and look at them in a different perspective.

"Having silo measurements does not work, and create internal competition for resources. Media companies need to start looking at what Nielsen calls Total Audience to understand their audience, identify who they are, what they like, and how they interact with content — everywhere across all platforms."

While the journey of digitisation is a natural progression for the broadcast industry, Jamieson commented that the Philippines is one of the few markets where Nielsen have not seen "great deal of loss of viewing to digital", unlike some of the more developed markets where there is significant reduction in linear viewing.

"It's about embracing digital services and platforms, instead of viewing them as a competition," he added. "The Philippines is going to see more mobile consumption from the younger population, and

the speed of getting content into the country is going to be much faster. Hence, it's time for traditional players to embrace digital offerings, and make a new distinction of their service."

Declaring the Philippines in View 2017 conference a success, CASBAA's Slaughter concluded: "As part of our 'in View' series, which we've been doing for several years, we go into a particular market to look at as many different aspects of the market as we can. It is also an opportunity for media companies to take a closer look and really dive deep into one specific market.

"For instance, telcos such as Globe Telecom have been in the media space for quite some time, and they have set up IPTV and other services that go along with their broadband and data services.

"With Globe's venture into media content, it is a recognition that smartphone penetration is accelerating. This also supports the fact that 3G and 4G services are perfect for the transmission of video and streaming media, hence acknowledging the changing consumer preferences of how they want to consume their video content."

White Paper @ www.apb-news.com

❖ OTT video commerce in APAC – projections, challenges and opportunities

Asia-Pacific is on the verge of a tipping point for subscription video-on-demand (SVoD) with Netflix's launch helping to raise consumer awareness and stimulate increased investment among local telcos, pay-TV operators, broadcasters and over-the-top (OTT) businesses. Premium online video activity is ramping up across the region, as enterprises look to capture share in a fast-growing, increasingly crowded market.

This eBook from Cleeng will set out the statistics pointing to OTT's growth in APAC and the leading role SVoD is taking in driving premium OTT paid services. It will highlight the market's complexities and the key challenges facing international SVoD players.

2017

Calendar of Events

■ OCTOBER

October 10 - 12
APSCC 2017
Intercontinental Tokyo Bay, Japan
www.apsc.or.kr/sub3.asp

October 10 - 12
IEEE BROADCAST SYMPOSIUM (BTS)
Keybridge Marriott Arlington, VA, USA
www.bts.ieee.org/

October 12 - 14
BROADCAST INDIA 2017
Bombay Exhibition Centre Goregaon, Mumbai, India
www.broadcastindiashow.com

October 25 - 27
BROADCAST INDONESIA 2017
The Jakarta International Expo, Kemayoran, Indonesia
www.broadcast-indonesia.com/

■ NOVEMBER

November 6 - 8
CASBAA CONVENTION 2017
Studio City, Macau
www.casbaa.com

November 15 - 17
INTER BEE 2017
Makuhari Messe, Tokyo, Japan
www.inter-bee.com

November 30 - December 1
IABM ANNUAL INTERNATIONAL BUSINESS CONFERENCE & AWARDS 2017
Radisson Blu Edwardian Hotel, Heathrow, London, UK
www.theiabm.org

2018

■ JANUARY

January 14 - 15
CABSAT 2018
Dubai World Trade Center
www.cabsat.com

■ FEBRUARY

February 27 - March 1
BVE 2018
Excel London, UK
www.bvexpo.com

■ MARCH

March 5 - 8
ABU DIGITAL BROADCASTING SYMPOSIUM 2018
Malaysia
www.abu.org.my

■ APRIL

April 5 - 7
VIETNAM INT'L BROADCAST & AV SHOW (VIBA 2018)
Hanoi International Exhibition Center, Vietnam
www.vibashow.com

April 7 - 12
NAB SHOW 2018
Las Vegas, Nevada, USA
www.nabshow.com

■ MAY

May 15 - 18
KOBA 2018
COEX Exhibition Centre, Seoul, South Korea
www.kobashow.com

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CREATION



Orban iMix products offer multi-channel audio

Orban has debuted two products for stereo synthesis and surround sound upmixing. The iMix Mono2Stereo synthesiser, developed with sports mixing in mind, uses a proprietary algorithm to produce an artifact-free, wide soundstage with spectrally balanced audio from mono content. The iMix 257 surround audio decoder uses a patented DSX sound algorithm to upmix stereo audio to 5.1 and 7.1 surround for gaming, film, live sports and TV productions.

Core SWX provides more battery power



Core SWX's Hypercore 9 Mini (HC9 Mini) battery is now shipping worldwide. A 98Wh (14.8V) battery with a 12A load, the HC9 Mini measures at 3.54" x 4.65" x 1.9" (.09m x .12m x .05m) and weighs 1.9 lbs (861.8g). Described by Core SWX as the "perfect solution" for lighter and more mobile camera set-ups, the HC9 Mini is equipped with a LED backlit runtime LCD on the front of the battery pack. This identifies how much battery time is left when in use, and the remaining charge time while connected to a charger.

Next Month @ Creation

Power, Lighting and Camera Support Systems

PANELLISTS



Dr Ahmad Zaki Mohd Salleh
Group GM, Engineering
Media Prima



Phan Tien Dung
CTO
Vietnam Digital Television



Bernard Anthony
CEO
Cambodian Broadcasting
Services

Bringing images to life with a palette of colours

In the world of video, colour is more than just human visual perception. Using colour, colourists in post production are able to highlight subjects and enhance emotions, thereby conveying a more engaging story.

Josephine Tan writes more.

In Van William's music video *Revolution*, which features Swedish folk duo *First Aid Kit*, the songwriter-performer tells the story of a relationship full of conflict and its eventual demise.

With a focus on composing moving portraits of the artists that express the meaning behind the lyrics of the song as they go through an emotional journey individually and collectively, director Grant James delivered a variety of "raw and striking imagery that balances the fine line between cinematography while keeping the subjects grounded in their own natural aesthetic and realism".

Produced by Los Angeles-based media company Milk Films, the music video is presented in black and white to emphasise the photography and story as much as possible. For this project, director of photography (DoP) Vance Burberry used Blackmagic Design's URSA Mini Pro digital film camera, and Video Assist 4K monitor/recorder to film the music video.

"We wanted the look to evolve as the story progressed, so it was essential

to have strong photographic images to work with, which is why I chose the URSA Mini Pro," says Burberry. "The camera's 15 stops of dynamic range really shone in greyscale, providing a wide gamma of dynamic range in deep shadows and blacks through to over-exposed edges, which roll off very film-like with the URSA Mini Pro."

In post, Burberry graded the music video using DaVinci Resolve Studio, and the DaVinci Resolve Mini Panel to enhance the theme. He explains: "The video starts out with a clean look, and as the story is told, the artists' hair gets messier, and they're screaming and crying. By the end, they look terrible in a beautiful way.

"I started off less contrasty and open in the mid-tones, and as the song intensified, I decreased the mid-tone detail just to soften everything up. I then increased contrast, and darkened up the mid-tone details, as well as pushed the highlights hard. Increased mid-tone detail also brought out the texture of the skin thanks to the detail captured with

the URSA Mini Pro."

When grading black and white using DaVinci Resolve Studio, Burberry points out to APB two different approaches he would take: "First, if I want a straight black and white look with no colour added, I will just go into the RGB mixer and switch to monochrome. Then, I deal primarily with lift, gamma and gain. But I also will work in curves as subtle adjustments to grayscale can be made there.

"The other approach, which I do a lot, is pull back saturation to zero, so I can have a base black-and-white raw image. I will then adjust basic contrast, and again deal with lift, gamma and gain."

Although *Revolution* is presented in black-and-white, Burberry says that he "does not feel restricted" to just black-and-white shades, but views it as a different visual style. When shooting, he adds, it is important to understand the different lighting styles applied to colour compared to black-and-white, while being aware of the tonal range.

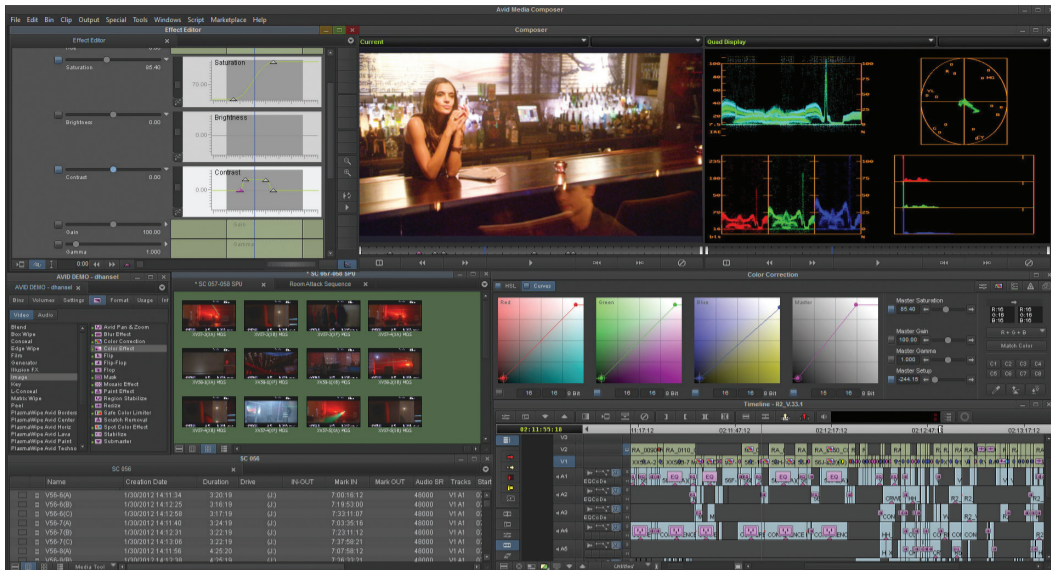
"We really pushed the image, but it stayed beautiful and clean, and DaVinci Resolve Studio's tracker came in handy. It's easy to move, change size, softness and curve," Burberry concludes. "In addition, the DaVinci Resolve Mini Panel made it easy to add nodes, save and recall stills, move back and forth in frames, build Power Windows and more. It's efficient as all the buttons are at my fingertips. It really helps me to be able to complete these projects myself."

In Singapore, terrestrial broadcaster and multimedia network Mediacorp has implemented Avid's Media Composer Symphony Option for colour correcting feature programmes and documentaries such as *Frontline*, *Money Mind*, *Detik*, *On the Red Dot*, *Talking Point* and *Get Real*.

Rizal Raquiza Felix, manager, video editing (current affairs), Mediacorp, says: "Media Composer Symphony Option offers a cost-effective solution for colour correction that gives users a



Presented in black-and-white, the *Revolution* music video by Van William tells the story of a relationship full of conflict and its eventual demise. To enhance the theme of the music video, DoP Vance Burberry used Blackmagic Design's DaVinci Resolve Studio and the DaVinci Resolve Mini Panel for colour grading.



As an add-on to Avid's Media Composer, the Symphony Option is designed to expand users' editorial palette with a host of creative tools. Singapore's Mediacorp, for instance, has implemented the software-based solution for its feature programmes and documentaries.

SGO has developed a multi-dimensional workflow concept and launched solution-based applications using its Mistika technology to enhance post-production workflow efficiency.

greater level of control.

"Another benefit is that users are already familiar with the Media Composer interface, making it easy to learn and use. Features such as Auto Contrast have proven particularly useful, enabling us to complete work more quickly and efficiently."

The Symphony Option is an add-on for Media Composer, and is designed to expand users' editorial palette with a host of creative tools that enable them to correct and grade colour, design visual effects, and master projects. According to Avid, the Symphony Option allows users to stylise shots, set a mood, or correct colour with its advanced colour correction tools, and master projects in the highest quality possible, with delivery to multiple formats from a single master source.

Even though many productions are still broadcast and distributed in HD, content creators are coming to recognise the need to future-proof their work, as the move towards 4K/Ultra HD (UHD) has increased very rapidly over the past few years, suggests Luc Amiot, senior principal product designer, Avid.

