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March/April 2019

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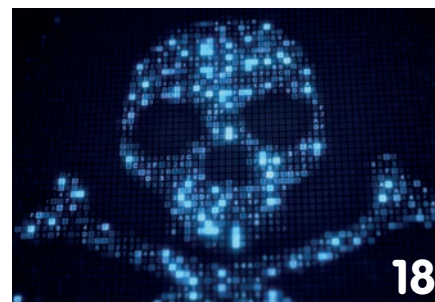
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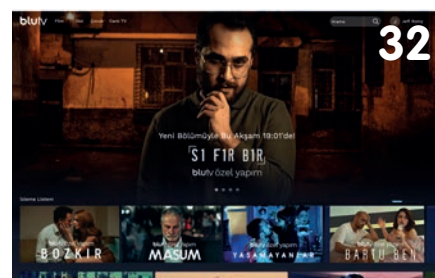
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Age of disruption

The OTT TV revolution continues, and its impact is being felt across all elements of TV, from content creation to the screen on which that content is viewed.

In this issue of *Digital TV Europe*, we look at three different topics that underscore the huge changes in TV production, distribution and consumption that are underway.

First, we look at the changing nature of the TV user experience. OTT services such as Netflix have helped transform the expectations of a mass of users about how TV services should look and feel and how best to search for and consume content. Now mainstream TV operators are increasingly under pressure from their users to provide universal search and discovery – tools that span not only the walled garden of the pay TV provider's own services but a broad and ever-expanding range of third-party offerings too. We look at some of the technology challenges involved in providing universal discovery and some of the tools being made available that can help it along.

The growth in popularity of OTT streaming services reflects the wide availability of high-bandwidth broadband and the plummeting price of the technology required to get OTT video services up and running. Those developments have benefited not only legitimate rights-holders seeking to deliver services to consumers but those in the business of content theft too. Streaming piracy has exploded over the last couple of years, with many services having a highly professional sheen.

Also in this issue of *Digital TV Europe* we look at the extent of the threat to revenue of legitimate providers and assess some of the strategies being adopted to combat that threat.

Growth in popularity of streaming services and on-demand consumption has also prompted linear broadcasters to develop their own online portals and to find ways to fruitfully combine linear and non-linear in a single unified platform. Hence the adoption of standards-based ways to delivering services such as HbbTV, the rationale of which is to future-proof broadcast.

In this issue, we look at recent developments in hybrid delivery including the DVB-I initiative and HbbTV OpApp, a new effort to enable service providers to deliver 'TV as an app' services.

Within the streaming world, the subscription video-on-demand model has emerged as the most popular and potentially lucrative way of monetising content to date. In addition to the established SVOD giants, numerous regional and niche operators have launched their own offerings, with varying degrees of success. Also in this issue, we interview the founder of Turkish OTT TV platform BluTV , who discusses his company's model, expansion plans and original content strategy.

Elsewhere, we look forward to the ANGA COM trade show in Cologne in June and, as always, provide a digest of the latest industry news and technology developments. ●

Stuart Thomson, Editor
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News digest

Disney finalises 21st Century Fox merger

By Stuart Thomson >

Disney has completed its US$71 billion (€62 billion) acquisition of the bulk of 21st Century Fox, paving the way to create what Disney chairman and CEO Bob Iger described as "the preeminent global entertainment company, well positioned to lead in an incredibly dynamic and transformative era."

Disney is acquiring 21st Century Fox's film production businesses Twentieth Century Fox, Fox Searchlight Pictures, Fox 2000 Pictures, Fox Family and Fox Animation; Fox's television units Twentieth Century Fox Television, FX Productions and Fox21; pay TV network FX Networks; National Geographic Partners; Fox Networks Group International; pay TV outfit Star India; and Fox's interests in Hulu, Tata Sky and Endemol Shine Group.
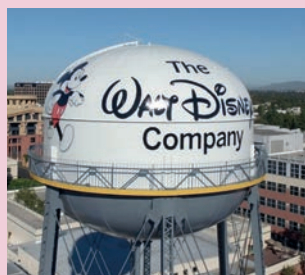
Disney will divest 21st Century Fox's regional US sports channels as a condition for regulatory approval of the deal.

The media giant is also acquiring US$19.8 billion of cash and assuming approximately US$19.2 billion of Fox debt as part of the agreement.

21st Century Fox has meanwhile also completed the spin-off of the principally linear broadcast assets that will comprise the new Fox Corporation, including Fox News Channel, Fox Business Network, Fox Broadcasting Company, Fox Sports, Fox Television Stations Group, and sports cable networks FS1, FS2, Fox Deportes and Big Ten Network.

For its part, Fox has named a raft of new directors as it begins life as a standalone company.

Fox has named Anne Dias, founder of investment fund Aragon Global Holdings, current Formula 1 chief and long-term Murdoch associate Chase Carey, former Telemundo chief and current media investor Roland Hernandez and Republi-

can party Congressman and former House of Representatives speaker Paul Ryan to its board, working alongside Rupert and Lachlan Murdoch and Jacques Nasser.

"We are thrilled to welcome our new colleagues to the Fox board. We look forward to working with and being guided by them as we begin a new chapter, steadfastly committed to providing the best in news, sports and entertainment programming," said Lachlan Murdoch of the new board members.

The merger between Disney and Fox's entertainment business comes ahead of Disney's planned launch of its new

streaming service Disney+ later this year, part of Iger's strategy of reorienting the company with a set of direct-to-consumer services that also includes ESPN+ and Hulu, in which Disney will now have majority control.

While Disney+ will be targeted specifically at a family audience, Hulu will continue to offer a more adult-focused line-up of content including series produced by Fox FX and Fox Searchlight.

Disney will now be under pressure to realise cost savings from the merger, with a significant number of redundancies expected in the combined company's US workforce.

In addition to the elevated cost of financing a deal that came about after a ferocious bidding war with Comcast, Disney also now has to absorb the cost of investing in its new platforms, including foregoing US$150 million this year from its decision to retain rights to content rather than license them to Netflix.

France

IPTV > Altice-Free mediation

Altice France has accepted mediation from media regulator the CSA in its dispute with service provider Free over carriage terms for its TV channels, ending for now the threat that they could be removed from the Freebox service. Altice said in a tweet that it had noted that Free was no longer rejecting in principle

the idea of a global agreement covering the distribution of its free-to-air channels for remuneration in the same way that the service provider had concluded agreements with commercial broadcasters TF1 and M6. It said that as a result it would accept the CSA's proposal of mediation in the dispute. The move followed a threatened withdrawal of channels BFMTV, RMC Découverte, RMC Story, BFM Business and associated services.

IPTV > Free Delta milestone

Free has passed the 100,000 subscriber milestone for its recently launched high-end Freebox Delta box. The company said signing up new customers in such numbers for the device represented a considerable success in a market where the average entry price for devices began at less than €10 a month. It said that the Freebox Delta provided value because it combined a large number of services and

functionalities, despite the high overall price. Free launched the box in December at a premium price of €49.99 a month, with a cheaper device, the Freebox One, launched at the same time. The launch met with considerable scepticism in a market characterised by intense price competition. Freebox Delta provides access to Netflix's basic offering as part of the subscription – a first for Free, which had resisted integration with Netflix to date.

Germany

CAB > EC to warn Vodafone

The EC is about to issue a warning to Vodafone about potentially anti-competitive effects of its acquisition of Liberty Global's German and central European assets, according to Reuters. Citing unnamed sources, the news service reported that the EC will issue a statement of objectives including a warning about its concerns ahead of the June 3 deadline for EU approval. The Commission opened an in-depth investigation into Vodafone's proposed acquisition of Liberty Global's business in Germany, the Czech Republic, Hungary and Romania in December, citing competition fears. The EC said that its initial market investigation raised concerns that the takeover may reduce competition in Germany, where Vodafone and Liberty Global operate non-overlapping coaxial cable networks; and the Czech Republic, where Vodafone is mainly active as a mobile operator and Liberty in fixed telecoms.

Poland

SAT > Cyfrowy Polsat

Cyfrowy Polsat saw its 2018 full-year results boosted by success in offering multi-play, with 31.5% of the company's customers now signed up to multi-play services. Cyfrowy Polsat's multi-play base increased by 19% or 285,000 year-on-year to end 2018 with 1.8 million multi-play customers, taking a total of 5.38 million services, according to the operator. The number of contract services sold rose by 574,000 year-on-year to 14.26 million, and contract services now account for 84.3% of all services. The total number of pay TV contract customers increased by 156,000 year-on-year to exceed five million by the end of December, boosted by sales of basic packages as well as added value services such as multi-room and OTT TV. Overall, Cyfrowy Polsat had 5.7 million contract customers at the end of the year, up 5.5%, with each customer using an average of 2.5 services. The group's broadband internet base remained stable, at 1.8 million. Mobile customers were up by 413,000 to 7.3 million, again boosted by multi-play. Cyfrowy Polsat's revenue grew by 10% to PLN10.7 billion, while EBITDA increased by 7% to PLN3.7 billion. Polsat's overall EBITDA for the year was boosted by its consolidation of telecom operator Netia in the course of the year.

DAZN to launch advertising on streaming service

By Stuart Thomson >

Sports streaming operator DAZN is to introduce advertising on its platform as part of a company-wide revamp that will see existing media sales outfit Perform Media renamed DAZN Media and the launch of a new 'amplification platform' called DAZN+.

DAZN plans to introduce sponsorship and advertising on its streaming platform for the first time as part of the change. DAZN Media, the new name for Perform, will be responsible for overseeing all global and local commercial opportunities for brands across the DAZN streaming service and will also manage commercial inventory across the group's sport websites including Goal and Sporting News.

