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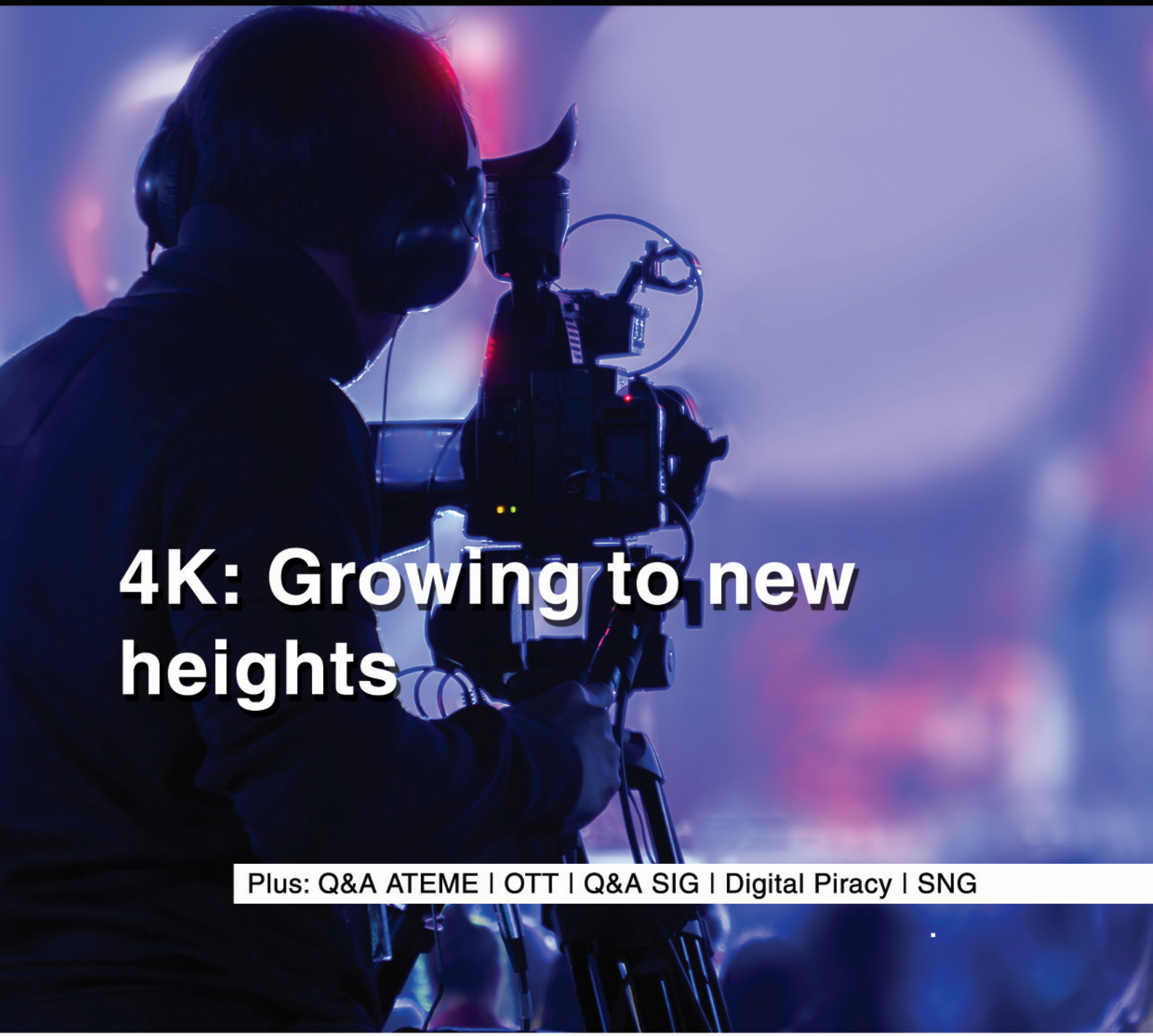

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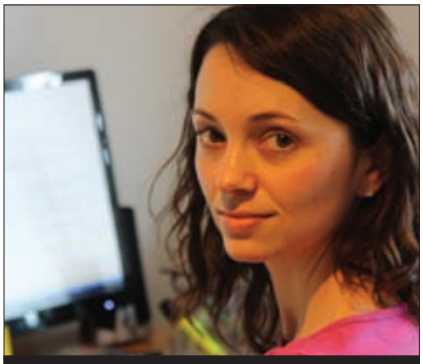

Editor - Amy Saunders

Space wars in the time of COVID-19

We're well into the height of summer; midsummer's night is long behind us, and in the UK, we're enjoying the warm temperatures and sunshine.

Things are of course quite different this year. When the first reports of COVID-19 emerged back in January, we could never have predicted that we'd be in this state of social distancing, still separated from loved ones and with mandatory mask-wearing nationwide, come summer.

Such is life, apparently. With no set physical events on the horizon, and with more being postponed or cancelled with each passing week, it's hard to know when the satellite sector will return to anything resembling normality. In further troubling news, the US and UK have accused Russia of firing an anti-satellite space weapon from orbit, putting us at risk of dangerous escalation in the space arms race. Here at Satellite Evolution, as well as many other places I'm sure, we'll be keeping a close eye on the situation and reporting on all developments.

Moving on; in this Broadcast Special Issue, we have exclusive interviews with ATEME and SIG. We've prepared an in-depth review of the 4K/UHD market and an exploration into the current challenges in content piracy. Speedcast has contributed an article covering the needs of mobile audiences, while ST Engineering and SES have opined on different aspects of the biggest thing in broadcast right now: OTT. Meanwhile, SIG offers its outlook on the changing demands of the broadcast sector.

We hope you enjoy this issue and look forward to seeing all our readers in person again in due course.

Photo courtesy of MathWorks

Editor
Amy Saunders
amy.saunders@dsairpublications.com

News and Social Media Editor
Laurence Russell
laurence@dsairpublications.com

Contributing Editors
Bert Sadtler, Mark Williamson

Marketing and Business Development Manager
Belinda Bradford
belinda@dsairpublications.com

Sales Manager
Sam Baird
sam@dsairpublications.com

Sales Director
Jill Durfee
jill.durfee@dsairpublications.com

Publisher
Richard Hooper
richard@dsairpublications.com

Managing Director
David Shortland
david@dsairpublications.com

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DS Air Ltd
Boxer Retreat, Langhurstwood Road
Horsham
West Sussex, RH12 4QD
United Kingdom
T: +44 1403 273973
F: +44 1403 273972
Email: admin@dsairpublications.com
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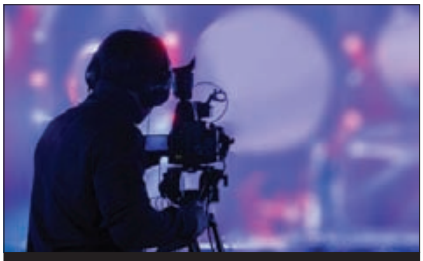

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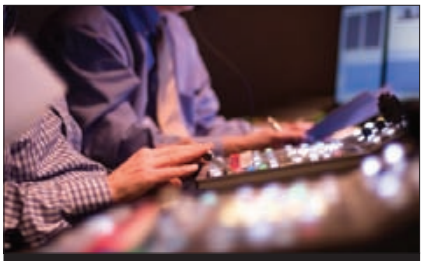

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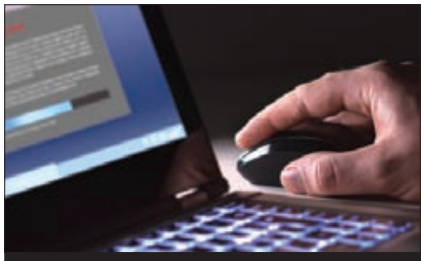

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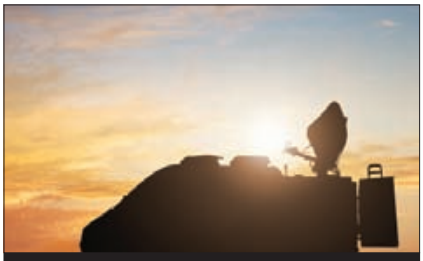

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Stay tuned to learn more about our new Multi-Band FlyAway Terminal ***MFT 1500*** launching soon!

Making Missions Possible

Speedcast receives US$395 million equity commitment from Centerbridge partners to complete recapitalization

Speedcast International Limited has received a US$395 million equity commitment from Centerbridge Partners, L.P. and its affiliates, one of its largest lenders. The commitment would support a plan of reorganization, which has the support of both Centerbridge and the Company's Official Committee of Unsecured Creditors.

Centerbridge's proposed US$395 million equity investment provides the opportunity for Speedcast's existing secured lenders to participate in the equity commitment on a fully pro-rata basis to support Speedcast's emergence from its reorganization under Chapter 11 of the US Bankruptcy Code. During the completion of the Chapter 11 process and under the new ownership structure, Speedcast remains focused on supporting the connectivity needs of its customers and fully intends to continue its global operations uninterrupted.

The proposed plan would enable the Company, under the leadership of both Peter Shaper, Speedcast's Chief Executive Officer, and Joe Spytek, Speedcast's President and Chief Commercial Officer, to continue to execute on the transformation plan to refocus the business, which they initiated earlier this year after joining the organization in executive leadership roles. Both Shaper and Spytek have extensive background in the communications and service provider sectors, each previously serving as chief executives for leading remote communications businesses.

Centerbridge has also committed to providing, if needed, debtor-in-possession (DIP) financing of up to US$220 million on favourable economic terms. The Centerbridge DIP financing, if drawn, would be utilized to refinance the Company's existing DIP financing, to fund the Company's Chapter 11 plan process, and to ensure the Company can continue to meet its financial commitments while it works toward confirmation of the plan of reorganization.

Photo courtesy of Aun/Shutterstock

The plan will provide for cash payments to holders of secured claims. A number of the company's trade creditors are critical to its future, and the plan will provide to those relevant trade creditors, a partial cash payment for those unsecured claims. Unsecured creditors generally will share in recoveries from a litigation trust, noting there is no certainty that any action would be undertaken, or payment made from this trust. The plan does not contemplate any recovery for existing shareholders, and existing shareholders would no longer have an equity interest in the reorganized Speedcast Group.

Completion of the equity investment is subject to confirmation of the plan of reorganisation and a number of other conditions, including various regulatory approvals and waivers.

Speedcast announced its decision to recapitalize its business through voluntary Chapter 11 proceedings on April 23, 2020.

Squire Tech turns to Isotropic Network's Datadragon™ for effective bandwidth management during emergencies

Isotropic has announced that Squire Tech is the latest company to integrate Datadragon, Isotropic's award-winning intuitive bandwidth management tool, into its operations for more effective bandwidth management in emergency response situations.