He elaborates: "Media watched over mobile devices and traditional HDTV sets share a similar viewing experience. However, with 4K/UHD and high dynamic range (HDR), this experience is further enhanced because of the ability to bring a more realistic feel of the scene's contrast ratio.

"HDR is not only about brighter images; it's also combined with an emphasis on providing more details in the shadow areas, as well as being able to display a wider gamut of colours. This opens up a whole new world of creative possibilities in terms of visual impact to emotionally convey a story."

Declaring that the role of a colourist is now more crucial than ever with these new possibilities, Amiot explains that this is due to the need for colourists to deliver two different graded versions — in standard dynamic range (SDR) and HDR — hence creating a challenge in the post-production workflow.

A number of workflow experimentations, according to Amiot, is ongoing — to find the best approach to create and grade these projects in a creative and efficient way. He continues: "Some colourists prefer to grade first for SDR, as this format is certainly viewed by the largest audience at this time. They then proceed to optimise this grading for HDR, placing emphasis on the low lights and high lights to increase the contrast ratio of the scenes when desired.

"Others prefer to create an HDR version and later focus on producing the SDR version. In all cases, the general idea is to work in a non-destructive fashion so colourists can always go back to the camera originals in order to always have the maximum visual information at their disposal."

However, colour grading is more than just a process of enhancing an image to make it look fantastic or beautiful. It is the process that links all the elements in the production, and gives the final image and media output consistency, says Adrian Gonzalez, product specialist of Mistika, SGO.

From a technical perspective, if the colour looks great, colourists can even mask problems in special effects, he adds. "But from a narrative point of view, colour is critically important because in this industry, the image tells a story, and colour is naturally linked with feelings. Thus, it's a great way to underline a plot, or give depth to the characters."

To enhance post-production workflow efficiencies, SGO has developed a set of solutions using Mistika as a technology. Its current turnkey offering, Mistika Ultima, was developed to advance workflow applications aimed at specific tasks.

"Mistika Ultima was developed based on observing the ineffectiveness of linear workflows," elaborates Geoff Mills, managing director at SGO. "From the development of Mistika Ultima as a flexible and integrated turnkey solution, we have now managed to develop and segment individual solutions that work seamlessly as standalone solutions, or by piecing them together to form a

workflow that aligns with the requirements and flexibility that the end-user needs."

The company has also launched Mistika VR, its VR-focused solution integrated with real-time stitching capabilities using SGO's optical flow technology. With the ability to manage camera position information and sequences, Mistika VR is able to stitch images together using "extensive and intelligent" pre-sets. Furthermore, Mistika VR is equipped with advanced capabilities, alongside an intuitive interface and raw format support.

Although it might be difficult to estimate

if VR will sit within a future of standard viewing or for a general audience, Gonzalez is confident that VR will find space in other areas, such as museums, expositions, commercials and learning opportunities, among others.

Gonzalez concludes: "The problem with VR, at present, is that it requires hardware, and too much isolation to enjoy a fully immersive experience. Nonetheless, the industry is fully focused on VR because it is a new way to tell stories, and that is very important in this industry, which sometimes can be very classical." **APB**

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Colour grading is more than just a process of enhancing an image to make it look fantastic or beautiful. It is the process that links all the elements in the production, and gives the final image and media output consistency.

Sachtler and Vinten's next-gen flowtech tripod supports fast and easy set-up in rugged locations



Audrey Chang is Channel and Customer Marketing director, Asia-Pacific, Vitec Group.

BY AUDREY CHANG

For any on-location shoot, the tripod is the most critical piece of equipment that is often taken for granted, as the operator has more interaction with the camera and fluid head than with the legs supporting the gear. But the tripod's importance cannot be overstated; it is often a major factor in an operator's ability to set up for a shoot as quickly and efficiently as possible.

Luke Thomas, a freelance news and documentary cameraman based in Los Angeles, USA, has plenty of appreciation for tripod technology. Having recently shot a travel show with motoring enthusiasts all around California, he had to stay constantly ahead of the pack and be ready to roll when they arrived, which meant finding and setting up the perfect shot as quickly as possible.

"With so many things to consider on any given shoot, it's important to travel light and fast. My gear should be the last thing to slow me down," he said. "Often, I would only have a matter of minutes to grab my camera and get set up before the convoy of cars rolled into frame. On jobs like that, a fast tripod is everything because as soon as you start wrestling with your tripod, the shot has happened and you missed the moment."

These are the types of

considerations that Sachtler and Vinten took into account when they set out to design their vision of a new evolution in tripod technology. As global innovators in camera supports for more than 100 years, the two companies were looking to literally transform the work of camera operators by thinking through every detail of an on-location shoot.

The result of that joint effort is flowtech, a new carbon-fibre camera tripod technology with unique quick release brakes and easy-adjust levers that enable camera operators to set up and begin using the tripod immediately.

With its fast-deploying legs, versatile height range, and exceptional torsional stiffness, flowtech is designed to simplify and accelerate the workflows of camera operators on any type of broadcast, film, or video project and in every type of remote production environment.

The tripod is designed as a companion for digital cinema cameras such as the Sony PXW-FS7, Blackmagic URSA Mini, and the Canon Mark II.

To qualify flowtech's performance, Sachtler and Vinten put the tripod through a rigorous testing process in punishing environments ranging from sludge and sand to extreme temperatures. After more than 30,000 lab-testing cycles, in which the tripod

was repeatedly deployed, and 1.5 million clamp operations on the test endurance rig, the companies determined that flowtech exceeded the stringent performance targets for both the Sachtler and Vinten brands.

Luke Thomas was on the team that field-tested the new tripod technology. He commented: "Clearly, Sachtler and Vinten put a lot of thought into flowtech — they looked at the fundamental ways tripods are used and came up with a solution that will greatly improve camera operators' workflows. It is unusual to see this amount of innovation in one tripod."

flowtech combines the speed and portability of a Sachtler tripod with the torsional rigidity of a Vinten product. This exceptional torsional stiffness ensures that the tripod will not twist during camera panning movements, an extremely important consideration in all motion picture productions. Lightweight and easy to transport, the tripod is specifically designed to be carried comfortably on the camera operator's shoulder, with magnetic locks ensuring that the tripod legs are stable during transport.

Another early adopter of flowtech is filmmaker David Spurdens, who has lived and worked in the mountainous French Alps for 25 years — making him no stranger to its unforgiving terrain and climate. Shooting a film in

the Tignes Val d'Isère area, Spurdens would have only himself to carry and set up his equipment. After testing the new flowtech tripod, he commented: "It's fantastic for operators like me who don't have assistants. It simplifies how I shoot by cutting the amount of time I need to set up, which can be crucial when weather is closing in and I'm freezing on a glacier. Overall, it's the light weight and speed of use that impressed me.

"It's incredible how simple the tripod is to use. It's light and easy to carry over your shoulder, and deployment is so fast you wonder how you lived without it. I've never seen a product so completely engineered with the user in mind."

The flowtech design offers a set of two-stage carbon-fibre tripod legs with an easy-to-remove mid-level spreader, rubber feet and a payload capacity of 20kg (44 pounds). The quick-release brakes located at the top of the tripod enable all the legs to be deployed simultaneously and adjust automatically to the ground's surface, eliminating the need for operators to bend over or manually adjust multiple brakes on each leg.

The tripod can be deployed as low as 26cm (10in) and as high as 153cm (60in) without the detachable spreader, and between 63cm (25in) to 157cm (62in) with the spreader. A unique hinge-lock mechanism allows users to capture extremely low, ground-level shots removing the need to bring a second set of "baby legs" to each shoot.

Filipe DeAndrade, wildlife videographer and director, put flowtech through its paces on a recent shoot in Costa Rica for an upcoming National Geographic documentary. Shooting in one of the most biodiverse countries on the planet was an exciting challenge for DeAndrade and his team, who travelled through Costa Rica for six months capturing footage of breathtaking landscapes, exotic species and pristine coastlines.

"As conservation filmmakers, we're constantly having to compromise on how much gear we can have with us. But this new tripod is so adaptive, lightweight and durable that we could be more focused on getting the shot without having to worry about the tripod and equipment," he said. "We could drench the flowtech in seawater, climb it up a mountain, or trudge it through a rainforest. And with a single tripod, I was able to film eye level with smaller animals and then get high to film birds in canopies." □

With its "fast-deploying legs, versatile height range, and exceptional torsional stiffness", flowtech is designed to simplify and accelerate the workflows of camera operators on any type of broadcast, film or video project and in every type of remote production environment.



Shotoku Broadcast Systems raises the bar for robotic camera systems

Graphica, a new series of manual virtual and augmented reality (VR/AR) tracked camera cranes, has made its European debut for Shotoku Broadcast Systems at IBC2017.

The result of a partnership between Shotoku and crane manufacturer CamMate, the Graphica series is equipped with the ability to calculate positional data output from embedded physical rotary encoders, which are designed specifically for VR applications. Other features of the Graphica include “jitters-free” operation, external markers and area limitations.

Calling Graphica a “true set-and-forget” system,



Drago Flores, marketing coordinator for Shotoku Broadcast Systems, showed off the Graphica series of VR/AR tracked camera cranes at IBC2017.

Shotoku has further enhanced users’ operation with the SPi-Touch origin reset and two-pint calibration function, features that add another level of convenience for end-users, said the company. Designed for all types of productions, Graphica is available in seven models varying in length to create dynamic camera works, from small studio productions to large outdoor sports events.

Another highlight from Shotoku is the Free-d² Absolute Tracking System, which the company labels as a “next-generation” tracking system, as it eliminates the requirement of encoders being attached to the camera support’s moving axes.

Designed for VR/AR live studio production, the Free-d² system features advanced video processing algorithms and ceiling markers to determine the position and orientation of the studio camera, thus providing “accurate and consistent” position tracking.

The manufacturer of robotic camera systems and camera support equipment also demonstrated new functionalities for the Enhanced ECI Automation Interface for its TR-XT control system, empowering operators to take instant control of their robotic cameras. The system provides an intuitive interface and supports automation through the External Control Interface (ECI), enabling users to quickly recall pre-set camera positions during the live broadcast.

In addition to pre-set shot recall functionality, the new Enhanced ECI also supports full joystick trim control to adjust and restore the pre-sets as necessary, either from the automation system or vision switcher panel. This added level of external control, according to Shotoku, delivers an additional layer of responsiveness.

The Enhanced ECI also provides an interface for facility management and control systems, allowing a TR-XT controller to be reconfigured remotely. For instance, cameras from alternative locations can be mapped to a particular panel during control room reconfiguration.

Zeiss adds metadata technology into its CP.3 XD lenses



Calling the Zeiss eXtended Data a communication tool between lenses and cameras, Dominik Schadevaldt, segment marketing, motion picture, camera lenses, Zeiss, said that the metadata technology is capable of managing lens information, thus enhancing workflow efficiencies during on-set and post production.

Zeiss has expanded its portfolio of camera lenses with the introduction of the Zeiss Compact Prime CP.3 and CP.3 XD lenses. Ranging from 15mm to 135mm, the 10 focal lengths available in both lenses cover full frame from wide-angle to telephoto.

The Zeiss CP.3 series features advanced lens coating, painted lens rims, and light traps within the barrel to eliminate undesirable veiling glare and flares. This, according to Zeiss, allows users to achieve higher contrast, richer blacks and more saturated colours while supporting high dynamic range (HDR) projects.

Particularly for CP.3 XD, the full-frame cinematic lens is equipped with the Zeiss eXtended Data metadata technology to provide information about the lens’ distortion and shading characteristics, thus improving on-set and post-production workflows.

While on-set, the Zeiss eXtended Data enables cinematographers to monitor lens settings and pre-visualise modified images, alongside new automated search functions. In post production, the metadata technology offers benefits such as image fine-tuning, editing and

colour grading, visual effects, virtual and augmented reality (VR/AR), multi-cam live productions, projection and 3D imaging.