The latter are to be aggregated with SPOX and DAZN's rebranded ePlayer video-on-demand offering – now called DAZN Player – as part of the new DAZN+ offering. DAZN+ will combine these properties with access to social channels, influencers, talent, rights and in-stadia media to offer brands a "unique data-driven platform to engage with fans".

DAZN Player aggregates select premium sports content from DAZN, rights holders and news agencies and is distributed across publisher sites including Mail Online, MSN, Mundo Deportivo and La Republica, among many others.

DAZN said that its newly renamed media arm would initially work with a select group of advertisers, including VW, Tipico, bwin and Krombacher to introduce brand advertising ahead of a full rollout later this year.

The division will be headed by EVP of media Stefano D'Anna, who will report to James Rushton, chief revenue officer at parent outfit DAZN Group.

Separately, as the UK's current Brexit deadline looms, DAZN has secured a broadcasting licence from German media regulator Medienanstalt Berlin-Brandenburg (MABB) that will enable its services in Germany, Austria and Italy and linear hospitality industry offerings to continue to function. The licences will substitute for DAZN's current licences with UK regulator Ofcom. MABB director Anja Zimmer said that she was "delighted that DAZN has decided to register with MABB".

Global Wrap

Baseball streaming service **MLB.TV** has launched on **Amazon Prime Video** channels in the US, allowing users to watch regular season out-of-market baseball games live and on-demand. Prime members streaming MLB.TV on Fire TV devices will also have access to Prime Video's X-Ray feature, which gives fans access to live in-game stats, team and player details and play-by-play information while they watch. **Gravitas Ventures**, a **Red Arrow Studios** company, has launched streaming service Gravitas Movies. Gravitas Movies is now available in the US and will be rolled out globally in summer 2019. Social video ad spend in the US will grow 44% between 2019 and 2021 to reach US$14.89 billion, accounting for 30.4% of total video ad spend, according to **eMarketer.** The research firm estimates that **Twitter**'s US video ad revenues will pass US$1 billion in 2021, while **Snapchat**'s US video ad business will grow 19.9% year-over-year in 2021, reaching US$727.4 million. Asia Pacific video-on-demand subscriptions are set to climb from 221 million in 2018 to 407 million by 2024, according to **Digital TV Research.** The research firm estimates that China will account for 289 million SVOD subscriptions in 2024, with India and Japan providing a further 31 million each. Southeast Asian VOD channel **iflix** has launched a premium sports channel on its service in several Asian markets. The platform has partnered with pan-Asian sports network **ZSports** for the launch of the service, which is intended to serve as the home of US sports in Asia.

South Africa

DTT > Kwesé to launch five

Econet Media's new South African venture Kwesé Free TV has received a commercial free-to-air broadcasting licence and radio frequency spectrum licence in the country, giving the broadcaster 55% of the third South African digital-terrestrial multiplex frequencies. The move will give Econet Media-backed Kwesé the ability to launch five free-to-air channels in the country, including its FTA HD sports service. The South African operation is 20% owned by Econet, with Royal Bafokeng Holdings owning 45% and Mosong Capital owning 35%. Kwesé TV has hitherto offered services in 18 African countries, excluding South Africa, where it is headquartered but has not offered a service.

Last year, the operator unveiled a strategy shift that saw it move away from DTH satellite pay TV towards free-to-air broadcasting based on its Kwesé Free Sports service and streaming. South African regulator ICASA, which granted the terrestrial licence, said that the licensing of an additional individual commercial free-to-air television broadcasting service and related spectrum would stimulate competition and increase the variety of television broadcasting services available to South Africans.

Switzerland

CAB > Sunrise for UPC

Liberty Global has agreed to sell its wholly-owned Swiss operation, UPC Switzerland, to local operator Sunrise for a total enterprise value of CHF6.3 billion (€5.6 billion). The deal will establish Sunrise – which is Switzerland's number two player in mobile, TV, fixed broadband and fixed voice behind Swisscom – as the "leading converged challenger" with the scale to drive innovation and invest in new services. Sunrise said that the takeover will help it to provide an enhanced customer experience, particularly in regions not within the fibre footprint, as UPC has high quality fixed network infrastructure with a roadmap to speeds of 1Gbps and eventually 10 Gbps via DOCSIS 3.1 upgrades. Sunrise will pay Liberty Global roughly CHF2.7 billion (€2.4bn) in cash and will take on outstanding senior notes and senior secured credit facilities, which have a value of roughly CHF 3.7bn (€3.3bn). Liberty Global said it will use the proceeds of the sale for "general corporate purposes."

Canal+ launches new streaming service

By Stuart Thomson >

Canal+ has launched its new streaming platform. Canal+ Séries will be available for €6.99 a month and will offer a mix of original series and international acquisitions.

The service will be available without an ongoing contract. Subscribers will be able to access up to four streams simultaneously, with the pay TV outfit charging €9.99 for two users and €11.99 for up to four users.

Canal+ said that Canal+ Séries will be available via its MyCanal platform and via OTT, with the aim to also distribute it via platforms that currently offer Canal+ pay TV services.

Original Canal+ series in the offering include *Engrenages, Hippocrate, Versailles, Platane, Guyane* and forthcoming show *Vernon Subutex.* International acquisitions include *Killing Eve,* *L'Amie Prodigieuse* and *Catastrophe.* Launch titles include *Deadly Class,* followed by the latest season of Italian crime drama *Gomorrah.*

Canal+ will offer a number of recent productions from US pay TV service Showtime exclusively, including *Billions* and *Smilf,* along with FX titles *Pose* and *What We Do in the Shadows.* Complete seasons of *The Americans, Sons of Anarchy* and *Dexter* will also be available.

"Canal+ Séries marks a new stage in the transformation of our offerings started two years ago. A transformation in terms of usage, to better respond to new consumer habits. And also a digital transformation to reach new audiences in France and internationally. This transformation will be demonstrated above all by the MyCanal app, acclaimed by its users. MyCanal is a unique platform with,

live or on-demand sport, French and Hollywood movies a few months after their theatrical release, series, documentaries etc. In total, thousands of hours of programming from the best providers of content, to consume anywhere, anytime. Canal+ Séries is a new building block that has just been added to our digital offering," said Canal+ CEO Maxime Saada.

Reports that Canal+ was planning to provide a replacement for its CanalPlay offering, which had lost the bulk of its subscriber base in what Saada characterised as an unequal battle with Netflix, emerged in January.

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UK

OTT > Amazon taps BT

Amazon has contracted BT Sport and football partner Sunset+Vine to produce its English Premier League football coverage when Amazon Prime Video begins airing its allocation of 20 matches per season. BT Sport and Sunset+Vine will support Amazon Prime Video's production of both studio and live action matchday coverage. Amazon's Premier League deal, signed last July, broke the hold of Sky and BT on top-tier English football. Under its deal, Amazon will air two full fixture rounds – the first December midweek round and the Boxing Day round - featuring coverage of every team, marking the first time a full round of Premier League fixtures will be broadcast live in the UK.

PROG > EC OKs commitments

The European Commission has accepted commitments by Hollywood studios not to apply clauses in contracts with Sky that prevent EU consumers outside the UK and Ireland from subscribing to Sky's UK pay TV service to access films via satellite or online. The EC has made commitments offered by Disney, NBCUniversal, Sony Pictures, Warner Bros. and Sky legally binding under EU antitrust rules. The contract clauses prevented Sky UK from allowing EU consumers outside the UK and Ireland to subscribe to Sky UK's pay TV services to access films via satellite or online. They also required NBCUniversal, Sony Pictures and Warner Bros. to ensure that broadcasters other than Sky UK are prevented from making their pay TV services available in the UK and Ireland. The studios have now committed not to apply these clauses in existing film licensing contracts for pay TV with any broadcaster in the European Economic Area and will no longer put such clauses in any film licensing contracts for pay TV with broadcasters in the EEA. Sky will also cease to apply existing clauses along these lines and will not sign up new ones in film licencing contracts with the Hollywood majors. The case dates from 2015, when the EC set out objections to these clauses, which it said were in breach of EU antitrust rules and could eliminate cross-border competition between pay TV providers. The Commission has now said it is satisfied that the commitments offered to address its concerns by the Hollywood studios and Sky at the end of last year are satisfactory. The commitments made by the two sides will apply throughout the EEA for the next five years, covering both online and satellite pay TV services and, where applicable, SVOD services. The EC accepted similar commitments made by Paramount in 2016.

OTT> BritBox for UK

The BBC and ITV expect to launch their joint SVOD service BritBox in the UK in the second half of this year, after agreeing a joint vision for the service. BritBox is currently available in North America and the UK version of the service will offer British content alongside new BritBox originals, commissioned from UK production companies. Announcing the launch, the BBC and ITV said that they are concluding talks and are working on a legal agreement for the service. They anticipate other partners joining and will speak to regulators and the wider industry about their proposals.

RTL sets ambitious SVOD target, rejects Pro7Sat.1 collaboration

By Stuart Thomson >

RTL aims to grow the number of paying subscribers to its subscription video-on-demand services to three million and to grow revenue from video-on-demand to €360 million by 2021, after the number of paying subscribers to its services passed the one million mark at the end of last year.

CEO Bert Habets said the group would focus on creating "local streaming champions" as well as strengthening content creation. RTL will invest at least an additional €350 million in expanding its streaming offerings over the next three years, including €300 million to be invested in content across all genres.

Habets emphasised that the investment should not have a significant impact on RTL's bottom line.