Squire Tech is a mobile command and communications service provider specializing in user-friendly VSAT and wireless enabled voice, video, and data for mission critical needs. The company's fast-deploy communications solutions, such as its pCom® line of communications trailers, are widely used to deliver critical connectivity to emergency management and first responder teams during major events and emergency situations, such as the recent hurricanes that have swept through Florida and the COVID-19 crisis.

As a solutions provider, Squire Tech must ensure that reliable, high quality bandwidth is available for its emergency response users while they're in the field. However, bandwidth can become scarce—especially when telecommunications infrastructure is damaged.

Using Datadragon, Squire Tech can now monitor and distribute bandwidth in real time so that first response end users can rely on high-speed, persistent connectivity to fuel their applications during an emergency scenario. Datadragon gives users an unprecedented degree of application-level transparency into their network to ensure bandwidth is always optimized and to adjust traffic on-the-fly if it's not. With Datadragon, Squire Tech can allocate bandwidth to the locations, teams, and applications that need it most without requiring first responders to call in for assistance.

"We developed Datadragon because we know how critical it is for customers to be able to monitor their throughput, as bandwidth is an expensive and precious resource," says Hank Zbierski, Chief Catalyst at Isotropic Networks. "This is especially critical for those operating on the front line of a crisis, and we are delighted that Squire Tech is using our platform to address the throughput demands their customers face in already challenging circumstances. We want to offer peace of mind so that reliable connectivity is assured, allowing first responders to focus on their vital jobs."

"The deployment of Datadragon has transformed our

operations," says Michael Zalle, Vice President of Sales and Marketing at Squire Tech Solutions. "Datadragon has enabled Squire Tech to become a more profitable business, to operate a more efficient network and to ensure that our customers get much more out of the network that they have purchased."

ViacomCBS Networks International selects Intelsat for video distribution to major global markets

Intelsat has been selected to continue distributing content for ViacomCBS Networks International (VCNI) in Central Europe, Eastern Europe and across the Asia Pacific region. Intelsat was chosen for its unique ability to deliver managed media services, global coverage and integrated satellite distribution and terrestrial network.

VCNI delivers premium content through notable brands such as BET, MTV, and Nickelodeon to a worldwide audience of billions across both traditional and emerging platforms.

In the Central and Eastern European market, VCNI harnesses the extensive reach of Intelsat's direct-to-home (DTH) platform on the 1 West video neighbourhood to deliver its premium programming. The Intelsat 1 West neighbourhood can reach more than 17.8 million viewers across the region.

In Southeast Asia, VCNI leverages the Intelsat 19 (IS-19) satellite to serve its distribution affiliates, including cable headends, throughout the region. The IS-19 video neighbourhood can reach up to 70 million viewers in Asia-Pacific.

VCNI will also continue to utilize Intelsat's terrestrial uplink services to distribute its video content across key Asian and Central and Eastern European markets, including remote and hard-to-reach areas.

"We are proud to once again be selected as the partner of choice by ViacomCBS Networks International in distributing their premium content," said Intelsat Regional Vice President of North America Tim Schermerhorn. "Intelsat is the first choice for major media companies requiring global distribution and managed media services. We are honoured that VCNI values the expertise and reliability inherent in Intelsat's managed services that enable us to expertly deliver content anywhere in the world. Our managed services are underpinned by the integrated hybrid space and the IntelsatOne terrestrial fibre network, providing the highest quality access available to multiple platforms and teleports."

Paradigm's satellite terminals available to EDA members under the EU satcom market contract

Paradigm is excited to announce their new range of extremely portable, simple-to-use and field-proven satellite terminals are available for European Defence Agency (EDA) members to purchase under the new EU SatCom Market contract.

Communication is vital in European civil and military peacekeeping and security missions, and Paradigm terminals continue to play a key role in supporting the satellite communication needs of the EDA's 20 defence ministries.

Photo courtesy of Paradigm

At the heart of every Paradigm satellite terminals is the rugged and field-proven PIM - Paradigm Interface Module. The PIM provides a simple, easy to use operational interface ensuring rapid setup and simple terminal configuration and management. Tried, tested and in use by military and government units on every continent, it's a universal solution for successful and repeated satellite terminal deployments. Simplifying terminal operation reduces operating costs and provides a central unit for the integration and operation of satellite terminal hardware. It's the reason Paradigm terminals are available for the EDA. As well as making pointing simple for any user, PIM-based terminals all have excellent SWaP characteristics and operational agility. The PIM provides a multitude of services to the end user - from simplified pointing and modem configuration to VLAN setup and management, smart auto-selecting of AC and DC power interfaces, and much more.

Paradigm terminals are all IATA compliant, and range from the ultra-portable 'broadband in a backpack' SWARM that is airline hand-carry on and ideal for rapid deployment, to the compact and rugged, quick deploy single-case HORNET that provides the perfect balance of portability and high bandwidth, and including the tough, resilient CONNECT terminal that brings maximum value for a longer term deployment.

With the EU SatCom Market contract, Paradigm PIM-based terminals are now available for all EDA members, making satcom simple across the EU civil and military peacekeeping realm.

Ulf Sandberg, Managing Director at Paradigm commented "The inclusion of Paradigm's terminals on the EU SatCom Market framework contract is an excellent step forward. It will make it easier than ever for the EU defence ministries to procure and deploy our unique range of portable terminals for use in civil and military peacekeeping and security missions."

Isotropic Systems names John-Paul Szczepanik Senior Vice President of Engineering

Isotropic Systems has appointed antenna development veteran and former Phasor CTO John-Paul (JP) Szczepanik as Senior Vice President of Engineering to spearhead the engineering development of the company's multi-beam terminal leading to commercial launch in government, aero, maritime and telco markets.

Szczepanik will play an integral role in managing all aspects of the development and production of Isotropic Systems' game-changing terminals, including patented circuitry at the core of the optical beamforming lens modules that enable the antenna to link with multiple satellites in multiple orbits. Based in the UK, Szczepanik will contribute hands-on engineering experience with extremely complex system architecture and RF platform development, further strengthening Isotropic Systems' fast-growing UK presence and collaborative relationships with a growing number of innovative companies deeply involved in the UK space market.

"John-Paul Szczepanik is a tremendous addition to our Isotropic Systems leadership team, with a strong and proven mix of hands-on experience and strategic vision that will absolutely contribute significantly to a smooth and mission-critical transition from terminal development to commercial production over the next 18 months," said John Finney, Isotropic Systems CEO. "Like our fast-growing teams in the UK and the US, JP is already keenly focused on an exciting terminal roadmap that leads to multi-beam, multi-frequency antennas allowing users simultaneous access to the vast array of next generation satellites in view. That's the ultimate goal for government, defence, aero and enterprise markets."

Isotropic Systems is already in advanced tests and trials of its multi-beam terminals with the US Defense Department's Defense Innovation Unit (DIU) and other government agencies, along with development framework agreements with leading operators such as SES and Inmarsat. The company expects to commercially launch its first terminal offerings late next year as new MEO and LEO constellations begin to initiate services in early 2022.

"I'm thrilled to join the leadership team of Isotropic Systems and contribute to the development and delivery of its breakthrough terminals. Isotropic's products and roadmap have always impressed me – it really is an innovative and highly valuable technology that's uniquely placed to unleash the full potential of LEO, MEO and GEO connectivity over a single antenna," said John-Paul Szczepanik, Senior Vice

John-Paul Szczepanik, Senior Vice President of Engineering, Isotropic Systems

President of Engineering for Isotropic Systems. "The next two years will be full of technical milestones as we move quickly toward commercialization of a terminal technology that is poised to redefine connectivity around the world."

Prior to joining Isotropic Systems, Szczepanik was with Phasor for seven years as their Chief Technology Officer leading the development of its Satcomm phased array. Before that he founded and served as CTO of On-Sun Systems, a new innovative Solar Panel company commercializing a Concentrated PV solar tracking technology. Earlier roles include time at The Technology Partnership, an engineering consultancy in Cambridge, where he led a multi-disciplinary team of engineers in the development of a novel medical device technology for a major U.S. medical company. He began his career at QinetiQ, a leading defense technology and materials development firm in the UK, who is also a partner with Isotropic Systems contributing to the unique optical lens modules at the heart of its multi-beam terminals.

NEXSTAND EU celebrate a new partnership with the Turing Trust – 1 for 1 Tech for children in Africa

NEXSTAND EU, London based remote working accessory company has engaged in a charity partnership with the Turing Trust. Helping to fund ICT education and resources for underprivileged children in Sub Saharan Africa.

Alan Turing was renowned for his work breaking the Enigma codes in WW2 and is recognised as a founder of computer science, helping to develop the earliest computers. James Turing is the great-nephew of Alan and a founder of the Turing Trust.

The Turing Trust supports education in sub-Saharan Africa by reusing computers and improving teacher training using ICT. The Trust has reused over 5,700 PCs enabling more than 55,000 students to gain a digital education.

NEXSTAND EU aims to support The Turing Trust by donating a percentage of profits as well as a further one-for-one donation whereby every remote work set sold will supply a mouse alongside a computer.

"We're always looking for new ways to have people's back and with this new partnership, we are delighted to be able to extend our reach to help the most disadvantaged young people in Sub- Saharan Africa. We're passionate that they too should have access to ICT education. On a personal note, the organisation's work is close to my heart due to my family's history with Malawi, I'd love to see the people of Malawi and other sub-Saharan African countries reap the benefits of the digital age." Samantha Eaton, CEO of NEXSTAND EU.

"With the support of fantastic, socially-minded companies such as NEXSTAND EU we will be able to realise our vision where every school had adequate IT resources to empower students with these vital skills," said James Turing

Statistics show that back pain is the second most common cause of absence from work in the UK. Every year over four million working days are lost as a result of back pain and on average an employee with back pain takes 17 days off to recover from an episode. The power of simply raising your screen laptop to eye level is undeniable in correcting posture and reducing the risk of such episodes. Their flagship NEXSTAND K2 height adjustable and portable laptop stand helps to lift your laptop screen to eye level, you'll be able to look straight ahead at your screen, keeping your head and neck neutral. It also encourages you to sit back in your chair so you can be fully supported.

UK space launch sector builds foundation for collaborative future

Industry leaders are urging the UK government to establish world-class rules to enable safe, environmentally conscious, and commercially viable space launches from British soil.

A series of UK-wide workshops aimed at developing a common industry position across key issues related to a sovereign launch capability have just been delivered by the Scottish Space Leadership Council (SSLC).

They were designed to foster collaboration and a common UK space sector voice for issues of concern during the UK government's consultation on its Space Industry Regulations, which runs until 21 October and will create secondary legislation under the Space Industry Act 2018.

A report summarising the output of four workshop modules - range and trajectory management and governance, spaceport operations, and launch safety and indemnity - will be published by SSLC in early September.

More than 60 representatives from across the UK space sector, including both industry and academia attended each of the virtual sessions.