Zeiss eXtended Data is currently assigned to two data sets: key lens data — such as focal length, focus distance and iris position — based on open standards and supported by a wide range of cameras and accessories, as well as Zeiss specific lens data that contains information about distortion and shading. Furthermore, the documentation of the lens’ characteristics allows complex shots to be managed in post production.

Dominik Schadevaldt, segment marketing, motion picture, camera lenses, Zeiss, said: “For instance, by using metadata, users are able to modify the image generated on the computer to fit the lens characteristics, and to then splice it together with the footage to create the image.”

In addition, Zeiss has developed a plug-in that enables users to use Zeiss eXtended Data in Blackmagic Design’s DaVinci Resolve video editing software. The software is available for download from Zeiss’ website starting this month.

Sky NZ shoots rugby with Fujinon lenses

The recent Bledisloe Cup rugby match in Dunedin saw Sky New Zealand’s outside broadcasting division (OSB) add to and upgrade both their camera and lens fleet with the purchase of multiple new Fujinon lenses.

Nick Haines, technical manager at Sky New Zealand, explained: “Sky has a long-term commitment to Fujinon products, so when we increased our fleet of Sony cameras with some new HDC-4300s, it was logical to return to Fujinon for their latest lens offerings.”

The lenses Sky New Zealand chose are the Fujinon XA77x9.5 BESM and HA23x7.6BERD lenses, which enhanced the “top quality image” Sky New Zealand was looking for from its new cameras. Haines continued: “The fact that the new cameras are 4K/Ultra HD (UHD)-capable definitely showed up artifacts we had never been able to resolve before. It was quite enlightening to see the difference between the current lenses we had at our disposal and how much

better the new Fujinon lenses were.”

Designed for large venues and sporting events, the XA77x9.5 telephoto field lens is equipped with an optical stabilisation function, while its anti-fogging design minimises lens fogging and reduces downtime due to moisture. It also features a newly developed EBC coating to reduce ghosts and flare, and increase light transmission.

The HA23x7.6BERD is a Premier Series HD telephoto lens for news, sports and other applications requiring increased magnification. It provides a digital servo zoom

and focus for full servo studio control, robotics, jibs, tower cams, teleconferencing and other applications where remote control of zoom, focus and iris via RS-232 serial data or traditional analogue control is desired.

Optional zero backlash gearing and 16-bit encoders are also available for robotics and virtual applications, and remote control of the 2X extender is possible with the optional model ECU-2A remote extender module.



Sky New Zealand used Fujinon lenses to shoot a recent rugby match between Australia and New Zealand.

Postium’s broadcast displays support multiple workflows

Established in 1999, Seoul-based Postium Korea has been developing, engineering and manufacturing LCD rack monitors that are said to be widely used by some of the biggest broadcasting stations and OB vans worldwide. And no matter what format you are working in, Postium has a monitor for all your needs, said Poh Cheng Yong, VP, Sales Asia, Postium Asia, adding: “We offer up to 30 models that cover from HD to 4K/Ultra HD (UHD) to high dynamic range (HDR) to IP.”

The OBM U Series 4K/UHD monitor, for instance, is Postium’s top-of-the-range offering. It incorporates 12G-SDI input and loopout (x2), 3G/HD-SDI input and loopout (x2), HDMI 2.0 input and SFP optical connector. The series also supports the display of HDR footage, and is equipped with a wide colour gamut conforming to DCI-P3 and most of the ITU-R BT.2020 standard. Other features include an integrated 3D LUT, waveform, vector scope, colour space and gamma comparison.



A screen for all your production needs: Poh Cheng Yong, VP, Sales Asia, Postium Asia, was at IBC2017 to demonstrate the capabilities of the company’s OBM U Series of 4K/UHD professional LCD monitors.



Magna appoints new support engineers



Systems integrator Magna Systems and Engineering has strengthened its broadcast and telecommunications service and support divisions with the appointment of Nicholas Tabeta (pictured) and Jay Patel as support engineers for the entire range of products and technology that Magna offers both markets. Tabeta was previously a senior engineer with Strategic Engineering, while Patel was most recently a project coordinator for Cellular Asset Management. Matthew Clemesha, CEO of Magna Systems and Engineering, said: "Nicholas and Jay are great additions to our growing team. They will help provide comprehensive engineering support for our broadcast and telecommunications offerings, and underpin support for our expanding range of broadcast IP solutions."

Magewell ships 4K/UHD video capture USBs

Magewell has released two 4K/Ultra HD (UHD) models to its USB Capture Plus family of plug-and-play, external video capture devices. The 4K/UHD devices enable all types of computers to capture video at resolutions up to 4096x2160 through a standard USB 3.0 interface. Featuring driver-free installation and automatic input detection for true plug-and-play operation, USB Capture Plus is the "easiest and most reliable way" to bring 4K/UHD sources into Windows, Mac or Linux software for live streaming, encoding, collaboration, medical imaging, lecture capture and more, said Magewell.

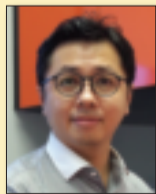
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Today's switchers tackle multi-format production and delivery needs

The DNA of the modern production switcher is built around ensuring that all operational needs are met, regardless of the multiple formats broadcasters find themselves working in today, as **Shawn Liew** discovers.



SAM's Kahuna switcher was recently deployed by the UK's National Theatre for a 4K/Ultra HD HDR production.

Launched in 2009, the UK's National Theatre recently delivered its 60th production in 4K/Ultra HD (UHD) high dynamic range (HDR), a first for the company. A two-part broadcast, *Angels in America* was broadcast live to more than 2,500 cinemas in 60 countries on July 20 and 27 this year.

Christopher Brettnall, technical producer of Creative Broadcast Solutions, the production company in charge of the project, explains: "As this was the 60th production, we decided to shoot it in 4K/UHD and exploit HDR and everything that comes from that."

Working together with outside broadcast company Telegenic, Creative Broadcast Solutions deployed Snell Advanced Media's (SAM) Kahuna production switcher, which now includes HDR capabilities with the recent release of the FormatFusion4 software.

Brettnall elaborates: "Kahuna with FormatFusion4 enabled us to deliver both standard dynamic range (SDR) and HDR, and exploit rec.709 and rec.2020 at the same time. The ability to put in non-4K/UHD content was also very appealing, so we could put anything into the switcher and get what we need out of it."

"The Angels broadcasts were delivered seamlessly through the SAM UHD switcher. Its capabilities ensured that the mixed-format sources were effortlessly integrated into the UHD capture and live broadcast."

With FormatFusion4, the Kahuna now supports the Electrical Optical Transfer Functions (EOTF) for real-time control of Perceptual Quantiser (PQ), real-time control of Hybrid Log Gamma (HLG) and Sony S-Log3 profile. FormatFusion4 also includes colour space support for wide colour gamut (BT709 and BT2020) in formats including 1080i, 1080p and 4K/UHD.

FormatFusion, essentially, was developed to handle the challenges of multi-format production and content delivery, and has allowed Kahuna production switchers to assist the creative production community to manage otherwise incompatible signal and video formats since 2004, says David Tasker, VP systems and technology, SAM.

He tells *APB*: "Our first Kahuna helped content producers effortlessly overcome the hurdles during the transition to HDTV, managing SD signals alongside 720 and 1080 HD ones. This, while also dealing with aspect

KVM switching offers more flexibility and efficiency

Keyboard, video and mouse (KVM) solutions are gaining popularity and visibility across the broadcast and post-production sector, according to Terence Teng, managing director, IHSE APAC.

He explained to APB: "Looking back, perhaps one of the most relevant factors was, in fact, the general change from VGA to DVI and DisplayPort displays. That change not only called for new devices to handle digital KVM extension, but kicked off the rapid development of large-scale, fully-featured, digital KVM switches."

IHSE, for instance, manufactures digital KVM switches that can accommodate between eight and 576 ports in a single unit. These, Teng noted, are "very appealing" to the broadcast sector because they allow all the broadcast devices located in centralised equipment rooms to be accessed from operators' own workstations — regardless of their location.

"This system topology delivers enormous flexibility and efficiency," Teng continued. "It means that operators and editors can access any machine from their own desk, or wherever they choose to work from, and instantly switch between them."

"It also makes their environment quieter and less cluttered, thus yielding greater efficiency. It enables machines to be shared and allocated to users as and when needed, which reduces the number of devices and user licences required."

Live broadcast environments can also benefit greatly from KVM switching solutions, as NEP Australia is finding out. IHSE's Draco tera KVM switch is connected to a vast range of on-board equipment via control interfaces in



IHSE's Draco tera KVM switch is connected to a vast range of on-board equipment via control interfaces in NEP Australia's new 4K/UHD outside broadcast truck.

NEP Australia's new 4K/Ultra HD (UHD) outside broadcast (OB) trucks, allowing operators to connect all computers and devices across all trucks to their individual workstation using simple keyboard commands.

When taking into consideration the layout and operations within an OB van or temporary studio, where there is often no room to add dedicated terminals, the benefits of KVM switching is clear, said Teng. "The ability for producers, editors and engineers to be able to reach and manage any desired device from a single workstation — with a monitor, keyboard and mouse — is a huge benefit."

Another critical point to note, he added, is how KVM switches fit into the workflow, rather than change it. "Other

than removing excess monitors and keyboards to simplify the internal layout, there are not really any adjustments or modifications that need to be done in a live environment," Teng said. "KVM switches enhance flexibility by allowing mobile studios to be configured to meet the task in hand, rather than modify the workflow by imposing restrictions."

KVM switches should also not be seen as a replacement to traditional production switchers, because they do not sit within the traditional broadcast chain or handle broadcast images. Rather, KVM switches manage the devices that are responsible for those images, Teng related.

For instance, IHSE's partnership collaboration with EVS permits EVS server operators to control their devices from any location, while the video streams are handled by the production server as they normally are, without passing through the KVM switch.

Teng, however, was quick to add: "Having said that, the Draco tera compact hybrid switch is capable of switching a few SDI streams in parallel with KVM data connections, which is useful in small configurations such as edit suites in which a live video preview stream is available from an editing tool."

With KVM switching systems in broadcast offering instant switching, zero (or negligible) latency and high quality of image, Teng is convinced they will be here to stay. "The ability to interface the KVM switch to the local broadcast content system is also a major benefit, as this eases the integration process and ensures that the system fits cohesively into the workflow," he concluded.

ratio and colourspace conversion issues with precision in the background."

FormatFusion4, Tasker continues, allows Kahuna switchers to evolve to address new video standards, formats and challenges. New formats, he points out, are often deployed on the highest value content and, thus, it is paramount that creative talent is able to focus 100% on the job of storytelling, without having to concern themselves with the technical issues of bringing all the formats together. "That's where FormatFusion4 continues to uniquely and seamlessly deliver with the utmost precision," says Tasker.

Whether it is a high-profile sporting event or a prime-time news programme, multi-format is typically the name of the game. He explains: "The production switcher is required to accurately stitch together, say, 4K/UHD main stadium cameras, HD studio cameras, relay server feeds, special interest cameras, inserts from yesteryear archives and the rapidly becoming ubiquitous, mobile phone feeds."

"Kahuna, powered by FormatFusion, takes all the thinking and guesswork away from the creative talent, allowing them to focus on what they do best — making great productions for viewers to enjoy."

And while Kahuna production switchers support a pure IP (SMPTE 2022-6/7 and 2110) approach, they also continue to support SDI (3G and 12G), or a



Grass Valley has now shipped more than 100 units of the GV Korona production switcher, which was launched only last year.

hybrid approach of SDI/IP, where input and output ports can be independently configured to meet the precise needs of any given production.

IP is a "great technology" that is able to robustly take over the familiar SDI flowing through coax and BNC connectors, says Tasker. However, he is quick to point out how IP is currently presenting a huge industry-wide learning curve, as standards continue to be developed and practices honed.

More pertinently perhaps, technological evolution and the ensuing challenges do not always align with business needs. Tasker highlights South Korea's hosting of the 2018 Winter Olympics, where the decision had to be made on whether IP or SDI systems should be built. He details: "While the Games are to be originated in 4K/UHD, they determined that IP was still in its infancy and that the

likely engineering and operational challenges were too great for the event, given that the world will be watching.