"As our streaming services are deeply integrated in our families of TV channels, these investments will generate sizeable additional revenue and will thus have limited impact on our operating profit. Every investment in local, exclusive content is an investment for the long run, strengthening both our linear TV channels and streaming services. In other words: we will continue to generate very healthy profit margins," he said.

RTL's paying subscriber base, combining TV Now Premium in Germany and Videoland in the Netherlands, passed the one million mark at the end of 2018, and the company aims to triple this within three years. TV Now Premium's base grew by 43.5%, while Videoland grew by 134.9%, driven by local originals such as *Temptation Island VIPs* and crime series

Habets: focus on creating "local streaming champions."

Mocro Maffia, both made exclusively for the service.

Habets said that the group may "increase our ambitions in this space" if SVOD growth exceeds expectations.

He rejected collaboration with rival ProSiebenSat.1 to create a common streaming platform. Habets said he was "very confident" that RTL can develop its own offering in a way that delivers growth and economies of scale, and added that the group had an ambition to have among the top three streaming platforms in each of the markets in which it operates. He indicated that a joint offering involving ProSiebenSat.1 and possibly public broadcaster ZDF and other partners would take too much time to set up because negotiations between the various parties involved would be complex.

Habets said that RTL also aims to generate more than €500 million from international drama productions from Fremantle by 2021, adding that drama series were "also key for the expansion of our streaming services".

The group posted solid full-year 2018 revenue figures that were boosted by its digital offerings and its Fremantle production unit. Group revenue was up 2.1% to €6.5 billion. RTL posted EBITDA of €1.38 billion, down 5.7% as the result of the one-off sale of the group's Paris buildings in 2017, but up 0.7% on an adjusted basis.

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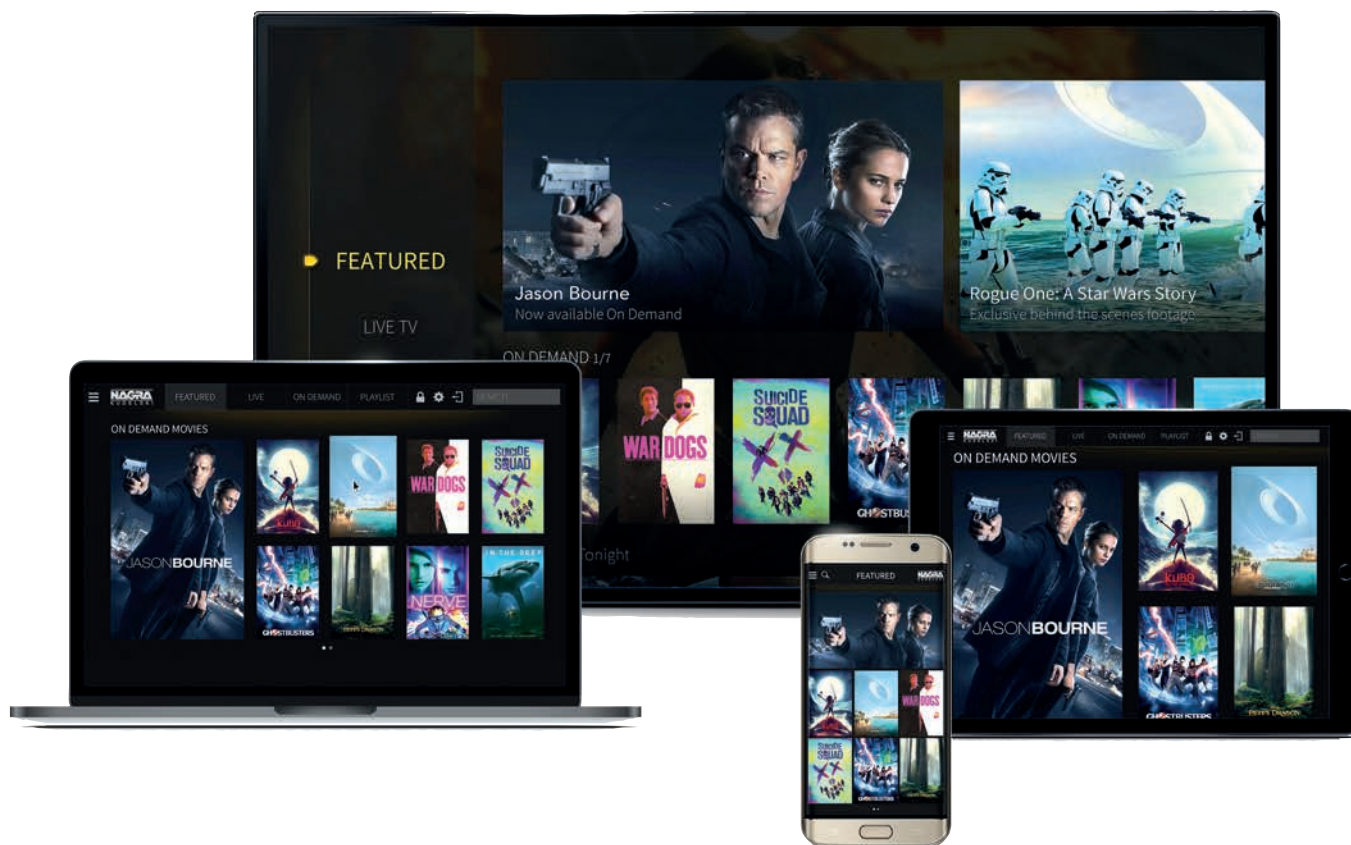**BroadcastAsia**
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User experienced

Universal discovery has long been an industry goal, but will the scale and complexity of content always keep a global solution out of reach? Adrian Pennington reports

Consumers can't be expected to know everything that's available to them in the vast pool of content in the world. They need help and the service that does that best will be well on its way to success. Since discovery comes in many forms, from accidental to recommended, and a million things in-between, the next frontier for broadcasters and operators in this area is about making sure consumers can view what they want irrespective of where that content is coming from.

Unified or universal search and discovery has been an industry aim for a number of years but the need for it has increased recently as more and more of us view content from on-demand and streaming sources alongside and often in preference to linear broadcasting.

"Being able to do this in a simple and holistic way really solidifies the need for new technologies such as conversational voice and personalised recommendation systems," says Tivo's senior director, international marketing, Charles Dawes. Unified discovery is deemed critical if the industry is going to keep on delivering the content that consumers desire. Dawes says: "Consumers don't know, and shouldn't need to know, where the source of their content is. They don't need to understand terms like linear, DVB, IP, broadcast and OTT when all they want is to enjoy their favourite video on demand."

Universal search and discovery breaks down the walls between TV providers making content more easily findable and watchable. Laurent Van Tornhout, vice-president, product and marketing at Zappware says the goal is "full integration in one UI experience and multisource – aka universal – search."

Such a goal moves beyond basic search. "Going beyond basic genre and delving into dimensions of content such as mood, theme, setting and character attributes [means] a new generation of navigation and recommendation offerings will suggest the TV shows and movies most likely to resonate with individual viewers," says Simon Adams, chief product officer at Gracenote.

Further, cross-media content discovery will enable viewers to find and watch music videos on TV or identify musicians or athletes in movies. Gracenote's datasets and Gracenote IDs, which enable universal search on platforms like Apple TV, Roku and Samsung could be key to this.

In parallel, short-form and user-generated content is on the rise and equally relevant as

content choices. "Even long-form content is being chewed up and spat out as bite-sized chunks for the more 'attention challenged' viewers," observes Anthony Smith-Chaigneau, senior director, product marketing, Nagra. "Shows and movies have endless amounts of related video content that are accessible to fans. Looking at just the explosion of gaming and the massive online following of Twitch users, Instagram influencers and Facebook video content that is competing for one's time, you realise that content discovery solutions of the future will have to evolve to not only provide access to alternative content but may be driven by it."

Value of universal search

Universal search should allow the viewer to fully understand where a particular piece of content is, how much it costs and whether they have access to it with their existing setup. Yet the current trajectory of content silos "make global search and discovery difficult", says Smith-Chaigneau. "Having a source- and service-agnostic way to remove those ambiguous groupings addresses the real pain point that needs to be addressed. There is no Google for TV in the mainstream although many are trying to be this."

If there were, the value of intuitive navigation and universal discovery, which is already "sky high" says Adams, "would go even higher".

"User-centricity would bring added value for the telecom operator as the content aggregator for all sources of content," agrees Van Tornhout. "For the consumer, the value is that, done right, their experience is simpler and seamless – meaning they spend more time enjoying content rather than searching for it."

Unified search and discovery could bring the operator "a wealth of new opportunities", says Dawes, that are built around a foundation of having a connected, engaged consumer who doesn't need to go 'off platform' for their content. Dawes continues: "Operators have long known that giving access to all the content the consumers desire via their remote – aka their 'brand in the hand' – is key for their business and helping consumers understand the value they bring."

Simon Leadlay, director, pay TV business

Nagra's multiscreen offering (opposite) and TiVo voice results (right).

development at You.i TV highlights the relative poverty of experience for most broadcast sports fans. "Broadcast TV still scores highly among sports viewers. Yet the discovery UI found in most pay TV services doesn't cater well to that market," he says. "I would expect a huge potential for subscriber stickiness and satisfaction for an operator to combine

"I am personally worried about the risk of over-recommendation: where I'm never offered anything new."

Simon Leadlay, You.i TV

traditional sports video broadcasting with a plethora of on-demand and OTT sports entertainment news, stats, team information, and replays of past games and special events. Sports fans are finding some of this rich experience via direct-to-consumer platforms by their favourite leagues, but very few have a similar offering available from their operator. There's a lot of room for improvement here."