Helen Weedon, Managing Director of SIG

Q&A

Delivering new value to members

The Satcoms Innovation Group comprises a team of telecommunications experts working to reduce the threats that compromise satellite communications whilst optimising their infrastructure. They bring together manufacturers, operators and service providers to benefit from a world-class, technology-focused community of professionals. Helen Weedon, Managing Director of SIG, joined us to discuss her appointment, and how she plans to deliver new value to the organisation and its members.

Laurence Russell, News & Social Editor, Satellite Evolution Group

Question: You were appointed Managing Director of SIG in January. How has the management restructuring of the group helped the company?

Helen Weedon: Martin Coleman, the previous manager, wanted to step down to think about retirement, but during his time I had juggled all sorts of the group's responsibilities under him, and with his departure, I also took on the executive elements of the company. My extensive experience organising SIG's events, logistics, and personal relations in the previous years, meant a managerial role felt more like an expansion of what I was already doing rather than an entirely new role.

The main takeaway of the restructure has been efficiency. This has reduced the overall executive team, which has saved operational costs, which we're keen to channel back into value for our members.

Question: With the NewSpace industry rocketing to new heights, how is the LEO revolution continuing to change space industries?

Helen Weedon: From our perspective, the biggest thing we see are new challenges. There are a vast amount of satellites set to launch into LEO. As an entire industry, we must ensure the scale of that rollout doesn't do more harm than good to the orbital ecosystem.

It's our responsibility as SIG to stay ahead of that movement and remain vigilant in delivering realistic solutions to address unsustainable models. The operators need the right information and tools to grow sustainably and respond to problems pre-emptively.

Whether that's interference, debris, satellite end-of-life, these issues must be seriously considered and analysed in-depth, as new tools entering the market offering competitive sustainability must be championed. These are need-to-know insights for the decision-makers of this industry, to both protect themselves and ensure the

Satellite 2019. Photo courtesy of SIG

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good health of the entire market – and indeed the Earth itself.

Question: What is your stance on the movements to regulate the industry for space sustainability, regarding de-orbiting law or satellite docking plate integration?

Helen Weedon: Regulation could be a very important tool for the industry. There are many documents that have circulated speculating over the prospective guidelines of how players should operate to ensure sustainability in space, which is wonderful.

Most operators are sensible and conscientious enough to understand that space is a shared environment, and that sustainability has a direct benefit to themselves as well as the markets they rely on. Unfortunately, as is often the case, this doesn't ensure that everyone is going to behave.

Regulation is the safety net that goes a long way to ensuring sustainability, but the problem is enforcing it. Global powers can't necessarily prevent a space launch, and once a platform has launched, you're even less likely to be able to control the unit. Obviously, the few global scandals we've witnessed of orbital devices being shot out of the sky isn't a model to imitate.

It isn't like building a house without planning permission where you can just pop round and knock on the door. The most realistic solutions may be one geopolitics and technology have yet to demonstrate, but it's our job to guarantee that when the credible answers are proposed, the information is widely known and understood.

Question: SIG has recently introduced new membership tiers to its operation. How does your membership service benefit satcom companies, and how have these recent changes opened up your services to wider portions of the industry?

Helen Weedon: Our members receive a great span of value out of membership, a set of services which is evolving faster as the NewSpace era gathers steam, and we come to better understand our members' needs.

The main selling points are the advantages of a technical community with the most clinical understanding of the industry possible. The operational benefits of tapping into that experience is a sensible fiscal move across the breadth of your company.

From whatever unique position a singular company sits on the value chain, our community unlocks all the information outside of that influence, delivered by industry veterans with both longitudinal experience and cutting edge knowledge.

We bring people together at industry-leading events, break down the most relevant topics, and link our contacts together to enhance their visibility. I don't think anyone else is providing this kind of imperative service at the same standard of curated technical expertise. Networking is valuable, but an elite community of experts available at your beck and call is the ultimate logical extension.

We've also made it a leading priority to promote innovation. When our members working in disruptive technology deliver a latchkey solution that benefits the industry, we spread the news as far as we can. Our team brings the news to relevant parties, our directors speak about it on their conference panels, and we ensure the press has everything they need to explain the solution.

That's useful for the developer of the solution of course, but often the technology in question stands to benefit people across the industry as well, so we want to ensure people get out ahead of the curve. This year we launched an Innovation Hub, and a set of satcom awards to support this objective, which we're following a long-term plan to further promote.

Airbus Workshop. Photo courtesy of SIG

Question: The SIG & Goonhilly Annual Workshop in Cornwall was a hotly anticipated event for those in the UK Space business. Obviously, it has had to be postponed until 2021. Could you tell us a bit about your collaboration with Goonhilly and the UK space industry at large, as well as how you will be replicating those in-person meetings throughout 2020?

Helen Weedon: We work very closely with as many people in this industry that we can. It's a massive part of what we do. Goonhilly offered to host a workshop for us, which we were thrilled by. Although we cannot do that this year, we look forward to going there in 2021 once the global situation has calmed down.

We've also made strides in providing a strong educational element, both in getting several schools to benefit from the event and in tailoring its content to be accessible to those students.

We work with a lot of players, but Goonhilly in particular is going to be an interesting group to work with because their site is such an iconic place for the UK space industry. The first satellite broadcast to the UK was received by

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the Goonhilly site, and the legacy of that history survives with the UK's space industry today. The work they're currently doing with deep space is fascinating and heralds the cutting edge of UK space science.

Often our workshops are a hotbed for member interaction, stimulating a more personal and effective relationship between our members. That is challenging to replicate online but we are going to give it a go as much as we can this year.

Instead of doing webinars, we are doing a more "online workshop" approach where we actively encourage that same discussion and debate our members have become used to at in-person events.

Question: You've supported Shaftesbury school by organising events supporting STEAM development which included a trip to visit Airbus offices in the UK. Is supporting the growth of STEAM fields in the UK something SIG is particularly passionate about, and can we expect you to launch similar programs in the future?

Helen Weedon: Definitely, it's very important to stimulate interest in STEAM at an early age. If you go to any satellite event and look around the room, you're usually going to see professionals of a monolith demographic. That's changing more in recent years, but there's still a great need for more youth and diversity in this industry, especially now it's more modern, future-facing and globalised than ever.

I would like to repeat what we've delivered for Shaftesbury in other schools and youth communities. In a lot of areas across the rural UK, there's a tragic neglection of the full spectrum of modern career paths around STEAM fields, in the satellite industry or otherwise.

There are so many opportunities the satellite industry can offer, and so much for the industry itself to gain from new perspectives, not least the longevity of their companies. There's so much talent out there in the UK that we could really stand to take advantage of on both sides of the equation.

On the trip to Airbus, we saw several children ask some very intelligent questions alongside a great deal of interest. That was just a glimpse of the potential we can capitalise on if we invest in the professionals of the future by recognising the youth of today.

The solutions to guaranteeing the sustainability of the satellite industry are waiting for us to seize them, and SIG is there to do the work to make those efforts even easier, to make access to space and satellite connectivity more feasible for everyone.

Work Microwave. Photo courtesy of SIG

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4K: A new normal

The next logical evolution of content consumption, 4K has been taking the world by storm for several years now. Coronavirus or no coronavirus, nothing can slow down its progress for long as consumers continue to demand more, better, and yesterday.

Amy Saunders, Editor, Satellite Evolution Group

The broadcast sector was already looking pretty healthy, with HD, UHD/4K and even 8K being key trends to watch amongst industry professionals. With the coronavirus pandemic sweeping the nation this year, however, more people are watching more content more frequently than ever before while holed up inside their homes, pushing the broadcast industry to previously unknown heights.

Growing to new heights?

According to a new report from Research and Markets, the global pay TV market size is expected to grow at a CAGR of 1.7 percent over 2020-2027 to reach US$260 billion. This may not seem like booming growth but considering how well embedded the pay TV market is across the world, it's pretty strong growth nevertheless, particularly with stiff competition from OTT providers ongoing. Increasingly diversified experiences are expected to be the watch word of the segment during the reporting period.

With the roll-out of 5G technology underway (despite the 5G towers under physical attack by the general public this year), the IPTV sector is expected to grow significantly. Increased bandwidth and enhanced ability to build virtual end-to-end networks for specific applications is a major driving factor for the industry. Additionally, the rapid proliferation of the 5G delivery model in emerging economies is expected to provide consumers with a 4K viewing experience.

In contrast with Research and Markets, Grabyo predicts a much dimmer future for pay TV market operators. According to a report from 13,000 consumers across 11 territories published in March, almost 75 percent of consumers plan to cancel their pay TV subscriptions within five years. The global penetration of online streaming has reached 55 percent of consumers, surpassing the 50 percent who subscribe to pay TV services. Of the global consumers who plan to stop paying for pay TV or who have already cut the cord, 26 percent reported the number one reason was the price of services. Streaming is simply more affordable and more attractive.

The report found that 66 percent of UK consumers spend up to £20 per month on video services. Some 30 percent

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reported that all their video spend is for online streaming services. The growing popularity of streaming is highlighted in the subscription to multiple services, with 28 percent of UK customers subscribing to two or more online video services, compared with 35 percent of consumers in the US, and 32 percent across Europe with multiple online streaming subscriptions. The report also nominated the amount consumers are willing to pay for online streaming services. In the UK, 40 percent state they are willing to pay up to £35 per month for online video services, which rises to 47 percent in the US that are willing to pay up to $35 monthly. Choice of what to watch, flexible subscription options and a low price point, mean consumers are looking to spend smaller amounts on multiple services tailored to their interests.

However, reports based on surveys are notoriously skewed, with consumers saying one thing and acting completely differently. While many across the broadcast sector expected 2020 to be a pivotal year in predicting the future of consumer trends, alas, this year is likely to be a spectacular outlier, with extreme habits due to the ongoing pandemic. Only once normality, in whichever form it takes, resumes, are we likely to see a more accurate portrayal of what the future of content consumption might look like.

A new normal

Whatever the outcome, whether consumers switch en masse away from linear and pay TV packages to the new world of free and subscription-based streaming services, 4K is likely to play a big role, possibly even becoming the 'new normal.'

Unlike the earlier disaster zone that was 3D TV, 4K is the logical next step in content standardisation. Largely interchangeable with Ultra High Definition (UHD), 4K delivers four times as many pixels per frame as HD: The standard format is 3840x2160 for 4K versus 1920x1080 for HD. Understandably, technophiles, gamers, sports lovers and definition snobs are all very excited, with many having jumped on board already, purchasing new TVs, set top boxes (STBs) and games consoles even before the full 4K picture emerged.

Indeed, 4K isn't truly finished yet – it's more than a matter of having four times as many pixels, as the technical people running the joint are still fine tuning further improvements such as high dynamic range (HDR), which can do more with a given number of pixels than previous technologies. Everyone in the know understands that the future (for now) is 4K HDR, more than just 4K.