"The 4K/UHD requirement also drove the decision to adopt SDI-12, thus avoiding the need to provide four 1080p, 3G circuits in place for each and every 4K/UHD signal path."

For Grass Valley, the company recently celebrated the milestone of shipping more than 100 units of the GV Korona production switcher, which was launched only last year.

GV Korona was developed to meet the needs of customers who do small to mid-sized productions, and who need to operate in tight spaces, reveals Tim Walker, product manager, switchers, Grass Valley. Able to work with any GV K-Frame processing engine, including the new K-Frame V-series, GV Korona offers a

built-in colour touchscreen interface that enables operators to work "quickly and intuitively" to produce compelling content for a variety of applications.

For the Fellowship Bible Church in the US, GV Korona checked all the right boxes, as Kirk Meyers, the church's broadcast director, explains: "It has the right balance, and has enough features to do what we need, without being overloaded with functionality that we'll never use."

"GV Korona K-Frame V-series has the small form factor but still provides big production. Plus, being built on the K-Frame brings a scalability for the future as our needs change."

In the live entertainment marketplace, the challenge lies in consistently providing cost-effective, reliable and powerful video solutions that work day after day in some of the most "gruelling, tech-unfriendly environments", according to David Lemmink, director of engineering, Solotech, and audio-visual equipment supplier based in Canada.

"Our track record with Grass Valley's line of analogue and digital switchers made the choice to go with Grass Valley a no-brainer,

especially as the new V-series offers the power of the K-Frame in a cost-effective and compact format, without sacrificing power and functionality."

For TV3 Lithuania, the decision to purchase the GV Korona stemmed from the TV station's search of solutions

to cover the 2018 Winter Olympics. Dalius Kazlauskas, CTO, TV3 Lithuania, says: "We found that the GV Korona K-Frame V-series offers high-end features and functionality with no restrictions, as well as the famous GV ergonomics and modular design, combined with outstanding build quality and a path beyond HD, with 4K and IP interfacing."

Because of its built-in touchscreen menu, M/E status and ability to perform signal conversions inside the switcher, the GV Korona has also offered TV3 Lithuania a new and easy way of working, Kazlauskas adds. "We now have the ability to produce shows with high-end features, including real 3D DVEs, which is unique for video switchers in this price range."

The GV Korona supports SDI and IP, is 3G/4K/UHD-ready, and supports both quad-split and 2SI, as well as HDR with 10-bit processing. GV adds that at only 3RU, the V-series frame is an "ideal complement" to the GV Korona switcher panel, offering "powerful and flexible" production options with a small footprint and modularity for easy field reconfiguration and serviceability. **APB**

Grass Valley's broad portfolio of video switchers makes it easier to produce compelling content



Somu Patil is vice-president of Sales, Asia, Grass Valley.

BY SOMU PATIL

The right production switcher makes it possible for broadcasters to assemble and deliver content that engages viewers and keeps them coming back. Technical directors rely on switchers to control various video sources or combine those feeds in different ways for special effects, making it possible to create a more compelling viewing experience. With all the options on the market today, choosing the best switcher for the job can be a challenge.

The needs of broadcasters and production professionals are changing as more of the workflow takes place either in the field or in remote studios. In many cases, this has driven a need for switching solutions with a smaller footprint or a lower entry cost to supplement the ongoing reliance on high-end switchers in central locations and larger operations.

From live sports and production studios to corporate studios, churches, or universities, switchers play an important role. The family of production switcher panels and frames from Grass Valley, a Belden Brand, is designed to reduce the complexity of today's production workloads while providing flexibility to meet any demands in the future — including 4K/Ultra HD (UHD) productions and IP connectivity.

With the ability to use any switcher panel with any switcher frame for the ultimate in production flexibility and scalability, Grass Valley helps to protect its customers' switcher investments in hardware and in training. Customers who have learnt to use any K-Frame switcher have learnt to use them all. In



According to GV, broadcasters around the world see Grass Valley switchers as the "gold standard", and GV Korona extends that reputation by bringing a much-needed compact option to professionals who work in mobile units or small studios.

addition, broadcasters can even run multiple panels and/or shows off the same frame at the same time.

The K-Frame V-series is the newest addition to the company's family of frames. It is a compact, 3RU frame that extends the flexibility of the Grass Valley K-Frame production switcher product line in price and performance to address the needs of low to mid-range broadcast applications — especially for smaller trucks, venues, installations, mid-tier universities and institutions, and houses of worship. Along with the compact GV Korona panel, the new V-series frame represents a powerful, full-featured switcher that is available at an aggressive list price, boasting a small footprint that is convenient for many applications that simply cannot accommodate larger switchers.

When the K-Frame V-series and GV Korona switcher panel are paired together, this space-efficient solution requires no compromises on enterprise features. It is modular for field reconfiguration and serviceability, which is a true convenience not offered in competitively priced switchers. Its 36x18 matrix supports SD, HD and 4K/UHD in quad split and 2SI modes, and can handle up to three licensed M/Es and two additional video processing engines (VPEs) for added keying and mixing power.

Due to its modularity, it can easily be upgraded to an all-IP or mixed SDI and IP environment in the future. Because it is a full-fledged member of the K-Frame family, the V-series can be used with any GV K-Frame switcher panels, such as Karrera and Kayenne, and requires no training for anyone accustomed to working on Grass Valley K-Frame switchers.

Additionally, shows created in any K-Frame switcher can be saved and shared among other switchers, including the new V-series. This convenience can be leveraged by

The right production switcher makes it possible for broadcasters to assemble and deliver content that engages viewers and keeps them coming back.

customers who may already own a Kayenne or Karrera switcher and would like to share the "look" they have created in a different application.

Choosing a switcher panel also requires a careful analysis of the space and performance needs for the particular application. Building upon the industry-leading production switcher quality and performance for which Grass Valley is known, the new GV Korona offers the same robust feature set as the Kayenne and Karrera Video Production Center switchers, but does so with a smaller, space-efficient control surface.

Available in 1, 2 and 3M/E (stripe) panels, GV Korona can be packaged with the compact K-Frame V-series or K-Frame S-series, although it is compatible with all Grass Valley K-Frames for unlimited flexibility in video production.

Broadcasters around the world see Grass Valley switchers as the "gold standard", and GV Korona extends that reputation by bringing a much-needed compact option to professionals who work in mobile units or small studios. Now, they have access to the legendary performance and creative power in a switcher that

comes at a lower price point and a smaller footprint. And the advantage to operators is that there is no new training required — once they know how to use any one of Grass Valley's switchers, they know how to use them all.

GV Korona's surface features an innovative built-in touchscreen interface in the transition area that enables operators to work quickly and intuitively to produce compelling content for a variety of applications. GV Korona also has a touchscreen menu system integrated directly into the panel and uses the popular OLED and colour technologies, much as the other larger Grass Valley panels do.

The GV Korona two-stripe panel supports 20 assignable buttons on each stripe or M/E row, features a built-in multi-touch menuing system, and offers an innovative touchscreen in the transition area. The one-stripe version has 15 assignable buttons. The all-new GV Korona three-stripe (3M/E) panel retains the key features that the GV Korona is known for with the multi-touch menu system and touchscreens in all transition areas, and now offers an additional stripe, each with 25 source-select buttons.

Together, the GV Korona and K-Frame V-series create a very powerful offering for anybody looking for a no-compromise production solution at an affordable price. With the ability to choose the best switcher and frame combination for any specific application or space, broadcasters are well positioned to create and produce engaging content that will meet the demands of today's viewers and consumers. □



As a software-based platform, GV's Karrera with K-Frame is a new modular approach to production switchers that delivers more creativity to create compelling and engaging content.



Ivan Schnider (left), head of marketing and communications, Nagra; and Simon Trudelle, senior director, product marketing, Nagra, highlighted the company's new OpenTV Signature Edition offering at IBC2017.

Nagra empowers pay-TV operators to maximise their content value

Nagra, a Kudelski Group company, has launched OpenTV Signature Edition, a turn-key, cloud-based and multi-tenant solution for pay-TV operators.

Powered by the OpenTV Suite and the Nagra Insight data analytics platform, OpenTV Signature Edition is a cost-effective, fast time-to-market and fully-featured ecosystem that pay-TV operators can deploy to maximise content value and monetisation while improving deployment, operational and consumer experiences.

One key feature of the OpenTV Signature Edition is Ion, described by Nagra as the "world's first multi-journey user interface". Offering functionalities such as universal search, voice search and a recommendation tool, as well as access to multiple apps, Ion was created to bring consumers the type of navigation that best suits their personal styles.

Whether a consumer favours the traditional electronic programme guide (EPG) journey to content, or a more modern navigation approach that today's viewers have come to expect, Ion delivers a simple, unified and effective set of features that consumers can enjoy across a broad range of devices, including tablets, smartphones or third-party streaming devices such as Amazon Fire TV or Google Chromecast.

Content search can be achieved through

keyboard, voice or smartphone. Recommendations are either delivered traditionally through deeper analytics or innovatively with simple search mechanisms that lead customers to content they may not have otherwise thought of. The EPG also brings a new level of additional features, such as personalised content channels, linearised subscription video-on-demand (SVoD) and video-on-demand (VoD) channels.

The Operator Management UI gives the pay-TV operator full control over the entire system to energise monetisation of the content and service catalogue by utilising both built-in and external analytics. This approach allows instant valorisation of content and popular services that may be trending, and on-the-fly promotion on the new Ion user interface through the push-updating feature.

A 4K/Ultra HD (UHD) set-top box by SmarDTV, another Kudelski company, completes the ecosystem for the OpenTV Signature Edition. It gives the pay-TV operator a fully managed device for the best experience in popular SVoD apps, such as Netflix and YouTube, with guaranteed quality of service and quality of experience no matter the changes and updates demanded by the app provider, according to Nagra. The Ion experience can also be updated to continually provide users with a fresh and engaging experience, the company added.

Rohde & Schwarz paves the way for IP migration

With a vision to offer an IP-based future that builds on a strong SDI heritage, Rohde & Schwarz (R&S) developed R&S Venice — an ingest and playout system that enables broadcasters to deliver content by merging SDI and video-over-IP technologies.

To reinforce broadcasters' migration to IP-based production, R&S has designed R&S Venice to support "transfer-while" and "edit-while" ingest post-processing workflows. The system also manages ingest and playout resolutions ranging from SD to 4K/Ultra HD (UHD), while advanced transform functionality allows compatibility with major formats and codecs.

Commenting on the development of 4K/UHD in Asia, Eric Li, regional manager, business development, Asia-Pacific, R&S, said: "Although some 4K/UHD content is available over the top, this offering is not restricted to be only offered by over-the-top (OTT) services.

"The satellite industry is ready to support the delivery of 4K/UHD content. For instance, AsiaSat, Measat and SES have all launched 4K/UHD channels on their satellites. Hence, broadcasters have to understand that there are several delivery options to enable them to deliver 4K/UHD content, which in return

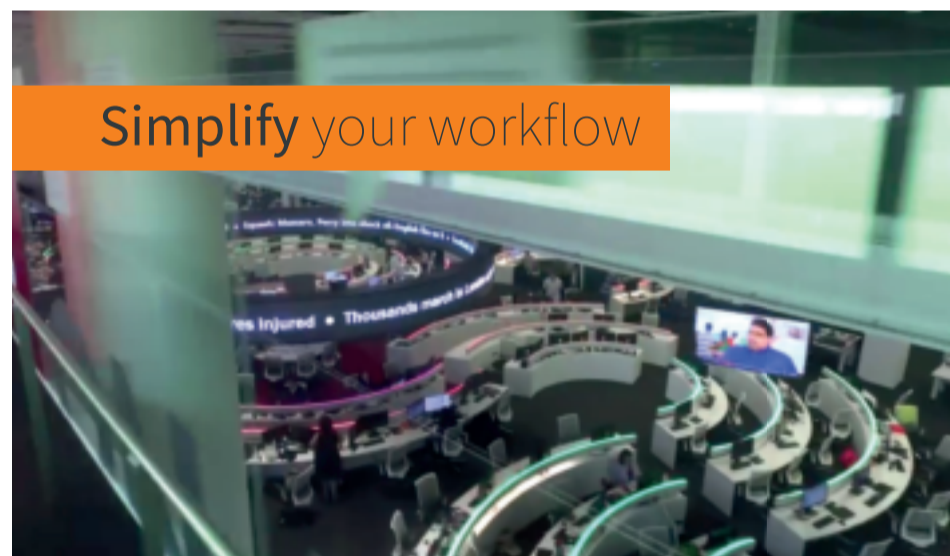


Rohde & Schwarz (R&S) has developed R&S Venice - an ingest, live production and channel playout platform that bridges hybrid SDI and IP operations.