According to Leadlay, the best kind of discovery systems should be quietly knowledgeable, unobtrusive, and yet always recommending something. "At the same time, I am personally worried about the risk of over-recommendation: where I'm never offered anything new, fresh, or out of my comfort zone," he says. "I think it's important to strike the right balance between seeing familiar and new content."

Leadley suggests that the next frontier is likely to see "increased commoditisation of

what advanced recommendation and discovery systems are already using", namely more machine learning to drive truly individual recommendations based on time of day, location, device, and previous activity.

If it's agreed that the system would need to know who the viewer is and understand the individual's likes and dislikes, then 'discovery applications' would have to be redesigned. Smith-Chaigneau says: "All of the streaming video services are currently obviously inadequate in coping with the sheer volume of content available. Everything seems to be a Netflix clone. The technologies driving the content like recommendation engines will also have to be redesigned to be more sophisticated. Even how we 'think of content' will have to evolve for us to come up with the right solution for the future TV watcher."

Recommendations made to an individual could be increased in relevance by adding profiling input from other online sources. This can happen "provided that the back-office of different online systems can feed each other technically as well as from an opt-in point of view by the end-user," points out Van Tornhout. "In terms of personalisation you'd need to bring the most relevant content and content suggestions based on profiling, context and

Mikolaj Zapala, Senior Director – Strategic Accounts at TiVo

Android TV comes of age...

The Android TV Revolution

There is no doubt that Android TV ™ has come of age in the Pay TV space in the last 12 months. Once a platform that operators looked at with a large dose of wariness, the changes that Google has made to enable operators to use the underlying power of the Android ecosystem whilst still retaining their own unique characteristics via the Operator Tier has meant that right across the globe Android TV is now becoming a key platform for operators to consider when they are rolling out new services.

So much so that when Rethink Research published their report 'How Android TV finally won the set top wars' in 2018 they forecast that there will be over 99 million devices globally by 2022. We've also seen in the 2019 Digital TV Europe Industry Survey that industry respondents are excited by Android TV Operator Tier. The greatest benefit was seen as to the access to content that the Google Play store gives, with some 24% of respondents rating that access as excellent, and 42% rating it as good. Android TV Operator Tier was also highly rated for enabling operators to get services up and running quickly, where 22% rated it excellent and 39% rated it good, and for ease of use, where 21% rated in excellent and 40% rated it good.

Why CubiTV ™ for Android TV is needed?

At TiVo we're embracing Android TV head on right across our user experience product portfolio to enable our customers to leverage the flexibility that comes with the platform. In a world where the lines between linear and OTT are increasingly blurred – so much so that many consumers don't need or want to know the difference – Android TV gives us another platform for operators to deliver a unified experience to their subscribers.

But just launching an Android TV client on a set-top box isn't the end of the story. There are many areas of integration that companies need to consider when they are looking to launch a service. Integrations with your back-end components, network DVR, Video on Demand as well as enabling key OTT services like Netflix require a partner who has the experience to keep your deployment on track and budget.

That's why we're launching CubiTV for Android TV across EMEA, Latin America and the markets across Asia and the Pacific. As part of TiVo's Next-Gen Platform and TiVo's CubiTV Solutions, CubiTV for Android TV sits alongside CubiTV for Linux, CubiTV for Mobile and CubiTV SDK to give operators a full choice of options when deciding how to deliver a
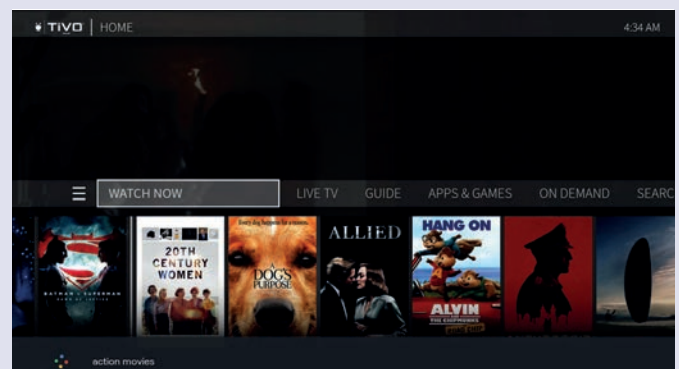
TiVo launches CubiTV for Android TV utilising the built in Google Assistant for voice search

compelling, multi-function television service to their subscribers. TiVo has a proven track record with its CubiTV product line which has been deployed to over 10 million devices worldwide.

We give operators the ability to control costs with a STB-agnostic architecture and with a modular approach that allows them to add features as they grow, including upgrading to TiVo's Personalized Content Discovery Platform.

Using CubiTV for Android TV allows the operator benefit from a modern, immersive user experience to deliver a unified discovery experience that taps into the power of Google Assistant search functionality. The product also leverages TiVo's experience with enabling core OTT services like Netflix and others. In 2013 TiVo enabled Virgin Media to become the first pay- TV operator to embrace Netflix as an integrated part of their user experience on the Virgin Media TiVo platform.

CubiTV for Android TV has quick, easy and versatile deployment options that leverage our CubiTV DVB stack and pre-existing conditional access and STB integrations. Additionally, operators can leverage the Android TV ecosystem to enrich customer experience with the vast availability of OTT content, apps and games, and further innovations like Google Assistant on TV and IoT integrations.

CubiTV for Android is the modular, cost-effective, easy to deploy, pre-integrated solution that enables operators to seamlessly begin their journey with Android TV Operator Tier and leverage the ecosystem benefits.

Android TV is a trademark of Google LLC

device used at that moment by that user. The service would also need to aggregate different content sources to be able to bring the 'fat tail' as well as the 'long-tail.'"

Vendors began embracing the need for universal discovery across the consumer electronics and operator spaces a while ago. Tivo, for example, lays claim to being the first user experience provider to integrate Netflix into an operator when it helped Virgin Media launch the streamer in 2013.

"For operators there was a need to bring unified discovery to their platforms even before the current trend of adding in multiple video content sources," says Dawes. "Tivo now integrates multiple video sources into a single experience that is led by the content rather than the service the content comes from. When a consumer searches for their favourite show they are presented with the show first and where to get it from second."

Gracenote's global video data offering is built on a unified data schema "that provides a consistent and standardised format for all international data," says Adams. The Nielsen-owned firm is also developing the next generation of descriptive metadata and images in its Advanced Discovery suite. "These solutions help providers deploy all-new personalised recommendation capabilities, visually rich guides and even voice-driven experiences," he explains.

AI and metadata building blocks

The second phase of unified discovery will make greater use of metadata powered by machine learning tools. "Metadata is absolutely critical when you are delivering a compelling discovery experience," Dawes says. "It is no longer good enough to have the simple time, title and channel that some EPGs deliver. Today's discovery systems, especially those which are voice driven, need to have a high-quality baseline of information about each piece of content."

Tivo refer to this as the 'Metadata iceberg' where a small amount of visible data is underpinned by a huge amount of non-visible information. Sitting on top of the metadata is a personalised recommendation platform. This goes above and beyond a simple rules-based recommendation system into a system that can be personalised based on time, day, context and

Curated or algorithm-based discovery?

While the sophistication of algorithms will only get better, editorial or curated discovery will retain a role in the creation of a 'more human-led' approach to any service.

"One of the drawbacks of early recommendation systems that just relied on techniques such as collaborative filtering was that they would drive you further and further down an ever-narrowing set of content choices," says Tivo's senior director of international

Dawes: TiVo blends editorioal and algorithmic recommendations.

marketing, Charles Dawes. "There was no facility for companies to promote content that was important to them commercially or for the system to understand the difference between a customer needing to watch something they like right now or them looking to broaden their content horizons." TiVo says its Personalised Content Discovery platform has the ability to blend not only editorial and algorithmically-based recommendations and predictions but also include new recommendation paradigms such as sponsored discovery – where paid placements are served to the right, receptive consumer. "This will deliver a superior experience that enables more video viewing

than ever before," Dawes claims.

It is the vast amount of legacy content in addition to new content that presents the real challenge of scale to manual processes. "By leveraging both human editors and ML, we're able to create datasets with the breadth to cover existing and new content and the depth to describe that content with increasing specificity," says Simon Adams, chief product officer at Gracenote. "This is critical to positive user experiences."

"We know that there's a need to go beyond editorial and algorithmic recommendations, using AI to better predict not just the type of content, but getting to why we ultimately watch what we do," says Anthony Smith-Chaigneau, senior director, product marketing, Nagra.

There will be a blend and balance of the two recommendation forms. For example, says Laurent Van Tornhout, VP, product and marketing, Zappware the first three items could be editorial, related to a trending topic, and the rest of the suggested items on the 'bookshelf' could be algorithm-based.

Nagra's Smith-Chaigneau says: "I will never forget talking to an Uber driver about his TV consumption and he said that after about six months of using a particular OTT service he went home after a shift and realised how boring and same-same his TV viewing had become. The machine had led him down a silo of similarity and he was bored with what was on offer to him. He wanted a reset-button so that he could flush out the system and start all over."

an innate understanding of how individuals personally consume content.

"Access to a wider range of metadata that allows users to pivot from content to content is essential to providing a rich expansive experience," says Nagra's Smith-Chaigneau. "However, if you look at Netflix, it puts tremendous effort into creating its own metadata and manipulating it accordingly. For example, it has shown that different users are drawn to different types of movie posters. Users on the Netflix platform see different movie posters based on their previous viewing habits, whether they have binge watched, and other parameters discovered by the system.

There is also the concept of dynamic metadata which goes beyond static images of

posters and actors. But the constantly changing social commentary and related media content is also becoming an important facet to the primary video. There will also be frame and scene content tagging for age appropriate viewing which all highlights the importance of metadata."