Every market report to date is overwhelmingly positive on the future of 4K, and it helps that many stores across the Western World are slowly phasing out HD TVs in favour of 4K. However, there remain several sticking points regarding the technology:

Standards: As already noted, screen resolution standards for 4K have become well-established in recent years, however, there is a lot more to 4K than just pixels. 4K TVs are still being produced with HDMI 1.4, which enables 4,096x2,160 pixels at a frame rate of 24fps; this is just about enough for standard 4K video content; however, it won't cover the higher frame rates required for 4K gaming. HDMI 2.0 came onto the scene in 2017 and enables higher resolutions, higher bandwidth, and higher framerates, but in most cases cannot be retrofitted into existing 4K TVs.

Quantity does not equal quality: Increasing pixel numbers fourfold does not afford a fourfold increase in picture quality. Industry experts are looking into other ways to improve picture quality, with HDR leading the way. Wide colour gamut (WCG) and high frame rate (HFR) are other points of interest.

Motion resolution: Anyone who watches TV regularly will recognise that when there's significant movement on the screen, such as during a football match or a battle scene, there's a big loss in resolution, reportedly around 40 percent. This has not been improved upon with the evolution to 4K technology but may become addressed in future iterations.

Human potential: While our eyes can appreciate the improvement as we move from HD to 4K and 8K, we need to be sitting close enough to a large enough screen for that impact to be felt.

Most consumers sit an average of 8-10 feet away from the TV, and research has shown that an 84-inch screen would be necessary at this distance for the full impact of 4K technology to be apparent. TV screens this large are not the norm in most modern homes; while 55-inch TVs were apparently the most frequently sold globally in 2018, we've still a long way to go.

A rosy future amongst the chaos

Even in these troubling times, the future for 4K is looking brighter than ever. While worldwide, research, development, manufacturing, and content production is almost set on pause, at some point soon industry will ramp up again, and we'll return to some semblance of normal.

The continued fine-tuning of 4K devices will resume, and consumers will be able to experience unprecedented viewing quality.

For satellite operators, the rise of 4K is a positive arrow in their quiver amidst the threat of stagnant or even falling demand for traditional linear TV in the face of OTT and IPTV services. 4K brings renewed interest and demand in traditional TV consumption, and of course, higher definition content such as 4K, and maybe one day 8K, requires much more bandwidth for transmission than SD or HD content. Thus, 4K should, in time, provide a boost to the ongoing challenge of satellite overcapacity, driving demand higher and alleviating falling capacity costs.

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Rémi Beaudouin, Chief Strategy Officer, ATEME

Q&A

Streaming industry remains popular

ATEME is a broadcast equipment company specialised in video compression, encoding and decoding, operating globally with clients in more than sixty countries. Throughout the pandemic, ATEME has remained committed to delivering for their clients and partners as the streaming industry has remained popular. Rémi Beaudouin, Chief Strategy Officer, talks about how the broadcast industry has coped, and how it will continue to adapt.

Laurence Russell, News and Social Editor, Satellite Evolution Group

Question: Could you describe some challenges ATEME has faced recently?

Rémi Beaudouin: Obviously, the outbreak has presented a challenge to a lot of businesses, but it only posed a short organisational issue for us. We resolved that quite quickly, faster than we thought, in fact.

Our operational transition to a safer working model spanned just over a day, in which we moved all our staff to safe and comfortable remote locations where they could continue working full time. That's across R&D, supply chain, administration – everything.

OTT room. Photo courtesy of ATEME

A small fraction of our people are still on-site observing social distancing, but they are very few, and we've taken care to offer all realistic safety measures for them.

Question: The video delivery market is perhaps one of the few global industries with a lifeline for business as usual. What's changed about the industry with most of the planet ordered to stay home with their devices?

Rémi Beaudouin: We certainly saw an increase in content consumption. All subscription models are up. Data consumption figures we've seen from Netflix in particular have indicated a historic rise.

The downside is that this introduced a bandwidth issue, as streaming sites were strained under unprecedented viewership levels. That was quietly resolved by some players downgrading resolution a small degree in order to get more mileage out of their struggling infrastructure. That gets the job done at the cost of disrupting the user experience.

Naturally, most of our customers are telling us that they're interested in upgrading their systems to accommodate the sharp uptick. No one really wants to reduce the quality of their services to keep up, after all. So we've been very busy evaluating our clients' systems with an urgent interest to address their efficiency.

Question: On that note, how does ATEME intend to address bandwidth efficiency for their end-users?

Rémi Beaudouin: We've been working on codecs for around half of our

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company's three-decade lifetime. We've been working on optimising picture quality, pre, and post-processing, and so on, and as a result we can determine the value proposition into two aspects: increasing the bandwidth efficiency or quality at a specific bitrate.

More and more, we're hearing from customers who want to maintain their video quality but are prepared to move to a lower bitrate. That means the level of service doesn't change, but the efficiency with which it's provided is improved. That's not necessarily something our competitors are investigating, and it's proving to deliver great results for our partners.

Question: With an uptick in viewership, have there been any revelations in the development of personalised television?

Rémi Beaudouin: The outbreak has revealed a need to prioritise flexibility. Personalised television is a way to accommodate that. What I mean by flexibility concerns temporary channels. The backup solutions that keep things running when the system is under strain. Broadcasters and service providers need to review their video infrastructure in order to enable flexible operation. In the case of crises like such as the pandemic we're experiencing, providers are finding they need to open new channels to meet soaring demands, and personalised television is an extension of that. With flexible operations, you can apply even more personalisation.

Question: What does content fragmentation in personalised television mean for the movement towards customised entertainment?

Rémi Beaudouin: When you look at the situation 5-7 years ago, Netflix was the only unique OTT player offering a strong variety of content. Nowadays you have dozens more services offering to do the same thing, each of them with examples of content exclusivity. That has left people a bit lost in terms of which way to go.

It's not easy to know, off the top of one's head, what content is available where, or who owns it. Global audiences can be especially confused about all this.

For example, inside the UK, Peaky Blinders is produced by the BBC, and broadcast on their channels, outside the UK, it's understood to be a Netflix show, simply because they acquired the rights to showcase it outside the UK. They also have the right to call it a 'Netflix Original' because of that, despite having nothing to do with the production.

Those not acquainted with the broadcast industry can often be surprised by these kinds of complexities, which matters when global travellers cross borders to find that the content on their OTT platforms has changed because of the realities of licencing in different territories.

All that's to say that people aren't interested in that kind of minutia. In this increasingly globalised world, people see their friends across the world talking about a new show on a given platform, only to find that the content they're talking about isn't available on it in their country. Frustrations caused by that aren't good for business.

Question: Last time we spoke, we discussed the potential to load balance between clouds to deliver a revolution for the industry in a new era for content consumption. Do you have any follow up remarks on that subject?

Rémi Beaudouin: We're seeing more of a demand for hybrid infrastructure. That's mixing on-premises and off-premises operations.

Traditional broadcasters are looking into moving their disaster recovery infrastructure to the cloud to be more efficient. People use hybrid infrastructure using multiple clouds to gain flexibility and save on costs. So it's all about finding the best way to balance all that.

Question: What do you believe is the future of customised media?

Rémi Beaudouin: I think that we can see a future in customised media now more than ever. That's because it's a great way to reduce churn rate, and keep customers active with personal experiences, and retain a subscriber base.

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Hybrid network considerations guarantee distribution of broadcast quality content

Broadcasters are faced with a plethora of options when it comes to content contribution, with multi-layered services proving particularly popular. As the video landscape continues to shift online, networks of networks solutions are becoming more prevalent.

Photo courtesy of Speedcast/iStock

James Trevelyan, SVP Global Sales – Enterprise, Speedcast

The video market is facing unprecedented and rapid expansion as it is expected to dominate 74 percent of 5G traffic by 2024, according to a recent Ericsson forecast. This coupled with the fact that IHS Markit predicts that Over-the-Top (OTT) video services are projected to add US$3.66 billion of revenue to the direct-to-consumer entertainment market by 2023, makes it essential for global service providers to combine their linear TV channels with OTT offerings to keep up with the ever-growing demands.

Recognizing the need to deliver content to as many screens as possible or risk being forgotten, media companies are looking at solutions that enable continuous network connectivity. With highly scalable, ubiquitous coverage needed to deliver broadcast-quality content to every consumer screen, agile and efficient video solutions are a must to drive business growth and keep costs in check.

The shifting video distribution landscape

When it comes to video distribution, media companies have a plethora of different network connectivity options to choose from including satellite, fibre, cellular and public Internet – each with its own distinct advantages. While cellular networks are more fixed in bandwidth compared to satellite, the future rollout of 5G networks will drastically increase speeds, enabling media companies to deliver new services that were not possible before.

Unmanaged public Internet is a globally accessible, flexible and low-cost approach to video delivery that enables new channels to be launched quickly, which is especially important as media companies assess the success of their OTT offerings. With the amount of available last-mile bandwidth growing at approximately 30 percent per year alongside a decline in cost per unit by the same amount, public Internet is a strong contender for media companies looking to increase their services while reducing costs.

Broadcasters today are handling an increasing amount of content, resulting in time-consuming content management processes. IP delivery issues, such as route maps, latency, jitter, diversity paths, and Points of Presence (PoP) proximity, can overburden broadcast engineers. This can be especially challenging when broadcasters need to quickly turn around content.

Video distribution over public Internet is increasing in popularity due to the implied cost benefit of the backhaul, as well as advancements in encoding, decoding and fast and reliable file delivery software – there is no longer a need to worry about complex designs and management. While public internet networks do not provide a completely perfect video delivery solution, Service Level Agreements (SLAs) can help broadcasters deliver a superior quality of service at extremely attractive rates when compared with traditional methods.

In recent years, a growing number of broadcasters have also started to use fibre for point-to-point distribution, either as a replacement for satellite or alongside it. With the expansion of fibre networks worldwide and the increasing reliability that they offer, fibre provides broadcasters with a low-cost alternative using infrastructure that is already being deployed.

With public Internet, cellular, and fibre being increasingly adopted by broadcasters, does that mean that traditional delivery methods, such as satellite, will eventually become obsolete? The short answer is no. Delivering multi-platform video content is a must for media companies, making extensive access to many broadcast methods a requirement for the foreseeable future. By adopting a hybrid network, media companies can take advantage of the benefits provided by all options to securely transport multi-platform content on a global scale.