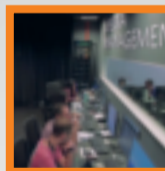
will enhance the viewing experience for their viewers."

And in a 4K/UHD ecosystem, Li highlighted that the inclusion of high dynamic range (HDR) with 4K/UHD "will improve the overall display resolution". To support premium content distribution, R&S developed the R&S AVHE100 system solution for encoding and multiplexing. Featuring the high-efficiency video coding (HEVC)/H.265 video codec, the R&S AVHE100 is able to deliver content for OTT and broadcast applications while supporting HDR video transmission.

In May this year, R&S subsidiary GMIT also acquired Saarbruecken-based company Motama, whose RelayCaster protocol is a solution designed for live contribution over Internet. Equipped with the ability to contribute and distribute live content, RelayCaster can minimise packet loss issues, according to R&S, thus enhancing the quality of service conditions required for transmission.



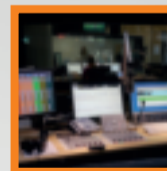
Simplify your workflow



Broadcast Control Centres



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News On-Air Broadcast



IHSE KVM MATRIX SOLUTIONS connect operators to vital broadcast and production equipment without compromise in speed, security and availability.

Edgeware tracks pirates with new forensic watermarking solution

Edgeware has integrated ContentArmor's bitstream-based forensic watermarking solution into its TV content delivery network (CDN) technology.

This new capability is built on ContentArmor's bitstream-based watermarking system, where its forensic watermarking technology inserts information into the video bitstream in an intelligent way that makes it invisible to the viewer. On the other hand, it is robust enough to withstand video transformations such as recompression and cropping, according to Edgeware.

Integrating this into Edgeware's TV CDN technology means every stream can have a different code embedded at the edge of the network without any extra processing, resulting in each viewer having his or her own identifiable version of the content.

Richard Brandon, CMO of Edgeware, said: "Content piracy existed long before TV and movies were available online. But selling pirated VHS tapes and DVDs on street corners was higher risk and cost more.

"Now it's relatively simple to re-stream live content as it's transmitting. This ease of access to illegal content is why it's so vital that watermarking solutions are integrated within delivery networks, especially if they're purposely built for delivering TV."

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DISTRIBUTION

Globecast expands capacity with SES Video

Globecast has doubled its SES satellite capacity at the heart of North America's cable neighbourhood to expand content distribution services to several US cable networks. As part of the new agreement, Globecast will utilise two additional transponders on the *SES-1* satellite to deliver packaged programming. The company also renewed a 36MHz transponder on the *SES-3*, its fourth transponder on the Centre of the Arc cable distribution platform, which is home to media companies such as Discovery, Scripps Networks Interactive, HSN and Viacom.

BBC News employs Newtec's Dialog



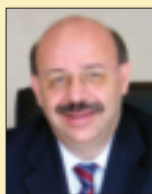
BBC News has adopted Newtec's Dialog multi-service platform for its provision of IP connectivity over satellite. The deployment will allow the BBC's news team to use mobile

solutions that are capable of transmitting video, voice, files and general broadband services. Hans Massart (pictured), market director, broadcast, Newtec, said: "The possibility for BBC News to choose *ad hoc* from a combination of satellite, cellular, Wi-Fi or Ethernet IP connectivity, provides them with more tools to establish a flexible way of delivering more content from more locations and vantage points."

Next Month @ Distribution

Wireless Transmitters for Cameras

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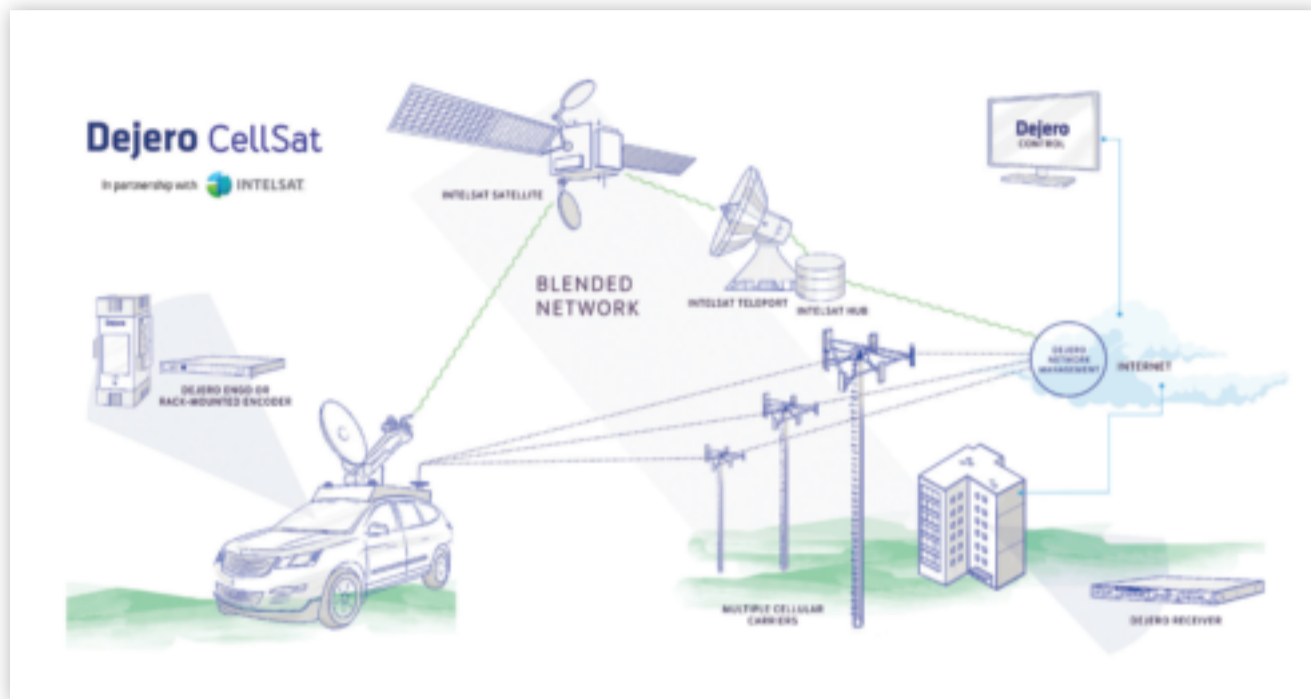
Martin Coleman
Executive Director
Satellite Interference
Reduction Group



Amitabh Kumar
Director, Corporate
Zee Network

Satellite and techno to deliver ground

PHOTO CREDIT: DEJERO



With an aim to address the dilemma that broadcasters face about which video transport assets to deploy for live news coverage, Dejero collaborated with Intelsat to launch the CellSat solution, which is designed to communicate with the satellite terminal auto-acquire system to simplify the satellite connection process.

For decades, the use of satellite for newsgathering has been the dominant delivery platform for live TV news. But with the convenience cellular technology offers, is satellite still relevant to newsgathering?

Josephine Tan finds some answers.

News plays a purposeful role in people's daily lives. It provides people with noteworthy information and groundbreaking announcements about current events taking place across the globe.

Traditionally, news is predominantly delivered on print and TV. It then entered the age of Internet, where several news websites are created to provide supplemental or follow-up reports as the story continues to develop.

And as people's daily lives now revolve around scrolling down their timelines on Facebook or Twitter, these social media and video streaming platforms are becoming their first point of contact when it comes to breaking news. The breaking news market, to a degree, might not be exclusive to TV, and has been partially

replaced by social media platforms for distribution of information.

Cameron O'Neill, director, Asia-Pacific, Riedel Communications, tells *APB*: "In the past, if something newsworthy happened, a witness would have to report it to a news source, who would then have to dispatch someone to the scene. But now those original witnesses are the newsgatherers because they can now post a video on any platform, which will then quickly find its way into the traditional news media. For broadcasters, they have to be prepared to react at a pace never seen before."

Agreeing with O'Neill's point on the shift towards video streaming and social media platforms, Rob Cerbone,

vice-president and general manager, media services, Intelsat, says: "Rapidly, agility and flexibility are key to capture this new segment of the market, across all platforms — TV, tablets or PCs — and broadcasters need to develop new business models positioning them on this platform mix."

Stressing that traditional TV broadcasting remains strong, Cerbone adds that the quality and timeliness of live reporting are crucial for broadcasters to deliver a relevant product, hence professional journalism for the coverage of breaking news is irreplaceable.

He explains: "Newsgathering trucks, equipped with conventional satellite, remains, however, the most reliable option for broadcasters who need to reach to a broad audience in a breaking news environment where other resources may be highly congested or contended."

For instance, he points out that the surge in online video traffic often leads to crashing, buffering, slow start-up time and latency compared to broadcast feeds. The Internet, according to Cerbone, is not designed to accommodate these traffic surges and the resulting strain on the terrestrial networks translates to a poor viewing



"The reliability and ubiquity of satellite contribution services, combined with innovations and services, will play a critical role in helping content delivery networks navigate this growth in online video traffic while supporting live TV news reporting."

— Rob Cerbone, Vice-President and General Manager, Media Services, Intelsat

Logies co-exist breaking news

experience, thus creating low viewer engagement and subscriber churn.

“The reliability and ubiquity of satellite contribution services, combined with innovations and services, will play a critical role in helping content delivery networks navigate this growth in online video traffic while supporting live TV news reporting,” he adds.

Intelsat recently partnered Dejero to develop CellSat, a solution that combines cellular and satellite connectivity. Using Dejero’s network blending technology to combine cellular connectivity from multiple mobile network carriers with Ku-band IP connectivity provided by Intelsat, the CellSat solution provides users the required bandwidth to go live from any location.

“Some broadcasters rely on cellular networks to transmit digital video, because of its ease-of-use and minimal equipment requirements,” says Cerbone. “The challenge is that as broadcasters compete for available bandwidth from a very specific location, where wireless networks are often not able to handle the surges in video traffic around events, the quality and timeliness of the live reporting is put at risk.”

For Dejero, the introduction of the CellSat solution is aimed to “address the dilemma that broadcasters face about which video transport assets to deploy to a news story or live event”, claims Bogdan Frusina, founder of Dejero.

The CellSat solution is designed to communicate with the satellite terminal auto-acquire system to simplify the satellite connection process. This, according to the companies, eliminates the need to schedule satellite time, thus saving news crews time and remove the constraint of broadcasting within a certain time window. In addition to managing the bandwidth of individual cellular connections, CellSat software is able to dynamically allocate satellite bandwidth for optimal performance.

“The Dejero proposition for CellSat is that content is streamed live from the location across all available IP network connections. That might be Wi-Fi or Ethernet, if available, or multiple cellular links and now, using CellSat, with IP satellite connections,” says Frusina. “What Dejero does is packetise the video and audio streams and send

it over to an IP transport path that is available, analysing the characteristics of all the available connections, and blending the networks to provide the optimal path for delivering IP packets to the playout destination.”

While satellite newsgathering (SNG) trucks remain a critical component for large news events and mission-critical shots, Frusina suggests that the role of SNG truck is changing due to the rise of cellular technology.