Enabling anything from poster quality, size and colour to clear and well-crafted information that ensures any and all platforms can present it for viewers to effortlessly discover and consume is an increasingly complex task but metadata is foundational.

"As the world of content merges there are now exceptional foreign titles found in the mix so there are language issues to overcome, translation, subtitling and a whole swathe of

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cultural aspects that also need to be taken into consideration," observes Smith-Chaigneau.

Artificial intelligence and machine learning are increasingly playing a greater and greater role in automatically building out content metadata, be it from assessing and assigning a confidence level when information is initially imported, through to keeping tabs on how the importance of relationships between different pieces of content changes over time.

"AI-assisted metadata will soon become the norm," says Smith-Chaigneau. "AI can afford more depth to metadata services where it could, for example, compare the synopses of two titles and identify differences that could then aid or automate editorial management of those pieces of content."

With more and more user data points available and with much more sophisticated methods of interrogating it, "we have to evolve past simple usage-based recommendations toward hyper-personalisation," Smith-Chaigneau says. He suggests leveraging social indicators and ML to better understand what drives users to content "especially as the experience crosses over into more and more personal devices, with unique behaviours."

On top of all this, there's a clear trend toward a voice-based discovery model. The sheer scale of available content renders the tools of the linear world, such as a grid or tree-based content catalogues, insufficient going forward.

"Voice input frees you from the limitations of single character entry and allows you to discover content in the way you think about content," remarks Dawes. "The system should be able to respond to simply saying 'What's on TV tonight?' and put together complex queries like 'What's the film with Peggy from EastEnders and Kenneth Williams?'. It should 'know' you implied 'for me' and give you a set of personalised results from across your entertainment choices that isn't limited by linear TV."

The user interface, of course, shouldn't be the destination for the user; that should be the video content. However, as Leadlay underlines, a great user interface can make the process of finding and watching that content truly satisfying, "and we all know that a poor user interface leads to frustration and failure."

Ideally, the simpler the UI, the better. It should be intuitive, get you to where you want to go in the least number of clicks and to all intents and purpose be transparent to the user. Arguably no-one has yet alighted on the absolutely right design mix.

UI as entertainment brand

"It is sometimes hard to break the mould of consumers' TV UI habits – removing the EPG proved to be wrong for some platforms who soon added it back to the mix," says Smith-Chaigneau. "Not having channel numbers also proved to be a no-no for one European platform which had to rapidly add them back in because a lot of viewers had become used to that form of navigating. We have tried 3D UIs and other fancy tricks but, just like PowerPoint, all the fancy fonts and animations simply interfere with the objective of getting the message across."

The industry has experimented with many different discovery mechanisms

from personalised to promotional, curated, edited, serendipitous, trending and logical recommendations. It has incorporated cognitive search and voice options and now it is incorporating AI in the background.

"We blend all of these together and try to create a simple and refined way of presenting these in visual form so the consumer feels they are being well served. From a product design standpoint, the necessity to have a connected platform and flexibility across platforms is the most interesting tool. We have to think of our products holistically and as complementary parts of an ecosystem. We have to leverage more distributed tools and standardised development libraries," says Smith-Chaigneau.

In general, it's difficult for the UI or UX to be the entertainment brand by itself. The experience is reliant on the content and usually it is those content brands which are seen as the entertainment brands by consumers.

However, you could argue, as Dawes does, that 'TiVo Experience 4' is one of the few entertainment experience brands that exists in its own right. "As an established consumer platform in the US, with a loyal customer base, TiVo has won multiple awards and been featured in popular culture on many occasions. Consumers choose TiVo for its extensive functionality, continued innovation and ability to get your key entertainment choices in one place, be they linear or streaming services like Netflix," he says.

Zappware's Van Tornhout agrees that if the ergonomics are right "and if relevant enough for the end-user as a gateway to discover all the relevant content across content sources" then the UI could become an entertainment brand. "The UI should be grandma-proof as well as millennial-proof."

It's arguable too that some of the latest OTT services view the UI as an integral part of their package and branding. Disney will surely look to create such a UI as its brand is already synonymous with entertainment, as opposed to a service provider that delivers multiple entertainment brands in a single UI.

"Just as Google became the brand of internet search, there is definitely an opportunity to be the face of content discovery," says Smith-Chaigneau. "There is a magical blend of form and function that, when applied to obvious pain points, can become ubiquitous." ●

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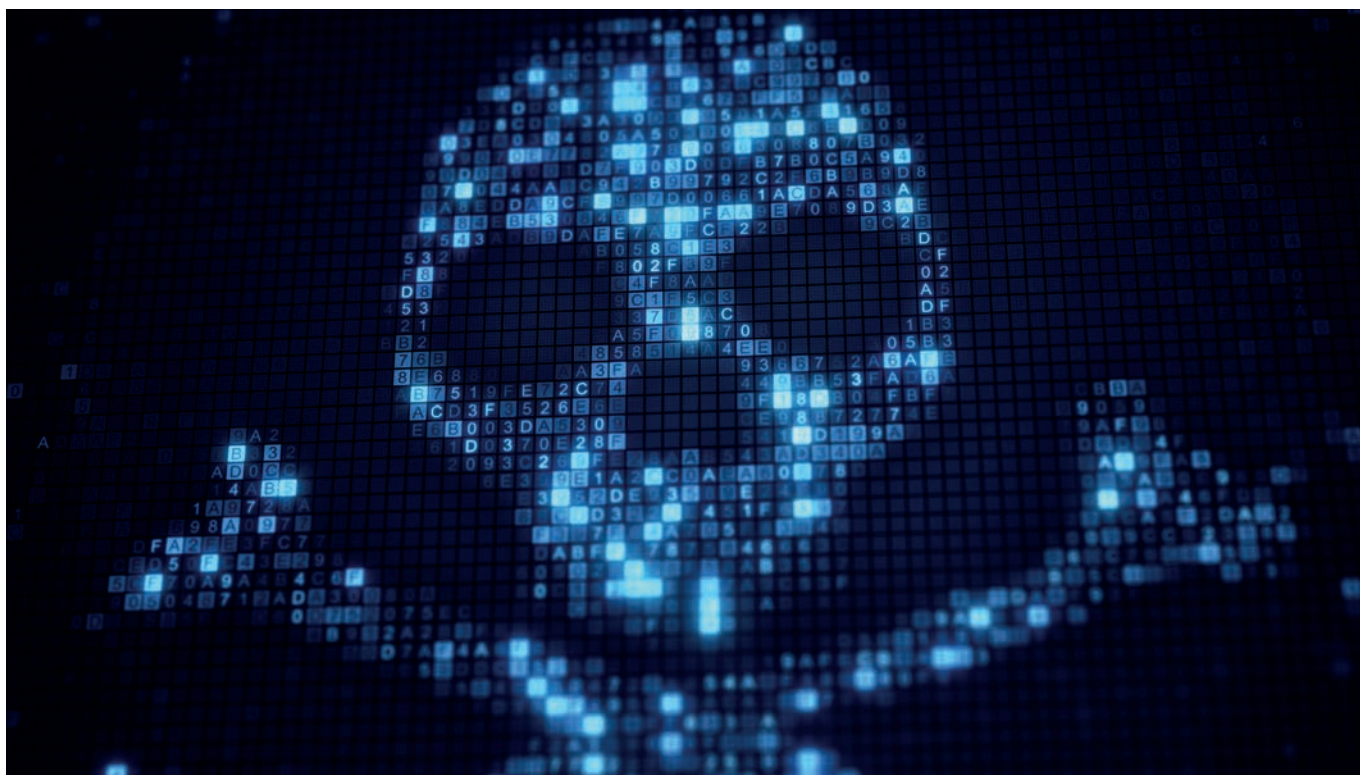## NABSHOW®
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Stealing the stream

Streaming has changed the nature and extent of the revenue threat to video service providers posed by pirates. Stuart Thomson looks at the state of play.

Piracy has always been a central hazard for the pay TV business, and finding reliable ways to secure the service has been a necessary investment for operators since the industry's foundation.

The threat posed by piracy was already significant when content was delivered exclusively via closed broadcast platforms. Then the arrival of IP-based delivery raised additional worries. However, the advent of internet streaming as a mainstream method of delivering and consuming all kinds of video, up to and including premium 4K UHD series and live premium sports, has over the last few years transformed both the nature and extent of the threat and the methods used by pay TV providers and content rightsholders to fight it.

There is a broad consensus that streaming piracy has now overtaken all other forms of threat to the revenue of legitimate service providers that have paid for content rights. Content security provider Irdeto identified 5,100 illegal streams during last year's Champions League knockout stages, including 2,093 distributed via social media channels such as Periscope, Facebook and Twitch.

Irdeto's Piracy Trends Report also cited data from the company's web analytics partner that estimated there was an average of 74 million total global visits per month, and an average of 21 million unique visits per month, to the top 10 live streaming linking sites in Q1 last year. The US, UK and Germany were the top countries in terms of users of illegal site links.

"The shift is huge," says Petr Peterka, chief technology officer of content security specialist Verimatrix. "All of the technologies that we take advantage of to enable streaming and direct-to-consumer OTT services with a wide coverage of devices, and all the techniques to enable

these creative new business models are being used to attack services."

Peterka points out that the economics of building pirate infrastructure for streaming have changed radically. Whereas formerly the cost of professional compression equipment and the lack of available means to deliver content to large numbers of concurrent users presented an insurmountable barrier to entry, "all of that has changed", he says. "Pirates now have access to the same technology that owners are using to distribute their content, and that means a much larger attack vector."

Simon Trudelle, senior director of product marketing at content security provider and TV technology outfit Nagra, agrees that the switch to streaming is "the core thing that is changing the industry", although he also notes that control word piracy and the sale of devices on the black market is "still an issue in markets

where broadband is not ubiquitous".