Secure, reliable networks for broadcast-quality content

Hybrid media networks offer advantages beyond simply enabling access to an expansive global infrastructure and 24/7 global support. To drive their business forward, media

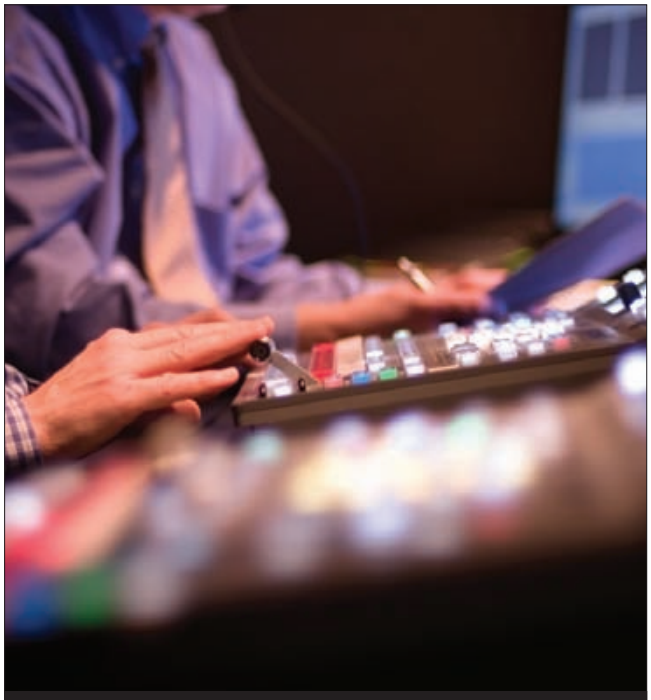
companies need to consider reliable and secure hybrid networks that offer continuous connectivity, high availability and guaranteed broadcast-quality content.

Reliability and security are critical requirements for delivering video, particularly for premium content such as live sports, high-profile events and breaking news. At the heart of hybrid networks is a robust backbone that enables the transport of rich media and data content from any origination source to any destination, regardless of the format or platform. Whether media companies are reliant on a fully managed IP transport solution, satellite or the cloud, real-time content can be delivered effortlessly anywhere in the world with the utmost dependability.

Traditionally, achieving continuous connectivity has been a major challenge for media companies, requiring payment for a range of different proprietary network systems or services to offer low latency, premium content with an acknowledged broadcast standard 99.99 percent availability. Hybrid networks maintain continuous connectivity through a combination of high-bandwidth mobile, wireless or wired connections and a terrestrial network, enabling both the contribution and distribution of content using the most accessible and efficient path for increased viewer satisfaction.

Changing demands call for evolved networks

As customer viewing habits are changing, so too are the technologies used to deliver video content. Having access to more than one network means media companies have built-in operational flexibility to support an array of applications including everything from aggregation and contribution to integrated channel playout, OTT streaming and distribution. In other words, you can deliver linear channel or event-based content to cable operators, regional broadcasters, over-the-air affiliates, virtual Multichannel Programme Video Distributors (MPVDs), Direct-to-Home platforms and through to the consumers' living rooms from one single provider.



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> "Reliability and security are critical requirements for delivering video, particularly for premium content..."

Today's hybrid networks often include cloud components that reduce the cost of multi-platform video delivery and increase a media company's agility to provide content in line with customers' increasing demands. Cloud technology offers a faster approach to launching new channels and improved scalability, allowing media companies to outsource the on-screen presentation with compelling graphics, subtitles, legislative regulations and multiple language transcriptions at a much lower cost than traditional playout and distribution methods. With almost 40 percent of broadcasters already deploying cloud-based technology and an additional 52 percent saying they are likely to adopt it, according to the IABM NAB 2019 cloud adoption survey, cloud-based technology seems set to play a vital role in the networks of the future.

Meeting diverse content delivery needs

With the demand for sports content ballooning and content distributors increasingly shifting towards delivering bandwidth-heavy 4K services to provide the ultimate experience for viewers, media companies need to adopt next-generation technologies that offer more flexible operations and a faster return on investment.

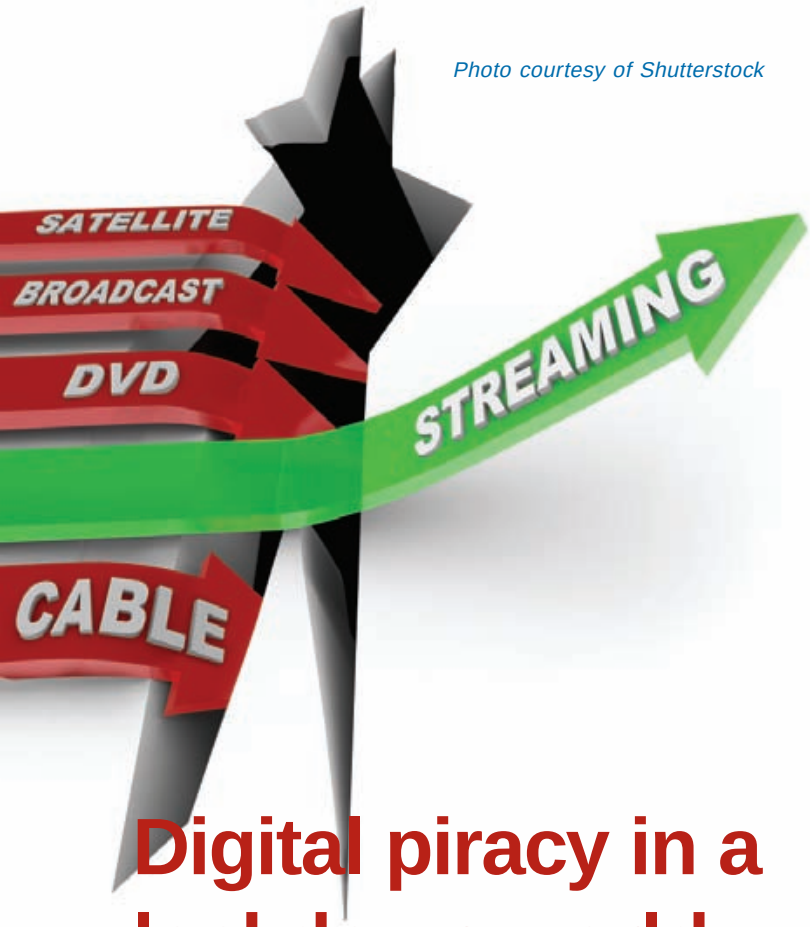
Reliable communications require a fully managed service delivered via a global, multi-access-technology, multi-satellite-band and multi-satellite-orbit network, such as the Speedcast Media Network (SMN). Acting as a global 'network of networks,' it utilizes individual or multiple transmission technologies for the distribution or contribution of live or on-demand linear or digital video.

With ubiquitous access to more than 80 satellites, the SMN provides extensive satellite capacity globally and connects to an integrated fibre, cellular and Multi-Protocol Label Switching (MPLS) backbone spanning 50 PoPs with direct links to the AWS CloudFront. This allows providers to receive and redistribute high-bandwidth, broadcast-quality content — including live streamed sporting events — at a lower price.

Preparing for the demands of the future

With recent technology advancements, customers have come to expect high-quality, reliable video content on any device, in any location, and this is a trend that is only set to continue. In order to address these ever-increasing demands, media companies will be expected to upgrade their networks and utilize a range of possible network connectivity platforms.

Broadcasters worldwide should look to adopt solutions that cater to a multi-platform infrastructure. In doing so, they can save on implementation time and overall cost and improve operational efficiencies, enabling them to focus their resources on other important tasks, such as content creation, audience development and monetization – to ensure high customer satisfaction and success.



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Digital piracy in a lockdown world

Digital piracy has always been a problem for the broadcast sector, with illegal copies of films, series, music, and sports being shared online with increasing frequency. With the onset of the coronavirus pandemic, instances of piracy have exploded as more people than ever have more free time to fill.

Amy Saunders, Editor, Satellite Evolution Group

The broadcast sector is certainly looking rosy right now! Often considered a safe mainstay for satellite capacity leasing with steady market revenues, the COVID-19 pandemic of this year has seen a sudden boom in the number of viewers across the globe. With millions of people in Europe, the UK, Asia, and the Americas on lockdown, many unable to work or on furlough, consumers have got a whole heap of time to fill on their hands. Of course, some are getting on with long overdue home improvements, while others are enjoying more time spent on their hobbies. It's inevitable though that many of those people stuck inside will be spending a great deal more time, consuming content.

Even with cinemas, theatres and other venues closed for the foreseeable, there are plenty of options when it comes to content consumption, including traditional linear broadcast TV, DVD/VHS, modern Over The Top (OTT) content providers such as Hulu and Netflix, as well as Video on Demand (VoD) applications like BBC iPlayer and other catchup services. The latter two options – OTT and VoD – also come with their own inherent flexibility, with viewing possible on a wide range of smartphones, smart TVs, and tablets, at any time or location that suits the viewer. It's not hard to see why OTT and VoD services have skyrocketed in popularity in recent years, or indeed why these services have been hailed as a sanity-saver for many during the current crisis.

Opportunities among crisis

Back in January and before anyone fully realised the true level of threat and the resulting impact across so many business areas worldwide, Research and Markets released a report on OTT services market expectations from 2019-2024.

The group expected the global OTT services market size to grow at a CAGR of 14 percent from US$81.6 billion in 2019 to US$156.9 billion by 2024. Major growth factors highlighted in the report include high-speed Internet proliferation with the penetration of smart devices, which resulted in smartphone and tablet streaming services leading the OTT segment in 2019, as well as increased flexibility and ease-of-use. The VoD segment is expected to grow at the highest CAGR during the 2019-2024 period, largely driven by the flexibility, comfort and personalisation of content. Subscription-based OTT services are envisaged to continue to show strong growth from an already impressive base of more than 158 million paid subscriptions in 190 countries amongst Hulu, Amazon, and Netflix. Regionally, the Asia-Pacific is expected to show the greatest CAGR over 2019-2024 as high-speed broadband and smart devices become ever-more common.

New market entrants Disney Plus and Apple Plus (both launched November 2019) were expected to have a big negative effect on Netflix, however, the OTT giant has proved itself unshakable. In the US alone, Netflix has more than 60 million subscribers compared with 128 million households; and of the US households with OTT subscription services, 87 percent have a Netflix subscription, according to Forbes. While the company's success is often attributed to its global stature (most of the hundreds of OTT providers are regional), in recent months Netflix has positively boomed off the back of increased numbers of bored viewers isolated at home, increasing its subscriber numbers by 16 million in the first three months of the year (it's greatest quarterly growth since launch). Moreover, with cinemas shut down for the foreseeable and all filming halted, production studios such as Paramount have opted to release their new content directly via Netflix, appealing further to new would-be subscribers.

Opportunists

As OTT and VoD consumers have grown drastically in recent months, so too has piracy. In the olden days, content piracy was limited to the blatant copying of physical storage mediums like VHS, DVDs, game discs and CDs. With the widespread roll-out of broadband, piracy became more sophisticated, and anyone with the inclination could download content off the Internet without ever having to handle the physical goods.