He elaborates: “At one time, satellite dominated because it was the only way for broadcasters to confidently achieve live broadcasts from remote locations. SNG became the video transport route of choice for broadcasters looking to get live reports from breaking news and large-scale planned events to the studio, because it gave a large degree of freedom.

“In place of traditional broadcast transmission equipment such as satellite or microwave, broadcasters now regularly use cellular technology to send video signals over the same wireless networks that are used for voice and data communications. Besides ease of operation, relying on cellular networks also enables local TV stations to cover news events that they might have otherwise not been able to cover.”

One constraint in relying on conventional SNG alone, according to Frusina, is the fact that it depends on video circuits that need to be booked in advance, and may be in short supply during a major news story, while incurring a significant cost. On the other hand, cellular network congestion and location also poses another challenge when it comes to bandwidth availability for news crews relying on cellular connectivity to transport video from the field.

He concludes: “The ability to use blended networks has given broadcast journalists the ability to be on-site and on-air quickly, allowing them to deliver reports as fast as live streaming platforms. With CellSat, those journalists can provide reports, which will be live streamed as well as stored for later bulletins.

“Moreover, new platforms such as Facebook Live are rapidly soaking up available cellular bandwidth; thus, professionals using

CellSat can continue to stream live while individual social media users occupy areas with limited cellular bandwidth.”

For LiveU, the company has similarly developed an integrated satellite and cellular solution, which is designed to add Ka or Ku satellite bands to LiveU’s bonded cellular units while optimising the use of the different connection points based on network conditions.

Baruch Altman, assistant vice-president, CTO office, LiveU, says: “Hybrid IP solutions empower broadcasters to upgrade their SNG trucks from SD to HD, or from HD to 4K/Ultra HD (UHD), without the need for additional satellite spectrum. In addition to ensuring better utilisation of existing Capex and Opex SNG resources, LiveU’s hybrid technology allows users to use cellular at high priority, and automatically adds bandwidth from the satellite segment as needed.”

The all-IP hybrid solution comprises portable and rack-mount LiveU encoders, satellite modems, and the LiveU roof-mounted Xtender with multiple cellular connections. One Chinese TV station, Shenzhen Media Group (SZMG), has deployed LiveU’s LU700 encoder and Xtender together with satellite transmission.

Zhao Weigang, director of SZMG’s technical department, says: “This integrated solution enables us to transmit more live uplinks simultaneously. It offers reliability even in severe conditions, such as heavy rain, and provides dual-link transmission redundancy. As a news and media company, we need to be able to transmit live in any condition, and this solution delivers the reliability and performance we’re looking for.”

While Altman affirms satellite’s relevance as part of hybrid satellite



LiveU has developed an integrated satellite and cellular solution, which comprises portable and rack-mount LiveU encoders, satellite modems, and the LiveU roof-mounted Xtender with multiple cellular connections.

and cellular solutions, he predicts that in the near future, there will be more cellular bonding systems being adopted for newsgathering transmission in all geographies, and for all content owners.

He explains that in some countries, as many as 70% to 90% of previously operated SNGs are being put out of service. Furthermore, new trucks are not being bought, and existing SNGs are being used less frequently due to a high number of cellular bonding systems being used globally on a daily basis for news coverage.

“In Asia-Pacific, which has some of the most advanced cellular networks in the world — notably Japan, South Korea and increasingly urban China — cellular bonding is a reliable and effective alternative,” Altman adds. “Nonetheless, satellite is fairly strong in places with poor cellular coverage or are more traditional in their approach; however, these areas are becoming fewer and fewer.”

LiveU has also recently entered into a partnership with the Associated Press (AP) for the launch of AP Live Community, a live video content and service exchange platform for global newsgathering. Combining AP’s global news network with LiveU’s technologies, the online platform expedites live coverage of breaking news and events in any location by connecting live video publishers and contributors around the world.

Paul Shanley, director of business development and partnerships at AP, says: “AP Live Community builds on AP’s expertise in live video coverage through

our Global Media Services, giving news organisations, broadcasters, digital publishers and corporate users of live video content the ability to commission live video coverage worldwide.

“As demand for live content increases, this platform eliminates the complexity broadcasters currently face in having to source video production crews who are able to competently deliver live coverage. And because the AP Live Community platform provides automatic pairing, receiving the live transmission is hassle-free.”

AP Live Community, which is free to access, enables publishers to offer their consumers a wide range of live content, including events they otherwise may not have been able to cover, and those where a live feed is needed immediately. The platform also allows service providers the opportunity to pitch content or, with LiveU’s cloud-based technology facilitating content sharing, increase their revenues by offering their content to multiple publishers simultaneously.

For Riedel, the company foresees the development of 4G and 5G technologies offering “some interesting possibilities” for remote newsgathering, but at the same time maintains the stand that traditional SNG will still have its role to play in the broadcast ecosystem.

O’Neill concludes: “We’ve got a few customers now who are using our combined Artist and MediorNet systems in their SNG trucks. Together, these systems allow for a single operator to communicate with their MCR (master control room), set up their video router and processing, and interact with the crew on the scene.

“The features are available directly over a single platform, from video or audio routing to on-the-spot video transport. These are all interlinked, allowing users to set up once and go live. In news, being first is important, and the time spent in reconfiguring the unit is time that journalists are not gathering news.” **APB**



“While 4G and 5G connectivity might offer some really interesting possibilities for remote newsgathering, traditional SNG is still going to be with us for a while.”

— Cameron O’Neill, Director, Asia-Pacific, Riedel Communications

Stress-free, timely content delivery from anywhere, even in extreme conditions

Whether he is at the scene of a shark attack or on the 30th floor of a hotel, Australian freelance cameraman Rick Sproxtion could not be without his trusty Dejero equipment. Since he started using Dejero, Sproxtion has gone from just a couple of hours' usage a month to having a 60-hour per month data plan.

He explained: "News waits for nobody. The biggest challenge in the past was getting the footage you shot back to the station in time for it to be edited and on air. It was often a case of pulling out early to meet the deadline. Being able to send vision from the field, or from a moving car on the way to the next job, using Dejero, changed my world."

Earlier this year, when tropical Cyclone Debbie hit Queensland, Australia — the most deadly since the 1970s — three of Sproxtion's Dejero GoBox units were immediately deployed into the field with Nine Network Australia. Over the three-week weather event, which included a major flooding incident, the channel was on air non-stop for more than 80 hours feeding into rolling news coverage.

"Even with only one 4G network remaining operational at the height of the cyclone, and with winds over 100km/h and in the torrential rains, the ruggedised Dejero GoBox units kept working," said Sproxtion.

With the storm moving quickly down the coast, transmission resources were stretched and the Dejero Newsbook also played a vital role in moving B-roll for cut packages. Dejero, he found, proved to be a reliable and rapid way of getting live coverage to air in very extreme conditions.

Sproxtion's adoption and enthusiasm for Dejero's gear began just a few years ago — at a point of realisation and a change in business tact. With networks under pressure to cut budgets and reduce costly infrastructure, Sproxtion decided to be self-reliant and take control of the whole video delivery chain.

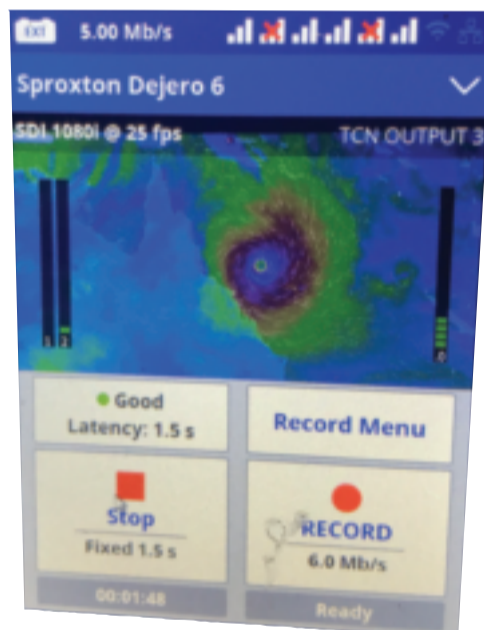
For the transmission side, he chose the Dejero GoBox and EnGo; and set up a 'one-stop shop' service to clients, who can book Sproxtion's services safe in the knowledge that they will receive the highest quality footage in the shortest possible time.

The Dejero equipment helps Sproxtion manage a timetable that varies dramatically from day to day. "Some days can start at 3am and finish at 9pm, so being on the road and

The Dejero equipment helps Australian freelance cameraman Rick Sproxtion manage a timetable that varies dramatically from day to day.



Australian freelance cameraman Rick Sproxtion is an avid user of Dejero equipment, which has allowed him to shoot and deliver in even the most extreme conditions.



Earlier this year, when tropical Cyclone Debbie hit Queensland, Australia, three of Sproxtion's Dejero GoBox units were immediately deployed into the field with Nine Network Australia.

"It was my first real test with the Dejero, as I had only received the unit days before," he described. "The brief was to shoot the vision and return with the discs for later re-broadcast. But when I used the Dejero EnGo to feed the pics to the director live, he was so happy with the quality that he put them live on air. When I returned with the discs ... to ingest them, I was told not to worry [about them] as the quality of the HD+ Dejero feed was more than enough. These days, it's not uncommon to archive the Dejero feeds but three years ago it was still new groundbreaking tech and it impressed everyone."

Sproxtion also uses Dejero to feed content live from an A-League football match for SBS involving feeding live shots, as well as coach and player interviews, into the live show. Breaking news is also usually fed live, especially for breakfast TV. The bulletins are mainly early morning and late afternoon to evening, so content is either fed live or using 'Store 'n Forward', allowing Sproxtion to be on the move between data or phone towers, all the while knowing the clip will arrive without too much drama.

"Very little of my footage is edited in the field," he said. "My content is usually just sent to the server and the networks manage the editing. That's what I love about Dejero: you can get all the footage to the networks without too much stress and the quality is great."

Dejero is also showing it can be a viable alternative to the traditional

having the ability to feed vision from the field means I can just roll from job to job," explained Sproxtion, who may find himself on the road working with a journalist for consecutive live hits or handling a one-off live shot with a particular talent before taking calls from networks for various news requirements.

"I also produce content for a programme called *The Project*, which airs on Network Ten. This week-day hour-long news programme has very high production values and often requires shooting interviews at short notice with a variety of people in a variety of locations. The Dejero equipment ensures I can fulfil all these requirements, hassle-free."

During the G20 forum in 2014, world leaders gathered in Brisbane and due to security concerns, large link trucks filled with electronics were not allowed entry at the airport, where the planes were waiting on the tarmac for the return journey. At the time of departure, Sproxtion was tasked with shooting all of the planes taking off.

high-cost international fibre line. In August this year, the Junior Grand Prix Ice Skating was held in Brisbane and the broadcasters on site required the event feed to be transmitted to Madrid. Dejero reached out on behalf of its client, broadcast services deployment company Overon, which employs a Dejero server to receive HD video. The GoBox was connected and vision sent for three solid days of the competition.

Sproxtion first encountered Dejero because three out of the five networks he was working with were using Dejero servers. So his interest was initially sparked because of the compatibility with his broadcast clients. It quickly evolved from there.

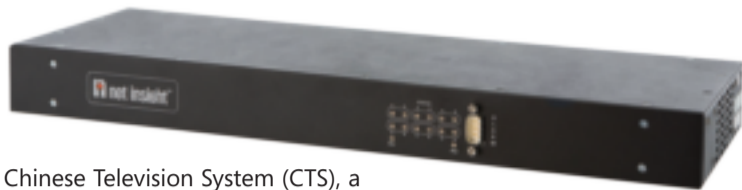
"I'd also seen the poor 'on-air' output from competitive products that other networks were using and realised Dejero provided superior picture quality. When you're a camera operator, you take pride in your work and if the vision on air looks just ordinary, it's not a good feeling," he said.

Using Dejero equipment is easy for Sproxtion, especially as the equipment is menu-driven with all information available on an on-screen display. "Dejero just makes sense; it's 30 seconds from power up to on air. You don't have to worry about dongles falling out, or a lightweight design that's going to get damaged. Dejero is robust and reliable."