Trudelle says that three in four pirate services now offer content in HD. He says that legitimate service providers are now experiencing significant levels of churn that can directly be attributed to the availability of pirate alternatives.

"It is not just about a parallel market of casual consumers of pirate services. It is a business, where consumers are shifting and leaving traditional service providers to go with these services. They either don't care or don't know the difference or see better value. That over time will have an impact on legitimate distributors because sooner or later the price of assets and everything else will be impacted, as happened with the music industry," he says.

It is not only that the cost of delivering pirate services has fallen dramatically. Points of weakness in the delivery chain that are vulnerable to attack have proliferated. Whereas set-top boxes were relatively robust devices in terms of security, requiring those seeking to attack to hack the smartcards or the communications protocol of the box, pirates now have multiple ways to capture a stream: from badly secured low-end Android smartphones through to devices that capture streams from HDMI outputs that can purchased for under €1,000; and from stripping out encryption to camcording the screen of a UHD TV.

Distribution meanwhile has been made easier by the availability of Kodi boxes and illicit apps or hosting content on the web via portals with professional-looking user interfaces that may be indistinguishable from that of a legitimate service.

A further dimension of streaming piracy is that, unlike traditional forms of content theft, it is not limited to a specific geography.

"Pirates are leveraging the web to distribute content illegally and they have a greater opportunity to monetise those illegitimate services. In the past they were limited to the satellite footprint of the operator but now they can steal content from one place and re-distribute it globally," says Rinat Burdo, product manager, video security, Synamedia.

Not only is there now the possibility to redistribute content globally, but premium rights to national sports competitions such as the English Premier League are sold internationally, including in countries where conditional access and DRM security may not be up to scratch, meaning that points

of weakness in the distribution chain are multiplying.

Ease of access

If the supply of illicit streams and the global reach of pirates has added a new and threatening dimension to the scale of content theft, the ease by which consumers can now access illicit sources of content – and their evident willingness to do so – has also increased exponentially.

"The main difference now is that the step you need to take to get access to illegal content is as small as a Google search," says Chem Assayag, executive vice-president of sales and marketing at content security provider Viaccess-Orca. "Getting to a pirate offering and accessing a full range of services, maybe for a fee so that you might think it is a legal offering, is something that someone with no knowledge at all of piracy or the cloning of set-tops can do. The amount of people in a position to cheat has

grown tremendously."

Nagra's Trudelle makes the point that confusion between what is illegal and what is not is particularly problematic in markets where pay TV is still in its infancy.

"In emerging markets, consumers are confused by the sleek marketing campaigns made by pirate operators," he says. "The pirates' level of sophistication has gone up and this creates a lot of confusion with consumers."

The threat in emerging markets is exacerbated to some extent by the rapidly growing use of mobile phones to consume content, enabling potential viewers to skip pay TV and opening up new opportunities for pirates. While those who use such services may or may not be aware they are doing something illegal, the crucial point is that it does not 'feel' particularly illegal, unlike, say, acquiring an illicit smartcard on the black market.

Pirates can use these sophisticated web portals to make money from their activities by

profiting from advertising or even by selling ongoing subscriptions – in short, by deploying the full range of models adopted by legitimate providers with the added benefit of not paying for any content rights.

Piracy increasingly presents a serious source of competition to legitimate providers, with pirate service providers setting up official-looking online storefronts and offering discounts that undercut operators who have to pay for content rights.

"Many people can't tell the difference between these and a legal distribution service. They can charge money for the service so people who sign up don't think they are doing anything wrong," says Verimatrix's Peterka.

Synamedia's Burdo agrees that pirate operators now have a greater opportunity than before to make money from their activities. "In the past they distributed set-tops to decrypt broadcast signals. Now they might distribute devices with pre-loaded software too, but they also have apps and can monetise what they are doing through ads on their websites," she says.

> ## "All the techniques to enable these creative new business models are being used to attack services."
>
> **Petr Peterka, Verimatrix**

Burdo points that people's awareness of whether a site is legitimate or not may vary, but often they will give themselves the benefit of the doubt when the price is attractive. "Pirate websites look like legitimate services and people may not be aware that they are illegal. They have to dial a number and someone will ask for their subscriber ID. Because they pay, people assume it is legitimate. Some people will say everyone else does it, so why not me? It doesn't feel like theft," she says.

Taking on the pirates

In taking on the fight against streaming piracy, legitimate pay TV operators face a range of challenges that surpass anything they experienced previously. Inevitably, they have to set priorities, focusing on the most serious threats rather than those that are minor. They also have to use a much broader arsenal of

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Q&A: Simon Trudelle, NAGRA

Simon Trudelle, senior director, product marketing, NAGRA, talks about cloud delivery, security threats from streaming, the attractions of Android TV and the role of AI in delivering advanced TV services

What additional threats does the cloud-based delivery of content raise and how can TV operators use cloud technology to secure their content?

There is no doubt that broadband ubiquity has invigorated the content industry and cloud-based delivery of content has opened up many opportunities for service providers and content owners.

In this environment, protecting content must be a top priority for any successful player in the TV ecosystem. Everyone from the Hollywood studios to live sports broadcasters to pay-TV service providers can now leverage the power of cloud technologies to distribute content securely over IP networks to consumers, while still meeting all rights holder requirements for premium content protection and countering the growing and varied number of piracy threats.

Our solutions like NAGRA cloud.SSP, a true cloud-based, multi-tenant security platform that scales and delivers the latest security technologies 'as-a-service' or the NAGRA Connect for TV which leverages our market-proven, converged CAS/DRM client embedded directly to TV manufacturer hardware, both provide sophisticated security management systems in the cloud. Combined with Anti-Piracy Services and forensic watermarking technologies, NAGRA is uniquely positioned to enable a comprehensive cloud-based content value protection strategy for service providers.

To what extent is the nature of the security threat facing content rightsholders changing and what impact has streaming piracy had on the business?

Streaming technologies have given content rights holders – and especially sports rights holders – more international reach than ever before but they have also opened the door to new forms of piracy such as IPTV or streaming piracy. We cannot underestimate the impact piracy is having on their business model.

Addressing the piracy challenge requires a multi-faceted approach, complete with new investments in smart access to content, user experience, monetization models, anti-piracy solutions, and forging closer partnerships with all stakeholders – including policy makers and governments – to communicate the impact of piracy effectively. NAGRA has extensive expertise in this domain and works closely with anti-piracy organisations worldwide, including IBCAP in the US, AVIA in Asia and Alianza in Latam to name a few.

What solutions are available and what role can forensic watermarking play in combatting new forms of piracy?

While CAS/DRM solutions are a means of ensuring that programming reaches the correct user at the correct time and on the correct device, these technologies offer little-to-no protection against the capture and redistribution of the content once video playback begins – this is where forensic watermarking comes in, allowing the creator or service operator to embed a unique serial number in the content as it is playing.

What's more, forensic watermarking enables pay-TV service providers to acquire rights to exclusive, high-value content like 4K Ultra HD, and to better track and shut down illegal redistribution of exclusive linear content like live sports. NAGRA's NexGuard watermarking supports the entire premium content lifecycle, with solutions for pre-release activities such as e-screening and file transcoding, as well as post-release and distribution workflows, ranging from digital cinema to channel contribution, pay-TV delivery and OTT streaming. Latest technology innovations include watermarking with very short detection time for pre-release content, as well as linear channel watermarking to enable broadcasters and sports rights owners to identify which affiliate's distribution channel or licensee's TV channel is most often the source of pirated content. For OTT streaming, we also offer both CDN and client-based solutions to address all key use cases.

What are the attractions of Android TV as a solution for TV operators and what do they need to do to make the most of this platform to engage subscribers?

Android TV is a friendly proposition, giving operators the opportunity to have an operator-tier branded UEX, Google TV services, direct carrier billing and more. The possibilities with Android TV are impressive, including faster time-to-market, easier access to third-party OTT, direct carrier billing, deep linking for additional search benefits, and advanced voice-driven technology – just to name a few. Having enabled multiple Android TV deployments since 2014, NAGRA knows that while there is a great opportunity, there are challenges that must be addressed, including the ability to create an engaging user experience that actively drives consumer loyalty and content monetisation and ensure any service built on the platform is secure, protecting both the content owners and consumers' data, and finally deliver service-defining ingredients that make a compelling pay-TV service. With the right technologies in place, pay-TV operators can truly capitalise on the Android TV opportunity.

How can TV operators best make use of AI and data analytics to deliver high-value, secure personalised services?

There's never been a more critical time for service providers to review their data and analytics strategies. While there is no one-size-fits-all solution, data and AI can be game changers for pay-TV service providers, helping them deliver long-term business revenue and success, improving both the top and the bottom lines. While pay-TV service providers often sit on massive volumes of data, the challenge is really to break the internal silos and transform data into actionable intelligence leveraging AI and machine learning.

NAGRA helps pay-TV services providers make those smart business decisions with NAGRA Insight, our AI-driven, pay-TV data analytics platform. With the right approach in place – mainly focusing on dynamically using data to identify actions that have a business impact – the pay-TV industry is well positioned to leverage all it has to offer.

weapons than was previously the case to combat the threat.

First, technologists are keen to make the point that old-style tools such as conditional access technology – now more likely without old-style smartcards – and DRM are far from redundant, even if traditional control word sharing is in decline. Pay TV providers are unable to secure content without protecting it to the satisfaction of those selling the rights, for one thing. Service providers have to show that they are taking all necessary measures to prevent theft, and that includes everything that has been put in place in the past.