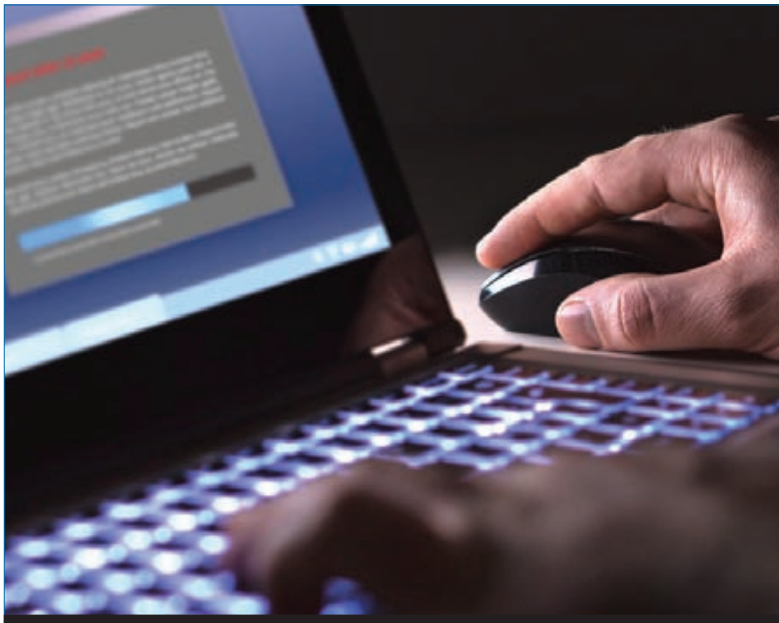
Nowadays, the piracy landscape is changing as content consumption shifts away from physical DVDs and storage

devices to streamed content via OTT and VoD. Global revenue loss due to piracy is huge, and content rightsholders are suffering due to illegal use. A constant battle rages on as rights owners wage war to keep their content secure, while pirates find ever more advanced ways of bypassing security measures. According to Network equipment company Sandvine, piracy is a particular problem in the Middle East and North Africa (MENA) region, where 23 percent of Internet users have subscribed to a pirate IPTV services, compared with 5.8 percent in Europe and 6.9 percent in the US.

Since the start of the coronavirus pandemic, demand for pirate content has ballooned to an all-time high. Digital piracy authority MUSO reports that by the last week of March, film piracy had increased month-on-month by 41 percent in the US, 43 percent in the UK, 50 percent in Spain, 62 percent in India, and 66 percent in Italy. Interestingly, when health officials identified the coronavirus on 7 January, demand for thriller movie 'Contagion' had increased to 546 visits; by 30 January, visits had increased to 30,418 for that day alone. Throughout the month of February, a whopping 11.2 billion visits to pirate websites were recorded by MUSO.

Meanwhile, OTT and VoD content distributors are also seeing increasing instances of credential sharing – the sharing of log-in details for subscription services – amongst friends and family in recent months. Indeed, a OnePoll study reported that as of March, 42 percent of adults were sharing account details, up from 28 percent in 2019. Whether such credential sharing counts as piracy in the strictest sense – it probably does, or at least infringes on the user agreement – the ability to log in to OTT sites such as Netflix from anywhere and on any device means that it is incredibly hard to police.

With the financial losses felt widely and deeply throughout the broadcast sector, it should come as no surprise at all that people are desperate to get a handle on it. Potential solutions to tackling piracy include sending takedown notices to third parties which enable piracy; investigating and taking action against pirates; working with ISPs to block access to pirate websites; and using watermarking technologies to find and end subscriptions used by pirates.



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Digital watermarking – the solution?

Watermarking is one of the hottest solutions broadcasters and OTT providers are increasingly utilising to keep ahead of the threat of piracy.

The solution sees a digital watermark covertly embedded in a noise-tolerant signal – this might be audio, video, or image data – to identify copyright ownership. This type of watermarking is used to verify the authenticity or integrity of the carrier signal or to show the identity of its owners. One of the applications of digital watermarking is source tracking; a

watermark is embedded into a digital signal at each point of distribution, and if a copy is found later, then the watermark may be retrieved from the copy and the source of the distribution identified.

The technique is clearly invaluable in the fight against piracy. A whole host of companies now offer digital watermarking solution covering the entire broadcast sector, with new ever more advanced offerings launched frequently.

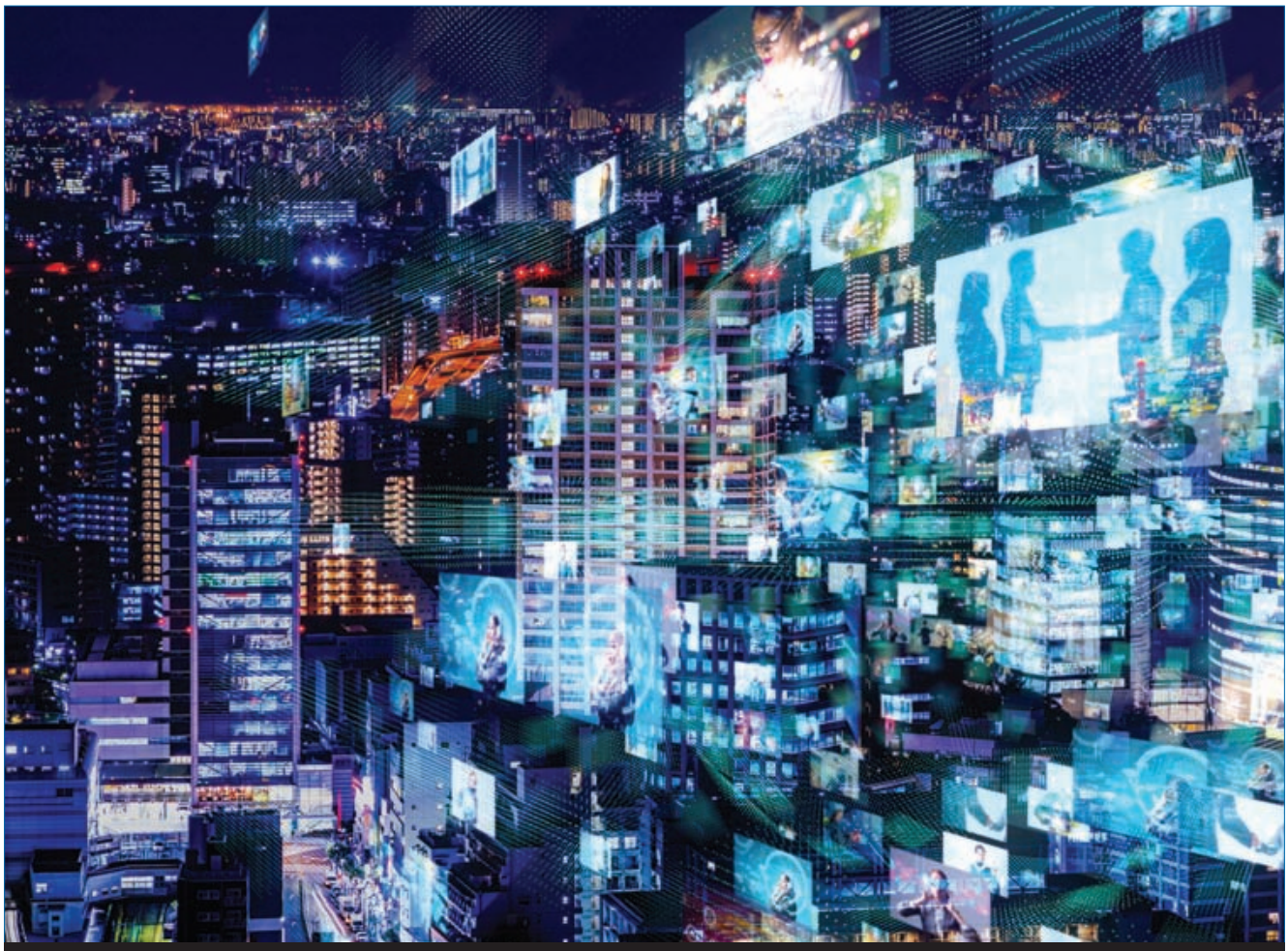
April saw NAGRA launch NexGuard Streaming, a streaming watermarking solution for OTT services integrated with Akamai, an intelligent edge platform for securing and delivering digital experiences.

The integrated solution leverages Akamai's edge platform to bring a new level of anti-piracy enforcement and revenue protection to rights holders and content owners which enables them to stop pirated video streams of live sports and premium VOD content in real-time and increase the traceability of those premium assets.

NexGuard Streaming enables content owners and pay-TV operators to actively fight commercial piracy, by identifying the source of a content leak within minutes and allowing targeted anti-piracy actions to stop illicit content restreaming as a result. The solution embeds a session-specific forensic watermark for both premium OTT VOD and OTT live channels. It works with any OTT streaming device and client application, removing the need for any device-side integration. It scales easily to millions of concurrent sessions with CDNcaching and works with all common streaming formats and DRMs.

In the same month, Verimatrix also announced a partnership with Akamai to offer global enterprise server-side watermarking capabilities. By using Verimatrix server-side Watermarking pre-integrated with Akamai's intelligent edge platform, Akamai customers can take advantage of a highly efficient, powerful approach to ensure that their premium video content stays protected.

Verimatrix Watermarking consists of session-based, user-specific tracking and source identification, which allows operators to trace sources of pirated content in real time. Robust against various attack types, the solution includes compression, recording/capturing, re-streaming, collision, and geometric manipulation. Akamai customers can enable the StreamMark server-side version of the Verimatrix Watermarking solution to embed robust, secure, and imperceptible watermarks in digital content before delivery to each client device. The solution is pre-integrated with Akamai workflows to protect unicast OTT delivery by uniquely marking individual sessions without requiring client device integration. It protects Akamai customers' valuable content against re-broadcasting threats and subscription fraud in real time.



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Utilizing satellite for the new era of broadcast

There's no arguing that the broadcast industry is changing rapidly, as new technologies allow all those in the production and distribution chain to operate more efficiently than ever before. Satellite news gathering (SNG), in particular, has seen huge advancements in recent years, thanks in part to new IP-enabled technology.

Hans Massart, Head of Media and Broadcast, ST Engineering iDirect

In an increasingly connected world, Occasional Use (OU) broadcasters need the capability to share breaking news and live sports events at record-breaking speeds across multiple platforms. Evolving technology has created an expectation of instant access to information, no matter what time of day it is or where in the world an event is happening. The highest quality video format is also required to provide a viewing experience that is as close to the real thing as physically possible.

This presents challenges as the broadcast industry moves towards providing a combined media experience, encompassing not only live video, but also social media and online content. As such, existing OU solutions are under increasing pressure to provide the much-needed flexibility to handle multiple video formats and address modern expectations. Although live events have currently been suspended due to the pandemic, sports and events will come back – better than ever – and broadcasters need to be prepared.

The quest for efficiency and the IP evolution of newsgathering

In line with this, the Outside Broadcast (OB) or Satellite News Gathering (SNG) truck has become increasingly sophisticated as time has moved on, enabling broadcasters and news agencies to get to the scene rapidly to set up and start broadcasting within minutes.