One of Sproxtion's favourite features is the ability to remotely control the unit through a smartphone, enabling him to grab lunch while monitoring the transfer of non-urgent footage to the server simultaneously as it is occurring in the vehicle.

"It just works as advertised; too often products over-promise and under-deliver. But from the start, the Dejero unit and the people behind it have been doing exactly what they set out to do — making my job easier." □

CTS employs Net Insight's Nimbra to broadcast 2017 Summer Universiade



Chinese Television System (CTS), a Taiwanese terrestrial broadcaster, has deployed Net Insight's Nimbra 140 solution to enhance the production values of its host broadcast coverage of the World Universiade 2017 Games.

Held in the Taiwanese capital of Taipei in August this year, the Universiade is a 12-day international sporting and cultural event, which is staged every two years in a different city. With more than 9,000 student-athletes and officials from some 170 countries, the Taipei 2017 Universiade was broadcasted on more than 100 TV channels.

CTS' Lee Chao-I, said: "To host this major international event, and to share the excitement, festivities and action from the competition to the world, is an important responsibility; hence, we selected Net Insight's solution.

"Net Insight's Nimbra serves uncompressed video with minimal latency, and with reliability for the best quality production."

The Nimbra 140 solution was tasked to multiplex up to 16 channels on a single dark fibre. For first- or last-mile connections, the design of the 1RU six-slot chassis

Chinese Television System (CTS) has installed Net Insight's Nimbra 140 solution for the transmission of the 2017 Summer Universiade.

in the Nimbra 140 series provided a point of presence at a customer site or arena, where space is often a scarce resource.

For this project, Net Insight's local partner, Double Advance, installed a point-to-point transport optical link solution for contribution feeds back to CTS' transmission centre.

Claiming that fibre is the key to the future of broadcast transportation, Lee explained that good fibre connectivity has enabled CTS to reduce Capex and Opex for the games. He continued: "Fibre optics is one of the most reliable terrestrial solutions in the market. The quality of the video is much better compared to traditional methods for contribution feeds.

"And with Net Insight's Nimbra 140 ultra-low latency transport, the contribution feeds that we are receiving are of high-quality videos, which have provided us with a smooth and efficient workflow."

Dome Productions' 4K/UHD HDR truck hits the road

Dome Productions, a production facilities provider for professional sports, is now operating its new Vista production truck, which is designed around a complete 4K/ Ultra HD (UHD) high dynamic range (HDR) workflow.

Having been a prior user of Wohler products, such as the VMDA-SUM8 and AMP1-E16V-MD units, for AES and analogue monitoring, Dome Productions decided to install Wohler's iAM-AUDIO and iAM-MIX units for Vista.

Al Karloff, manager, engineering services, Dome Productions, explained: "With a core technology change, we decided it was time to streamline the audio monitoring throughout the Vista mobile, utilising much more MADI. This gives each operator station more possibilities and channels to monitor, as well as streamlines the user experience.

"The iAM-AUDIO units are great because they offer future-proof capabilities, allowing us to add in SFP modules to support future standards like audio-over-IP (AoIP)."

The iAM-AUDIO-1 units are located in Dome Productions' engineering QC station, and provide the flexibility to monitor audio from any source (MADI, AES, analogue or SDI-embedded). The



Dome Productions' Vista 4K/UHD HDR mobile truck is equipped with audio monitoring solutions from Wohler.

iAM-AUDIO-1 is a 1RU unit that has a variety of inputs and its user interface allows operators to flip between those inputs instantly.

The iAM-MIX units, meanwhile, are distributed throughout the Vista truck, with one in the audio section and others located throughout the production control room, replay room and in the video department. The iAM-MIX monitors custom MADI streams and set-ups distributed to each operator station through Dome Productions' audio router.

Karloff continued: "In a mobile truck, we are extremely limited

on rack space, weight and power, so smaller is usually better. With the iAM-AUDIO, we barely had 1RU of space in the Vista truck, so being able to monitor all the signals we need and still have a usable front panel interface was key.

"The UHD mobiles are so complicated that we need to have ease-of-use and reliability, which these units bring. These audio monitoring solutions are fundamentally key to each of our productions ... We hope to make the iAM Series the standard for monitoring in future builds."

SWIT Electronics has comprehensive solutions to meet production needs

SWIT Electronics, a Chinese company founded in 1996, has introduced a range of wireless transmission solutions — the CW-H150 and CW-S300 wireless systems.

The CW-H150 is a HDMI wireless system, which is designed to deliver uncompressed HDMI signals over the 5.1GHz-5.9GHz frequency range across a distance of 150m.

Next is the CW-S300, a SDI wireless system that is capable of delivering uncompressed SDI signals over the same frequency range as the CW-H150, but across an extended distance of 300m. The system is also equipped with two SDI inputs for audio transmission.

Both the CW-H150 and CW-S300 are powered by AMIMON, and incorporates wireless home digital interface (WHDI), a specification for wireless HDTV connectivity. Dustin Chen, sales manager for SWIT Electronics, said: "In addition, SWIT Electronics integrated dynamic frequency selection (DFS) support, which allows the wireless systems to detect radar interferences, and automatically move the wireless network to another frequency with no interference."

The company has also released the S-4900, a panel antenna with built-in wireless receiver. Equipped with 14dBi gain, the S-4900 is compatible with SWIT Electronics' S-4904 and S4914 transmitters, and is capable



Dustin Chen, sales manager for SWIT Electronics, highlighted the importance of the integration of DFS support in the CW-H150 and CW-S300 wireless systems, as this would enable the transmitters to automatically detect and switch to another frequency without interference.

of achieving 1km line-of-sight transmission distance. Furthermore, users can easily switch between wireless bands with a simple touch of the buttons on the panel.

Besides its wireless systems, SWIT Electronics also showcased its flagship range of broadcast monitors at IBC2017. These include the S-1053F on-camera video monitor, a 5.5-inch HD waveform LCD monitor that features support for 2K/3G/HD/SD-SDI inputs. More importantly, the monitor is integrated with an HDMI input, and is equipped with the ability to convert the HDMI input signals to SDI broadcasting.

F&F Productions goes 4K HDR with Evertz

F&F Productions, a mobile event production company, has launched GTX-18, a mobile event production truck outfitted for 4K/Ultra HD (UHD) high dynamic range (HDR) event production.

GTX-18 was conceived to natively handle 4K/UHD HDR production throughout the entire workflow from acquisition to production to distribution. GTX-18 leverages an SDI infrastructure with an Evertz EQX 26 560x1134 SDI router and EMR 192x192 audio router at its core.

Evertz' EQX/EMR routing solution enables audio and video routing for both HD and 4K/UHD HDR productions, while GTX-18 utilises Evertz's 7814UDX-4K converter for up/down/cross-conversion tasks, simplifying signal processing and conversion within GTX-18's production environment.

Signal distribution around the routing core is handled by Evertz 7812DDA2Q down-converting distribution amplifiers, with synchronisation and

timing managed by Evertz' 5601MSC Master Clock System. The 5601MSC is a fully integrated timing platform that generates all the synchronisation signals required in a mobile production facility like GTX-18.

Bill McKechney, VP, engineering, F&F Productions, said: "Mobile event production is an extremely demanding environment requiring a reliable and robust infrastructure.

"Our clients' requirements necessitated that GTX-18 be enabled with a native 4K/UHD HDR end-to-end workflow. Evertz' 4K/UHD HDR routing and processing solution exceeded our expectations and enabled us to meet the critical requirements of our clients. We look forward to working with Evertz on future projects."

GTX-18 also leverages Evertz's VistaLINK Pro network management system, as well as Evertz's Magnum control and orchestration platform for optimising operational workflows.

APB

X-PLATFORM



Unlocking the value of creative content

Hootsuite, a social media management platform, has been integrated with Adobe Creative Cloud and Adobe Stock. This collaboration will allow users to access, edit, distribute and measure the impact of social content directly from Hootsuite, thus drawing more value from creative content. Hootsuite customers can now edit and optimise images for social media using Adobe Creative SDK, as well as discover and license content from the Adobe Stock library of more than 90 million high-quality creative assets.

Harmonic improves OTT delivery

In a bid to simplify over-the-top (OTT) delivery, Harmonic has expanded the media processing and delivery workflow capabilities for its VOS media processing platform. New workflow orchestration and delivery functionalities, including streamlined content capture, 4K/Ultra HD (UHD) support, personalised ad insertion, and multi-cloud support, are available for VOS Cloud media processing software and VOS 360 distribution of OTT content. These, said Harmonic, enable video content and service providers to deliver "crystal-clear video quality on every screen".

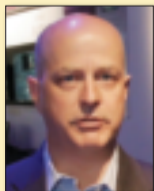
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5G: Bridging mobile broadband and broadcast networks

While perhaps not designed entirely for broadcast applications, a number of industry projects and initiatives have highlighted the role 5G can potentially play in delivering broadcast services. **Shawn Liew** finds out more ...

PHOTO CREDIT: ISTOCK BY GETTY IMAGES



Can 5G release the burden on increasingly congested networks delivering content to a proliferation of connected devices?

The efficient and cost-effective broadcasting of TV programmes to smartphones and tablets has taken another step closer to reality, declares the 5G Media Initiative at its third conference in Munich, Germany in August this year.

Pointing to the June 2017 finalisation of Release 14 by the 3G Partnership Project (3GPP) international standardisation body, the 5G Media Initiative says Release 14 supports critical pre-requisites for broadcast content delivery in large-cell 4G and 5G networks, and offers characteristics that approximate those enjoyed with classical terrestrial broadcast methods.

Launched on May 18 this year, one of 5G Media Initiative's key goals is to leverage the potential of 5G for the media sector by promoting collaborative research and development. Members of the grouping include Kathrein-Werke, Nokia, Rohde & Schwarz, Telefónica, MUGLER, the Bavarian Broadcasting Corporation, the Southwest German Broadcasting Corporation, the Friedrich-Alexander University

Erlangen-Nürnberg FAU, the Fraunhofer Institute for Integrated Circuits IIS, the Institute for Communications Technology (IfN) of the Technical University of Braunschweig, the Institute for Broadcast Technology (IRT), and the Munich-based startup Cadami.

With Release 14, implementation in devices, services and networks can be started, as the extensions to the



— **Jochen Mezger, General Manager, Network Technologies, IRT, a member of the 5G Media Initiative**

3GPP standard include numerous improvements to the existing evolved Multimedia Broadcast Multicast System (eMBMS). These improvements, according to the 5G Media Initiative, provide the framework for economical programme delivery and "unrestricted access" to TV programmes.

5G could be a possible technological development enabling Programme Making Special Events (PMSE) for contribution purposes such as wireless microphones or cordless cameras, says Jochen Mezger, general manager, network technologies at IRT.

He tells APB: "This could be particularly relevant in ad-hoc situations where it is necessary to transmit audiovisual media content quickly to the studio without the need to set up electronic newsgathering (ENG) networks. Nevertheless, sufficient network capacity for 4K/Ultra HD (UHD) cameras and short transmission latencies are indispensable.

"On the other hand, to use 5G technology for 'planned' production scenarios such as TV shows, broadcasters need the flexibility to set up local, flexible and standalone production networks independently of existing mobile network operators."

The new specification from the 3GPP also includes features such as reception without a SIM card and without authentication, as well as the option of using up to 100% of the available transmission capacity for broadcast applications. "Significantly larger" transmitter spacings permit the use of broadcast transmitter stations

“It might be possible that a future 5G broadcast media network can be operated by either a traditional mobile network operator (MNO), an independent broadcast network operator (BNO), or by the broadcaster itself as a standalone network.”



Launched in August last year by Nokia, the 5G MoNArch research project's specific goal is to use network splicing, which capitalises on the capabilities of software-defined networking (SDN), network functions virtualisation (NFV), orchestration and analytics, to support a variety of use cases in vertical industries.

for more economical area coverage, while a receive-only mode that does not require a return channel has also been established.