"DRM remains a hugely useful part of the toolkit," says Pete Cossack, vice-president of services at content security specialist Irdeto. "If it is easy to steal, people will pirate content, so the more you put in place to stop them, the better. You need a full set of tools."

Cossack also reinforces the point that control-word sharing is not declining as streaming piracy grows. In emerging markets it is even increasing and is very much a credible threat, he says.

Nagra's Trudelle agrees that "there is still a need to protect content distribution over any network to any device", adding that technologists "have to make it difficult to capture content in high quality" through the use of established techniques such as

for anomalies in the distribution chain, such as boxes that are tuned in to HBO 24 hours a day, to name but one random example.

Watermarking

Forensic watermarking is key to all of this. Watermarking provides a technique to detect and identify multiple sources of attack. While pirates know if they succeed in hacking a conditional access system, they may try to remove watermarks but can never be sure whether they have succeeded.

"Watermarking is truly important. It is not only a deterrent but gives you the ability to understand who is pirating what on what device. It gives you the leverage to take action," says Cossack. In the case of live content such as high-value sports matches whose value declines rapidly once the game is over, time is of the essence in taking down or disrupting the pirates' game, with watermarking playing the key role.

"It's all about how quickly you can get content taken down," says Cossack. "We have a robust system that can react quickly, integrated with cloud providers to make the process simple. You have to figure out where the pirate services are on the internet and get the information back to the operator. You have

with and its legislation it can be more or less complex to take pirate sites down through a cloud vendor or ISP, by telling them these guys are illegal and they should not host them. In some countries it is possible to automate this, but in others you still need to go to court," he says.

No cure for piracy

No single measure will be sufficient on its own, and no set of measures constitutes a cure for piracy. "There is no such thing as unbreakable security. It is all about a cost-benefit analysis," says Peterka. "You can set the bar high enough to eliminate casual piracy, adding cost and complexity to the pirate operation and narrowing it down to a few well-funded entities."

Some tools to combat piracy can also be used to deliver straight commercial benefits to operators. For example, service providers can use data analytics to identify both exceptional customers who consume a lot of content as much as suspicious customers who are up to no good. Identifying the former using the same data tools can provide an avenue for operators to market additional services to high-value subscribers as well as taking down malefactors.

For the suppliers of content security technology, the shift away from traditional forms of content theft such as control word sharing to illicit streaming essentially means that they have to provide more. In addition to conditional access and DRM technology, they offer digital watermarking as a key security tool. However, they also have to support operators by developing data analytics capability, with algorithms that hunt for anomalies in the distribution map. Intelligent monitoring of the web for suspicious activity is now also an integral part of the struggle.

Tracing the sources of piracy and shutting them down or providing ways for operators to take action completes the puzzle. "The threat is bigger and broader and you have to fight it on multiple fronts," says Peterka. "Moreover, you have to deploy different techniques at different points in the chain. It is more complex and possibly more expensive."

Synamedia's Burdo agrees that "a variety of tools" is necessary. "Pirates will try to circumvent. It is important to have an end-to-end solution," she says, including intelligence-gathering alongside technology.

"Pirates are leveraging the web to distribute content illegally and they have a greater opportunity to monetise those illegitimate services."

Rinat Burdo, Synamedia

conditional access and DRM.

Conditional access and DRM on their own are, however, no longer enough. Operators have to ensure that their own boxes are secure and personalised, and that all interfaces that could be used to steal content are blocked. Additional techniques such as 'white box cryptography' that involves obfuscating the keys through the introduction of random data can be used.

Operators also want to be able to trace the source of leaks through the use of forensic watermarking, deployed alongside data analytics and machine learning technology to track illicit use of content over two-way networks. Systems can be put in place to search

to be able to reach within minutes."

Nagra's Trudelle agrees that watermarking is particularly useful and that robust watermarks can be used to close down points of leakage. "That is particularly important in the case of sports. If you can do it in the first few minutes of an event you can disrupt the whole pirate value chain and frustrate the consumers who use it and make them realise they are not accessing a reliable service," he says.

Trudelle adds that getting all players in the distribution value chain in line is crucial to the process – and by no means simple. "The enforcement of all this is another dimension. Dependng on the country you are dealing

Q&A: Rinat Burdo, Synamedia

Rinat Burdo, Video Security Product Manager at Synamedia, talks about the changing nature of the piracy threat in the age of streaming and how to combat it.

How is piracy changing?

Video piracy today is not just about hacking the CA/DRM, because clear video can be easily extracted from end-point devices via HDMI port, and redistributed over the Internet, rather than being restricted to the TV service footprint. Piracy exploits the same market trends that drive the online video ecosystem. Pirates use internet infrastructure, streaming technologies, online market places, and connected client platforms to make their services accessible on a global scale. To obfuscate their activities pirates exploit online identities, and hide behind legitimate platforms while avoiding regional anti-piracy regulation. Piracy leverages the behavioural norms of the internet economy, where people expect to get content for free, and share without perceiving their actions as criminal.

There have been some high-profile cases in the news recently around streaming piracy. How can OTT providers combat the growing threat from these types of for-profit fraudsters?

The best approach for video providers is to take a two-pronged proactive approach to piracy; protect their services against piracy and continuously detect and disrupt piracy attempts. Because pirates look for the weakest link, service protection must cover all forms of video distribution and consumption. Beyond mere encryption, CA and DRM protection must ensure that content decryption is coupled with the service business rules, while taking into account the possible vulnerabilities of the client devices and platforms. Protection is important not only as a preventative measure but also for detecting and disrupting the sources from which video is re-distributed. In order to ensure they are adequately protected, and to drive down piracy, it is essential for video providers to stay informed about how pirates operate. Pirates are very agile, and they can react quickly to security measures. To counter pirates' agility effectively, it's important to understand the pirate services that pose the toughest competition, such as subscription pirate networks that provide a commercial-grade experience. That way, you can be ready to employ multiple technologies to overcome pirate evasion tactics in a scalable manner, including watermarking, predictive analytics, and automation tools.

Does the industry need to collaborate more to fight piracy?

The same video content is often distributed via multiple providers. It is therefore critical that all the distributors collaborate to take the same level of measures against piracy. Pirates always look for the weakest link. It is important to avoid a situation where one distributor is compromised, while other video providers, who did put in place the right security measures, could be impacted due to the global nature of piracy. Though there is increase in collaboration among content rights owners, distributors and international anti-piracy organisations, it is unfortunate that most of the collaboration continues to promote the slow and less impactful path of legal action. There's a need for more disciplined application of security measures across distribution. In addition, distribution enablers, such as CDNs, cloud hosts, and ISPs should join forces with the fight against piracy.

Is password sharing a great marketing tool or does it present a real threat to business?

In the past, password sharing was perceived as a marketing tool that allowed potential subscribers to try what were then, considered new online services. Streaming is now considered mainstream, while sharing has become a social norm. Moreover, fraudsters also take advantage of the fact that credentials sharing is easy, and so turn re-selling credentials (either stolen or with account owner permission) into a profitable business. The impact is detrimental, to streaming pay TV providers. While OTT costs grow proportionally to usage, the revenue is calculated per subscriber. To give a sense of perspective, US pay TV revenue loss is expected to be approximately US$10 billion in 2021. The disruption of this threat can be a marketing tool in itself. Taking a carrot and stick approach, the consumers who use someone else's credentials can be offered a legal subscription, while security measures are applied to shut down the fraudsters' activity.

What technologies and techniques are coming on stream that will help in the future?

As piracy of OTT services grows, OTT service providers can leverage usage data by applying User and Entity Behavioural Analytics methods to detect suspicious piracy behaviour. In addition, new technology is emerging to impact the pirate online ecosystem.

Synamedia provides secure end-to-end video delivery solutions.

Ideal for sharing: the OTT TV dilemma

The sharing of user passwords between more than one household represents a real source of revenue loss for TV operators, but it is one that raises questions about how far it makes sense to go to enforce their own rules.

Just as consumers often view web piracy services they pay for as 'legitimate', many see nothing particularly wrong with the sharing of credentials between family and friends. That is not to say that credential sharing takes only one form. Data theft is a source of piracy in its own right, and security providers point to organised criminals trading usernames and passwords on the dark web, as well as individual customers making money from their own user credentials by trading them on social media sites. Irdeto discovered 854 listings of OTT credentials across 42 different OTT services, available from 69 unique sellers in 15 dark web marketplaces in the month of April 2018 alone.

While this is clearly illegal, casual sharing of passwords between people who know each other is more of a grey area, and this posits a dilemma for service providers.

Those service providers have in many cases inadvertently enabled credential sharing by expanding the number of devices via which users can view their service, with limitations such as three devices being seen by some as a barrier that reduces consumer satisfaction. Some have subsequently sought to rein in abuse by limiting the number of concurrent streams that can be served at any one time.

Content security technology providers are now addressing the issue. Verimatrix recently acquired technology from Akamai that enables it to see what devices are being used to access content and track multiple devices associated with particular user accounts, including identifying the location of the user. More broadly, the application of analytics can also help operators decide if they have mistakenly targeted a legitimate user who may be accessing his content on a business trip, or if there is something more suspicious going on.

Orly Ansalem, product manager, video security at Synamedia, says that operators can apply machine learning and analytics to detect credential misuse, helping operators through the delicate task of eliminating 'false positives' and avoid confronting their subscribers with unwarranted allegations of bad behaviour.

Operators then have the option of trying to use the information as a marketing tool or as evidence against their customers. "We can enable service providers to monetise credential sharing. We believe most users are honest and by approaching them in the right way, operators can sell a higher level of service," she says.