Long gone are the days when a journalist would have to physically transport a tape back to HQ after covering a story so that it could make its slot on the evening news. Technology and digitalization have transformed OB and exponentially expanded a broadcaster's capabilities in the field. There are currently three methods of newsgathering used by broadcasters.

Traditional SNG

SNG is the use of mobile communications equipment for the purpose of worldwide newscasting. Mobile units are usually vans equipped with advanced, two-way audio and video transmitters and receivers, using dish antennas that can be aimed at geostationary satellites.

Traditionally, newsgathering and sports coverage was

Hans Massart, Head of Media and Broadcast, ST Engineering iDirect

handled by dispatching large trucks manned by various technically skilled people for each and every event. Each service had its own communication requirements. Bi-directional communication was often limited to voice using solutions such as ISDN. While these trucks had great coverage and could provide high bandwidth and availability, for many newsgathering operations they were simply too expensive to build and maintain and well as too large to get close to an unfolding scene.

Cellular bonding

The industry then made a move to cellular bonding technology, which has become an increasingly popular choice for broadcasters. Utilizing 3G and 4G cellular networks to bring video back from the field, cellular bonding involves dedicated equipment and All-IP transmission. It is easy to use and enables broadcasters to get close to an event. However, cellular bonding relies upon bandwidth availability and if networks are contended, the overall quality of the transmission is negatively impacted.

Blending all-IP networks

The next shift in newsgathering technology is occurring with the blending of all available IP networks. This eradicates the concern of degradation of transmission when relying on cellular bonding by ensuring that satellite is used when IP terrestrial networks are unavailable, do not provide enough bandwidth, suffer from jitter and are not cost-effective. In these cases, the system simply switches to satellite in order to create a highly reliable connection no matter where the news or event is breaking.

Over recent years, there have been significant advances in satellite technology that offer broadcasters new means of delivering high-quality video. For example, Ka-band satellites offer higher throughput and can be used with smaller terminals that require less power than traditional Ku-band satellites that are primarily used on SNG trucks.

Today, a mix of technologies is employed to cover live

events over a multiservice communications link. The power of IP makes this possible. For broadcasters, the ability to use multiple networks, such as 3G and 4G or Ka- and Ku-band satellite, is essential. When terrestrial transmission becomes contended, the satellite link must also be able to adapt and scale dynamically to higher bandwidths.

Innate and unique ability

The key to all-IP newsgathering is successful transmission – which is why satellite is perfectly placed for use in broadcasting. During the Copa America football event last year, Casablanca Online, a leading Brazilian SNG and service provider, needed a reliable and cost-effective solution. SES' OU Flex solution – powered by Newtec Dialog – provided IP connectivity to broadcasters' outdoor production teams at the Morumbi Stadium São Paulo where a Copa America game was held between Chile and Peru. Combining live video transmission and IP connectivity via satellite, the Newtec Dialog-based solution enabled both data and video applications for OU services.

The solution was integrated into Casablanca Online's existing SNG Trucks via our MDM3310 broadband modem, which requires significantly less investment compared to other technologies. This enabled a two-way connection between the stadium and the studio, providing greater flexibility to facilitate remote production and distribute video content to online platforms. As a result, Casablanca Online was able to provide guaranteed and glitch-free IP connectivity over a 40Mbps link, allowing the field teams to operate optimally.

Increasing availability – anywhere, anytime

To facilitate optimal IP newsgathering and ensure efficient and effective use of the space segment, operators need a solution which provides high-quality IP connectivity to manage entire video and data content contributions, with guaranteed quality of service in any condition. Any technology solution selected should also enable video content distribution, live video sharing on social media, file sharing and Internet connectivity. This will enable broadcasters and SNG operators to enrich the viewer's experience throughout the live broadcast.

Photo courtesy of Shutterstock

Copa America. Photo courtesy of SES

One final factor to consider is the availability of a network connection once broadcasters arrive on location. At a busy event such as a live sports game or an emergency situation, the network easily becomes congested due to a high level of other reporters and users in the area. Therefore, a solution is needed where broadcasters can book connectivity easily and in turn, receive a dedicated, secure service with guaranteed throughput, no matter how many other broadcasters are operating at the same time.

One example of such solution which addresses these requirements is Newtec Dialog. This is a scalable and flexible multiservice satellite communications platform, which creates an adaptable solution for OU broadcasters. With the support of its return technology, Mx-DMA®, it enables bandwidth to be allocated dynamically as it is needed, while also ensuring the highest quality. This is particularly beneficial for video transmissions and further enables post-production tasks and other supportive efforts to be completed more quickly, efficiently, and effectively.

A new era

By adopting a flexible solution, this opens a world of possibilities for broadcasters by providing the ultimate viewer experience, allowing them to be in the moment, even when they are not physically there, while also enabling operators to be at the cutting edge of technology.

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Global Distribution Services

Adopting a hybrid distribution strategy is now more important than ever

In these times of COVID-19, viewing habits across the world have shifted immensely, with the amount of content being watched globally skyrocketing. Never before has content distribution technology been as important as it is today, and hybrid distribution strategies are now playing a major role at corporations worldwide.

Markus Placho, Vice President of Product, SES Video

Over the last few months, the world as we knew it transformed. We went from being able to travel from one end of the globe to the other to being isolated at home. We went from working at the office to doing so remotely at home alongside our partners and children.

However, even in challenging times like this, we have seen that content and connectivity remain essential, perhaps even more so while socially distancing ourselves. As people seek updates on developments around the pandemic, many turn to reliable news channels. In fact, Comcast data shows that there has been a 64 percent increase in consumption of news programming since the start of COVID-19, and this number could rise again as some countries go back into lockdown to prevent community spread.

In the last months, we have also seen a significant increase in linear TV consumption, especially amongst younger audiences, as VAB report found that teenagers ages 12 to 17 spent 175 percent more time watching TV in March compared to previous months. Adult audiences, aged 35 to 49, have increased their habits by 42 percent in the same time period.

Markus Placho, Vice President of Product, SES Video

COVID-19 has not only had its impact on news consumption and linear TV. Global streaming is also up by 57 percent year over year, as reported by Conviva, with the global pandemic and stay-at-home orders in Q1 being main contributors to this increase. Moreover, Conviva observed a 79 percent spike in viewership of on-demand content.

Slowly and surely, the world is learning to live with COVID-19 as seen with live sports and events coming back on in full force. With no fans onsite, it will be even more important for global distribution to take place in the most effective manner and to the widest possible group.

In a world without a vaccine, more people will be spending their time at home. Content consumption will continue to be high and audiences will be on the lookout to watch both live news, sports, interactive shows, and primetime content as well as films and series.

Challenge of audience fragmentation

While the increased consumption of content is an opportunity for broadcasters, pay-TV operators, and content owners to reach, engage and retain audiences, it's also a challenge because of audience fragmentation.

Today in the United States there are estimated to be more than 300 streaming services available. With the simple touch of a button, consumers can watch hundreds of hours of content on a variety of different screens, including smartphones, tablets, PCs, and TVs, and in different resolutions, from SD to HD and UHD. Customer loyalty seems to be a thing of the past, and what is needed instead is the best offering that caters to the various audiences in a household.

Hybrid distribution solution: An opportunity for growth

If there's one thing that COVID-19 has shown us in the broadcasting world, it's that audiences want both linear TV and OTT content as seen in an increase in viewership across the board over the last months.

In order to stay competitive, broadcasters need to make sure they provide an excellent viewing experience and ensure simplicity for consumers to access content. That is where hybrid content distribution comes in. By providing both linear TV and OTT content, consumers can enjoy the best of both

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worlds easily. According to studies by Leichtman Research Group, more than half of US households have both a pay-TV and online video subscription, and this has been rising steadily.

Many operators are streaming content online now to address the change in consumer viewing habits and grow their revenue streams. Ultimately, operators want to give consumers a simple way to access content. Recently, NBCUniversal launched Peacock, a new OTT service offering 15,000 hours of video, including live and on-demand content. Sky has gotten into the video streaming business with its Sky Multiscreen service offering viewers flexibility to watch content on numerous screens. This summer, ViacomCBS will expand the scope of content available for its CBS All Access service, after identifying streaming as one of the company's fastest-growing divisions.

Advantages of a Multiscreen Distribution Strategy

Adopting a multi-platform, multiscreen content approach is a great way for broadcasters and video service providers to show that they are responsive to viewers' needs in this COVID-19 era. Consumers today care about convenience, especially when spending most of their time at home, looking for various ways to be entertained. They want to be able to access a wide variety of content in different ways. Offering multi-platform, multiscreen content will increase their satisfaction with the service and build brand loyalty.

Beyond the convenience factor, delivering multi-platform, multiscreen content is a way for operators to offer different types of content on different screens to enhance the general TV experience. An example of that is providing viewers with complementary content on a second screen. This can be done with live sports statistics while watching a baseball game on the main TV, subsequently enriching the TV experience. In fact, this is something audiences are already doing, presenting an opportunity for broadcasters. According to Nielsen, 88 percent of Americans use a second digital device while watching TV, with 71 percent reportedly looking up content related to what they are watching.

Photo courtesy of SES

Photo courtesy of SES/Getty Images

Delivering more content on more screens is also an opportunity for broadcasters and service providers to explore additional advertising based on the type of device viewers are watching content on and how they receive specific advertising.

Another benefit of delivering content on multiple devices is the ability to collect and analyze data based on video consumption habits. With greater insight into what viewers are watching, content providers can shape the type of content and advertising they are delivering in order to ensure its relevance to the viewer. Dynamic ad insertion (DAI) is expected to be a major revenue opportunity going forward. In fact, Dish's Sling TV tripled its advertising revenue in 2018, in large part thanks to DAI, according to the company.

Though there are many linear broadcast and OTT services available, from the consumer point of view, they often exist in separate independent environments. For example, viewers need to start a separate app on the TV to access OTT content and then jump to a different section on the connected TV or even to a different device (i.e., set-top box) to consume linear broadcast TV. It's important that broadcasters, pay-TV operators, and content owners not only distribute content in a hybrid way, via broadcast and OTT, but also offer a seamless experience for the users.

As the leader in global content connectivity solutions, we at SES are in a unique position to consult and advise our customers to ensure their success. We see opportunities even in COVID-19 times that we need to help our customers simplify their multi-platform and multiscreen video distribution. With their infrastructure concerns taken care of, they can truly create compelling video offerings and reach the widest target audience possible, all while delivering the best consumer experience and driving new revenue.

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The evolving role of satellite for broadcast

The broadcast sector, one of satellite's mainstay applications, has been suffering in recent years in light of the shift towards IP, OTT, and other satellite-free contribution and distribution methods. However, satellite has proven itself vital to the broadcast sector time and time again and focusing on new broadcast niches could prove a boon to satellite operators everywhere.