Network operators will be able to combine various TV content delivery methods along with interactivity. Mobile network operators do not need to transmit TV programmes in all of their networks simultaneously, which yields a high degree of efficiency.

Transmission via a separate broadcast transmitter network would also be possible, allowing all wireless devices to receive TV programmes, whether or not a contract is in place. The standard also specifies that transport and coding formats currently employed in broadcasting shall also be available for use in 4G and 5G networks.

The first version of a new 5G standard is expected to be available by next year, after which it will be continually enhanced to become a universal standard for high-bandwidth data applications. Starting in 2020, additional enhancements for broadcast applications are expected as part of 5G — these could be available by 2025 as popular broadcast services for the mass market, predicts the 5G Media Initiative.

However, the 'defined path' for broadcasters where mobile networks and devices is concerned

relates to their own business models. For the 5G Media Initiative, while supporting the technology, its intention is to be as non-dogmatic as possible.

Mezger explains: "It might be possible that a future 5G broadcast media network can be operated by either a traditional mobile network operator (MNO), an independent broadcast network operator (BNO), or by the broadcaster itself as a standalone network.

"Of course, the distinct free-to-air media services need to be accessible in all networks and on all devices — without the need of a SIM card."

5G should not be seen merely as the next generation of a traditional mobile network with faster data rates; instead, 5G is a holistic new communications system for a vast variety of applications serving multiple verticals, including the media and entertainment industries.

"The latter one is particularly interesting for public service broadcasters as they consider smartphone and tablet devices as being of growing importance," Mezger says. "Beyond that, 5G could potentially facilitate the convergence of linear and non-linear media services, and provide the possibility to offer new and appealing media services in the years to come."

“In the context of the 5G-Xcast project, Nokia is working with broadcasters and mobile network operators to develop 5G solutions tailored for the media and broadcast industries.”

— Dr Simone Redana, Head of Mobile Network Architecture and Systems, Bell Labs Research, Nokia



5G can be the next disruptor to the media and entertainment industries — by enabling flexible and efficient delivery content through Xcast, suggests Dr Simone Redana, head of mobile network architecture and systems, Bell Labs Research, Nokia.

He explains to APB: "Here, Xcast means delivering the content over the access network, using an efficient mix of uni-cast, multicast and broadcast. This would enable mobile network operators to deliver media content in the most spectrally efficient manner. For fixed and converged network operators, Xcast would lead to significant gains in the transport network load, thereby enabling cost-efficiencies."

Besides being a founding member of the aforementioned 5G Media Initiative, Nokia is also a driving member and technical coordinator of the 5G-Xcast consortium, a 5GPPP phase-2 project started on June 1 this year. (5GPPP is a joint initiative between the European Commission and the European ICT industry, and aims to deliver 5G solutions, architectures, technologies and standards.)

Calling the 5G-Xcast Consortium "a balanced combination of telecom and media entities covering the complete media and entertainment chain", Dr Redana explains: "While, in LTE eMBMS, a lot of broadcast functionalities have been developed with a strong focus on broadcasters' requirements, the 5G-Xcast project targets to change

the paradigm compared to 4G.

"In 5G multicast, broadcast and caching will be treated in a holistic way as built-in internal network delivery optimisations, which will be implemented and operated in a flexible and dynamic way. The technology will be flexible enough to efficiently distribute content over fixed, mobile and broadcast-only networks."

5G, Dr Redana adds, represents an "unprecedented opportunity" for the convergence of mobile broadband and broadcast networks. The converged media delivery architecture of 5G-Xcast, he highlights, allows users to enjoy uninterrupted services as they move, using a combination of any of the aforementioned networks.

"In the context of the 5G-Xcast project, Nokia is working with broadcasters and mobile network operators to develop 5G solutions tailored for the media and broadcast industries," Dr Redana continues. For instance, another use case for 5G is when hybrid broadcast services are offered. This consists of a combination of linear and non-linear programming, as well as social media using broadcast, multicast and unicast technologies.

Other areas the 5G-Xcast Consortium are looking at include converged networks, which enable wider delivery of media content to a wide variety of users; and the development of enablers for the efficient transport and mass delivery of new media types, including immersive media content such as

augmented and virtual reality.

And in a bid to further enhance and complete the network architecture for 5G mobile wireless networks, Nokia is continuing its work on the 5G Mobile Network Architecture (MoNArch) research project it launched in August last year. A cornerstone of the project thus is network slicing, Dr Redana reveals. "That is, service-, application- or vertical industry-specific logical networks sharing a common physical/virtual infrastructure.

"With the approach of network slicing, media, entertainment and broadcast services for end-users can share the mobile infrastructure with other services having different quality and performance requirements, such as smart city, industry, transportation, health-care or public safety."

The methods and techniques applied for network slicing, he details, will allow the quality and performance requirements for all simultaneously active slices to be achieved. Broadcast services thus can be ensured of a "decent performance", irrespective of whether other services are using the same network resources.

Dr Redana elaborates: "The benefit for broadcast and media industries is the options and opportunities to define new services for mobile networks. Through providing dedicated network slices to these services, the required customer experience can be guaranteed."

A further technical innovation 5G MoNArch will develop and implement, he added, is resource elasticity, which aims to improve the utilisation efficiency of computational resources in the virtualised mobile network. "Particularly, media and entertainment services having high throughput requirements, but frequently change the load on the network will benefit from this innovation," Dr Redana concludes. **APB**

The horizon is bright for LTE and broadcast convergence

BY RICH REDMOND

The concept of LTE overlay and convergence with the one-to-many, over-the-air broadcast model has been gradually catching fire with broadcasters and mobile service providers. This is because of the consumer-facing value it offers, as well as the operational benefits and efficiencies for both sides of the equation when it comes to content delivery.

On a technical level, LTE overlay is a multiplex of broadcast and mobile waveforms that creates an efficient use of spectrum. For example, a DVB-T2 broadcaster would leverage the future extension frames within the standard to insert an LTE orthogonal frequency-division multiplexing (OFDM) waveform. A broadcaster running 8MHz of DVB-T2 might insert a 5MHz LTE signal into the T2 architecture by way of time-domain

multiplexing (TDM).

This insertion of LTE modulation opens the possibility for a large LTE network to deliver content over-the-air as part of an efficient one-to-many DTV multiplex, instead of the typical point-to-point connection mobile services use for video delivery.

As the LTE network communicates with TV transmitters and large broadcast towers, the bidirectional signaling shifts TV/video content to a "mega-cell" on the network that allows many people to watch the same content on their mobile devices. This eliminates the possibility of cellular network congestion from multiple peer-to-peer requests of the same video content.

To date, LTE overlay trials worldwide, many of which have involved GatesAir, have operated over 4G connections. As 5G service comes to fruition, we see characteristics

within its framework that will support further centralisation of controlled modulation. This will undoubtedly allow for more robust signalling and communications between the transmission headend and LTE network gateway.

The Asia-Pacific region is poised to take advantage of these opportunities, specifically as it leads the world in the sheer number of recent DVB-T2 deployments, with many others to come over the next several years. Asia has long been on the leading edge of TV and mobile convergence, dating back to the earliest T-DMB systems in South Korea.

And speaking of South Korea, their adoption of the ATSC 3.0 standard also opens compelling opportunities for LTE overlay, particularly on more bandwidth-efficient 5G networks where 4K/Ultra HD (UHD) content delivery — a strength of the ATSC 3.0 ar-

chitecture — becomes a greater possibility.

Over-the-air broadcasting has always been about possibilities for audience engagement, and broadcasters continue to seek new opportunities to reach viewers by adapting to new models, and embracing the latest technologies. While LTE overlay is still in its formative years with many additional trials anticipated, the possibilities of spectrum- and audience-sharing for broadcasters and mobile service providers are exciting.

In the end, everyone wins — most notably, live TV viewers.



Rich Redmond is Chief Product Officer, GatesAir.

Predicting the future of broadcast through sports

BY OLIVIER SUARD

The broadcast industry is in a state of rapid change. If broadcasters want to keep up, they must focus on adapting both their operations and offerings, and this extends to their value chain. However, this is not so easy to carry out — quite the opposite in fact. It can be hard

to know what direction to turn to in an industry that is always undergoing such profound changes.

In an environment where the competition for viewers is intense, live sports is considered a sure bet, something that is compelling and for which the high resolution of TV screens is eminently better suited than other devices.

At the high end, for example, the English Premier League football or the Summer and Winter Games, huge sums of money are invested by broadcasters to make the viewing more captivating. That includes seeking out new technologies such as HD and 4K/Ultra HD (UHD) to hook viewers. Sure, mistakes happen (remember 3D?), but sports broadcasting provides the catalyst for trying out new technologies that eventually benefits all parts of broadcasting.

A good example of this is the use of IP in production, which is essential in keeping costs down

for big events by enabling remote production.

The costs involved in high-end sports mean it has been possible for broadcasters to try out and invest in new technologies, which has benefited more mainstream production — effectively leading the way for other productions, for example, minority sports.

However, something may be afoot with sports broadcasting. Its success comes from exclusivity and the ability to monetise this. Traditionally, the value chain has involved content owners selling the exclusive rights for coverage of the sport to the highest-bidding broadcaster, who in turn charges viewers to watch the sport.

This has typically proved to be lucrative business for both content owners and broadcasters, but we might be about to witness a major disruption in this arrangement.

In recent months, we have seen some interesting developments,

including cricket returning to the BBC in 2020, the first time since 1999. The driver for the move is that audiences for cricket have been falling as a result of being on pay-TV.

This is quite a familiar pattern: when Formula 1 switched to pay-per-view, reports estimate it lost 25 million viewers. If people do not want to pay for content, they will either stop watching altogether or turn to pirated streaming. By making that content free again will not only increase viewer numbers, but drive long-term interest in the content itself.

Another interesting development is Formula 1's intention to develop its own over-the-top (OTT) platform, which would, in effect, by-pass the broadcasters.

So if sports is to return to free-to-air and sports federation are to launch their own distribution, the traditional broadcast business model could become disrupted,

and with it the ability of sports broadcasting to always be at the leading edge of technical innovation.

It could also be a lead indicator that the pay-TV revenue models of broadcasters may need to be rethought at some point.



Olivier Suard is VP Marketing, Nevion.



Opera TV is now Vewd

Opera TV, an enabler of over-the-top (OTT) services, has been rebranded as Vewd, as the company aims to better illustrate its mission to enable entertainment everywhere through "extraordinary OTT products and services".

Since its early beginnings more than 15 years ago at Opera Software, Vewd sets its course to pioneer industry-first products for smart TVs, set-top boxes and content providers. The company delivered the browser engine in the Nintendo Wii, and also enabled the "world's first" smart TV, launched by Philips.

According to the company, Vewd Core,

formerly known as the Opera TV software development kit (SDK), has become the most deployed HTML5 SDK in the industry. Shipping on nearly 50 million devices each year and more than 200 million devices in total, Vewd is the world's largest connected TV device ecosystem, the company added.

Aneesh Rajaram, CEO of Vewd, declared at IBC2017: "Today is a milestone for Vewd as we step out with our own brand that expresses our primary goal: enabling content to be viewed everywhere. Our new visual identity highlights the universal elements of our industry — a play button, a screen and the fragmented content landscape."



"While today is day one for Vewd, we build on our legacy as long-time leaders in OTT and remain committed not only to strengthening that position, but pushing ourselves and our industry forward even faster."

Vewd's new visual identity highlights the industry's universal elements — a play button, a screen and the fragmented content landscape.

One of Vewd's first moves was to announce a partnership with Wiztivi, a provider of multi-screen user interfaces (UIs) for operators and media groups. As part of the partnership, Wiztivi has optimised its UI framework for the Vewd SDK, allowing Wiztivi's Timeless UI to perform across tens of millions of Vewd-powered devices.

Vewd has also certified Wiztivi's UI framework, so that pay-TV operators can trust that apps and middleware UIs using Wiztivi's UI framework will have optimised memory handling and "crisp animations", thus enabling an immersive viewing experience.

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