Helen Weedon, Managing Director, Satcoms Innovation Group

The broadcast industry has been experiencing a monumental shift over recent years. At the end of last year, research from Grabyo suggested that over-the-top (OTT) platforms had overtaken pay TV services in popularity. That was according to a survey of almost 10,000 consumers across Europe. According to Grabyo, 65 percent of consumers who have stopped subscribing to a pay-TV service now use an OTT service instead. At the same time, the report states that 58 percent of those planning to cut the cord over the next three years already subscribe to an OTT service.

The global pandemic has accelerated many trends even further. With people across the world having been confined to their homes for several months, video consumption has unsurprisingly increased. Business insider claims that the pandemic will fuel an acceleration in time spent with subscription OTT services. This is partly driven by new streaming platforms emerging with premium content, especially those with films that would otherwise have been screened in cinemas. The shift towards cord-cutting also seems to have been accelerated, partly due to a lack of live sports leading consumers to cancel cable subscriptions.

What do these trends mean for satellite? Is it the end of a healthy relationship between broadcast and satellite?

Is broadcast shifting away from satellite?

Broadcast has always been one of the biggest customers for satellite and a key market for service providers. Satellite has long been considered the most reliable method of broadcasting and has, on the whole, always ensured a good level of Quality of Service (QoS) for the end-user.

However, broadcasters are facing their own set of unique challenges, and a number of factors are forcing them to look to other means of contribution and distribution:

1. Shift from pay TV to OTT

An increasing proportion of broadcast video is now delivered OTT. As subscriptions to pay TV continue to fall, even those traditional broadcasters are looking to OTT services to deliver content direct to consumer. While satellite can enable these services, currently that is not the method of choice. As they become more Internet-based, it becomes the norm to use IP throughout the entire workflow.

2. Increasing competition

While COVID-19 has further accelerated the demand for video content, more services are being launched all the time, giving consumers more choice than ever before. A recent study from

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Ampere Analysis states that an average US SVOD household has access to around 100,000 hours of content. According to Ampere, it would take 11 years to watch it all back-to-back, and nearly 70 years if the average viewer watched an average of four hours per day. This surge in video content means that broadcasters and content providers need to cut costs in order to remain efficient and drive subscription costs down.

3. Loss of C-band

The loss of a significant part of the traditional satellite C-band allocation has already begun in the US and is likely to follow in many other regions across the globe. This is forcing broadcasters currently relying on satellite to move to Ku and Ka-bands for satellite feeds. Naturally, this means they are more susceptible to rain fade and weather permeation, which is causing broadcasters to question the reliability and, in many cases, put in back-up feeds.

4. Broadcast tech is advancing

A few years ago, most broadcasters would not have felt confident relying on IP for contribution and distribution. Now that has changed and the global pandemic is even accelerating a shift towards IP, due to the flexibility and cost efficiencies it affords.

It's no longer the case that satellite is the only method of reliable contribution – now there are several options for broadcasters, and often at a better price, too.

Photo courtesy of SIG

How satellite is adapting

While all of this is true, satellite still has a crucial role to play in the broadcast arena, it is just a question of shifting perspective.

Firstly, in some cases, satellite will continue to be the main method for contribution and/or distribution. Live sports are the prime example where satellite is still the first choice. It will continue to be so for quite some time because it has a greater global reach than any other method currently and enables very quick point to multipoint delivery. Naturally, recent months have seen an instant stop to all forms of live sports which will no doubt have had an impact felt throughout the industry. Now, things are starting back up again and there is a backlog of sporting events that broadcasters are trying to fit into tight schedules. Satellite will likely have an important role to play in making those available across the globe.

Secondly, rather than necessarily assuming IP contribution and distribution is a threat to satellite, we should be looking at how the two can work alongside each other. Often broadcasters may find it is too expensive to use satellite for both contribution feeds and distribution. In those cases, IP could be used to capture and deliver the contribution feeds cost-effectively, and satellite used to distribute. At the same time, satellite and IP often work together well with one as the main feed and the other as a back-up. IP could also, for example, enhance the viewer experience of live events broadcast via satellite by delivering multiple and additional camera angles via IP.

Satellite as an enabler of new technology is an extremely attractive proposition for all parties. For example, the recent rise in content consumption even led to Netflix temporarily downgrading the quality of its streams in order to manage the demands on capacity. One thing satellite certainly does well is provide vast amounts of capacity, which could certainly help to plug that gap.

5G is another example of how IP and satellite might work together in the future. 5G is set to provide a big opportunity to satellite, which will in turn enhance 5G. I can see 5G cutting latency for IP contribution and distribution workflows to almost barely noticeable levels and it will also allow for more content to be contributed back to base, with reserved spectrum for broadcasters. All the while, satellite should be the technology behind 5G that is providing the connectivity to make it all happen.

Satellite's role in the future of broadcast

While the broadcast landscape is certainly evolving and moving away from the traditional approach that the satellite industry is most familiar with, it definitely does not spell the end of a good relationship. However, the satellite industry needs to take a much more proactive role in providing the extra layers of connectivity to enhance the terrestrial infrastructure. Satellite is ideally suited to add the extra dynamic of managing global connections seamlessly and the ability to pass huge amounts of data. The satellite industry needs to think about the positive role of its infrastructure rather than always looking like a 'back-up system' for communications.

Satellite has huge potential to drive a lot of that change in broadcast and if done well, it will remain front and centre for many years to come.

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For further information visit: https://advantechwireless.com

Advantech announces technology partnership
Advantech Wireless Technologies has signed a sales and distribution agreement with TXMission, a designer and manufacturer of high performance SmallSat modems for the NewSpace Industry. The companies will together develop a comprehensive suite of SmallSat, Airborne and Comms-On-The-Move (COTM) communication products for markets requiring versatile, extremely low size, weight and power (SWaP) products that provide leading-edge performance. The range of fully integrated SmallSat and UAV/Airborne products to be developed will include advanced RF transceivers, multi-gigabit modems for onboard and ground segment applications, low SWaP satellite terminals, antennas, network management systems and 5G technology solutions.

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For further information visit: https://www.avltech.com

Isotropic Systems has cracked the code for next-gen connectivity
Isotropic Systems' transformational terminals feature patented optics and beamforming technologies capable of unleashing the full potential of new satellite constellations set to come online in the next two years. The roadmap features a converged antenna that operates in multiple frequencies and multiple beams, meaning commercial and government users of the platform can completely arbitrage all the capacity in space through a single terminal.

Isotropic Systems' first-generation multi-beam terminal is a Ka-band platform set to serve Non-Geostationary Orbit (NGSO) constellations. The company has contracts with SES and Inmarsat, as well as US Defense organizations ready to leverage the breakthrough terminal.

For further information visit: https://www.isotropicsystems.com

Intellian

Intellian's next-generation tri-band maritime antenna earns type approval from SES

Intellian's recently launched 2.4m v240MT Gen-II antenna has achieved type approval from SES, the leader in global content connectivity solutions. Intellian's v240MT Gen-I was the world's first 2.4m tri-band and multi-orbit antenna.

The v240MT Gen-II delivers enhanced performance across C, Ku and Ka-bands, providing customers with access to higher throughput and offering improved network efficiency to the operator. These advances were proven in partnership with SES, with the new system producing exceptional results during testing and sea trials.

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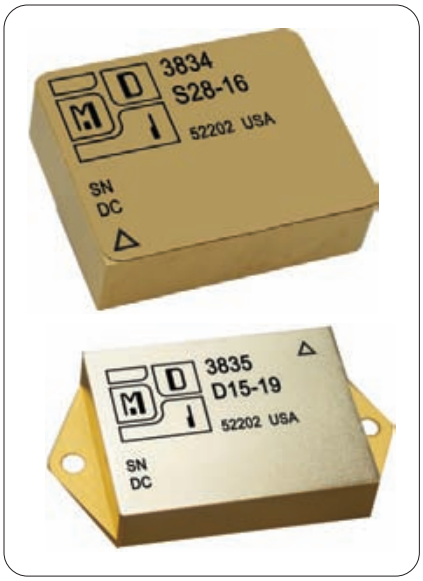

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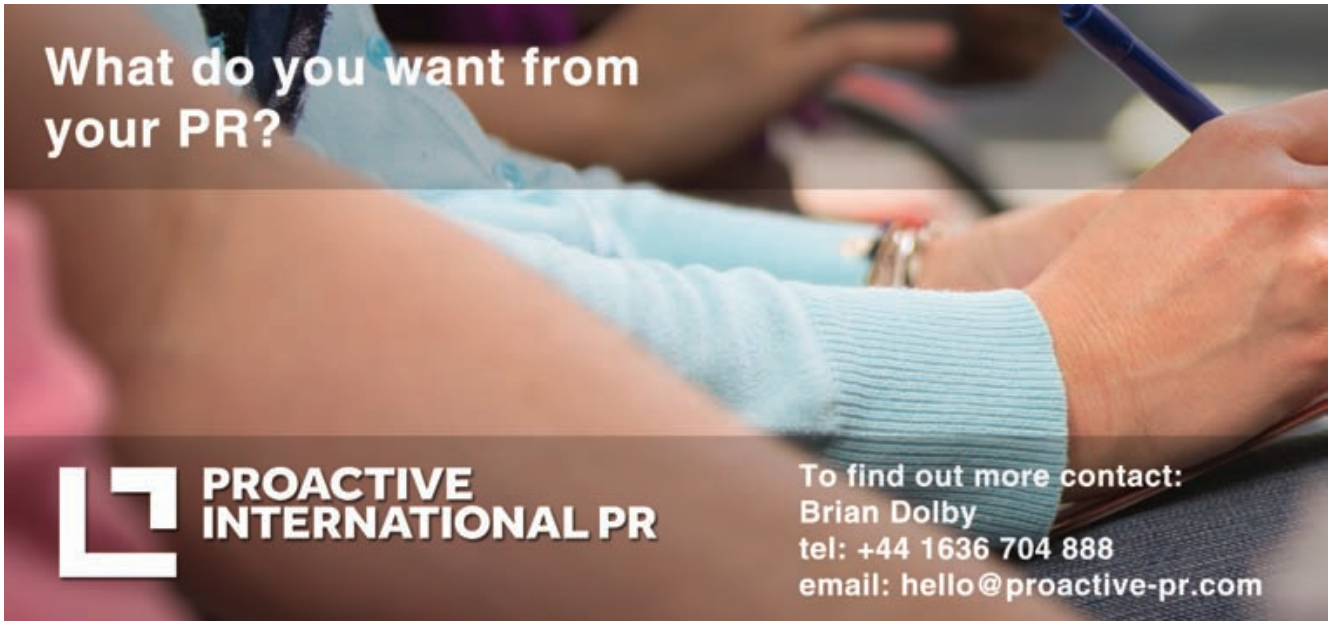

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For further information visit: https://www.septentrio.com

Teledyne launches new Hi-Power Limiter for military apps
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