Ultimately, however, operators face hard choices in deciding how to tackle credential sharing. "Two-way networks give you the visibility to fight credential sharing if you want to. There is, however, a trade-off between user satisfaction and potential revenue loss from sharing across multiple households. Operators have to strike the right balance," says Petr Peterka, chief technology officer at Verimatrix.

For Viaccess-Orca's Assayag, intelligence gathering is key. He points to his company's Eye on Piracy anti-piracy service which monitors illegal servers on the web. This enables Viaccess-Orca to identify illegal streams and service providers. Service providers can issue take-down notices to hosting sites or get links removed from Google's database. Finally, operators can also take the ultimate step of using the service to capture screenshots that can be used in evidence in legal cases.

Assayag says that Viaccess-Orca also offers the ability to identify "weird patterns on the net", for example showing an increase in the number of licences issued that does not match viewing numbers.

For Assayag, data analytics is also a key tool in the battle against streaming piracy. "You can also transform the threat into an opportunity," he says. "If you seal off the stream that someone is watching you can then offer them the opportunity to watch a value offering or even turn them into full-fledged subscribers with a monthly plan. You can bring people over to the right side of the fence."

The wider point here is that marketing is just as important a tool for service providers as anti-piracy disruption technology. This is especially true against the background of the ease with which people can now access illicit streams. If this has widened the reach of pirate services, it can also be inferred that many people caught up in this are less committed to wrongdoing than was the case when piracy was 'difficult'.

"Legal players need to think about what is happening and make the right offering for the right market segments," says Assayag. "The music industry has gone through this and there has been a huge shift in terms of the way that industry works. I'm not saying TV needs to adopt a completely new business model but defining new price points and plans is one way to fight piracy."

Nagra's Trudelle agrees that providing a compelling service is the best defence. "Service providers have to pick up the ball and attract consumers back with attractive services. It is not just about using a stick to disrupt services. Operators have to provide the means to consumers to access services, sign up and watch when and where they want and watch on the device of their choice. It is about using the carrot as well as the stick." ●

Q&A: Steve Oetegenn, Verimatrix

Steve Oetegenn, chief operating officer at Verimatrix talks about combining forces with Inside Secure, the changing security needs of rights-holders and the growing impact of streaming piracy

Why does the combination of Inside Secure and Verimatrix make sense?

While both companies have a focus in security, our expanded areas of expertise and target audiences are quite complementary. Inside Secure enables Verimatrix to reinforce our security heritage in additional markets at an accelerated pace, including entertainment, mobile, and IoT.

Verimatrix brings new dimensions of business value to Inside Secure's product portfolio in end markets that are fast shifting towards software and cloud-based security and analytics solutions.

What benefits do you foresee the combined company providing to customers?

When you get down to it, the combined company excels at providing the right level of security required within very complex systems. We do it efficiently and reliably, which has established a high level of trust between us and our customers.

Together, we provide firm foundations to accelerate of growth vertical markets that face critical security challenges through comprehensive, end-to-end security and analytics service offerings.

How are the needs of rights-holders to provide secure distribution of content evolving and what solutions are likely to best meet their needs?

There is undoubtedly room for improvement in how premium video content is licensed and protected. A new generation of OTT-optimised premium security solutions has been introduced, but content providers have had limited options to move beyond the old ways of doing things when it comes to negotiating contracts and managing all the steps from encryption to reporting that go into protecting content.

In the past, it was possible to deliver in-the-clear programming in a single contribution format over secure links to video service operators. Today, providers need to deliver assets into a range of aggregation points. And they need to manage the distribution of decryption keys and digital rights policies for each piece of content transmitted to each affiliate. There is also a risk of asset theft as each operator decrypts and re-encrypts the content in preparation for delivery.

We have been able to address these issues by creating secure, easy to deploy, connected content distribution workflows. Through our VCAS Ultra and RightsConnex integration, we help automate the flow of content rights and entitlements directly from content providers to operators. Contract terms are translated for all the DRM modes used in distribution to optimally manage usage windows, playback policies and the keys that deliver the right content to the right operator in a secure fashion.

In turn, viewer and usage data derived from the Verspective Analytics solution are automatically sent back through the workflow, providing actionable viewership analytics that content providers can use to confirm policy enforcement.

What impact has the growth in streaming piracy had on the need for digital watermarking as a security technology?

We have found that the infrastructure and tools that have advanced streaming video services are the same technologies being exploited by pirates for illicit redistribution. Yet at the same time, as pirates are focused on content redistribution rather than just sharing control words, their activities have inevitably become more visible and traceable through two-way IP networks. This makes it also possible to detect illicit services and even streams in near real time and is essential for tackling live stream piracy where business damage is caused quickly such that retrospective legal action against pirates is of limited value.

Forensic watermarking is part of what we refer to as the third pillar of security – traceability. It is the best technique for marking and subsequently identifying illicit streams imperceptibly to the user. For this reason, forensic watermarking was mandated as part of MovieLabs' Enhanced Content Protection recommendations for UHD/4K quality content for both on-demand content and now live sports rights.

The need to create uniquely marked streams for each end user can add complexity to the workflow, so we are working closely with our customers to offer ways to streamline the watermarking process and make it easy to deploy.

What security challenges do TV Everywhere deployments raise and how can a technology solution such as Verimatrix's nTitleMe help?

nTitleMe is really about providing a friction-free TV Everywhere experience for content providers, video service operators and viewers.

A level of frustration still exists with subscribers trying to access their content through a complex login process, as well as between content providers and the video service operators regarding authentication – which has been expensive and time-consuming, requiring numerous integrations with individual operators.

Our solution connects via a single integration to the backend of the operator's platform to authenticate and authorise subscribers to receive content. It also provides fraud protection mechanisms to safeguard content and associated revenues.

Content providers can increase revenue by achieving the widest possible audience reach. Video service providers are able to provide a friction-free user and brand experience. A single sign-on for subscribers allows them to easily watch content on any authorized device.

nTitleMe nicely complements our expanded range of content protection solutions from Inside Secure.

Visit Verimatrix at NAB 2019, South Upper Hall #3110 to learn more.

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Lines of sight

Broadcasters are looking to new hybrid delivery technologies to ensure that their services stay relevant in the digital age. Anna Tobin reports on the latest developments.

The demise of broadcast TV has been predicted for years as audiences increasingly choose to watch content online and on-demand. It's not dead yet though. In fact, broadcast businesses across Europe are very much live and kicking.

The word live is key here. Live TV remains the USP of broadcasters. They have the legacy infrastructure that ensures that they can transmit live programming to the greatest footprint in the highest quality, something that the OTT world is not yet coming close to. What broadcasters are quickly learning, however, is that it makes business sense to build supplementary streaming services.

The technology behind streaming media is still not perfected, which is the primary reason broadcasters haven't fully embraced it. "The internet was not meant for delivery of broadcast content from a single source to multiple people and it wasn't meant for real-time delivery. It was always meant for file delivery," says Gideon Gilboa, SVP of product and marketing at Kaltura's media and telecom group. "From a technology point of view, there

is no doubt that at the moment at least there are still some barriers to moving to a world that is only IP for video."

The 2019 US Super Bowl final was broadcast to 98.2 million people and streamed to just over two million. Although an impressive figure, it demonstrates that the number of concurrent users on IP streaming is still low in comparison to broadcast.

Broadcast TV will be around for many years, surmises Gilboa, but nevertheless he still believes that there will be a continuing steady move by broadcasters towards OTT delivery. "I think broadcast TV is on the verge of significant change," he says. "I have no doubt that in the longer term, all video consumption will be IP-based. There are some technology hurdles, but I think that that will ultimately happen and IP and streaming will be the primary means for delivering video to consumers, wherever they are."

Ahead of that, broadcasters are investing heavily in straddling both the linear and OTT worlds. Some are attempting to take on global streaming giants, such as Netflix and Amazon,

by going direct-to-consumer with their own platforms. UK broadcasters the BBC and ITV, for example, have recently announced plans to launch a version of their joint venture US-streaming service BritBox in the UK. While other broadcasters are concentrating on syndicating their content to the big global players and some are experimenting with a combination of the two.

"We are seeing an evolution in the way people consume TV with consumers getting the best of both worlds through linear and non-linear services," says Laurie Patten, director of strategy and ventures at Arqiva. "Notably, while both services are important, when it comes to key programming such as major sporting events, soaps, reality TV and others, broadcast remains the nation's favoured choice."

Patten believes that hybrid delivery, where streaming and linear services are offered via a single platform, will continue to develop into the primary delivery model for broadcasters. "Hybrid TV delivery is now an integral feature of the DTT platforms offering viewers a modern, dynamic and personalised

viewing experience," she says. "Freeview Play is a native hybrid TV platform offering a seamless connected TV experience. This facilitates improved content discovery and access to catch-up and on-demand content, in addition to linear TV. It offers viewers a powerful search engine, provides dynamic content recommendations and a seven-day backwards electronic programme guide (EPG) for easy access to catch-up content. Viewers can also access catch-up and on-demand content through the various players, such as BBC iPlayer, which are all designed to work seamlessly on Freeview Play compliant smart TVs."

It's crucial that consumers are not aware of the means by which their content is delivered to them, says Peter MacAvock, chairman of the Digital Video Broadcasting (DVB) consortium. "For the foreseeable future there will be a demand and enthusiasm for broadcast TV," he says. "It's very much about the services that are provided and the best way of delivering them, and broadcasting is very efficient at what it does. What we will see, however, is a gradual move to the hybrid space so that, as consumers watch a broadcast or other service offered via a broadcaster, they will become less aware of the type of network that is used to deliver that service. There will be a seamless link between the traditional broadcasting and the online propositions."

The initial focus, says MacAvock, is an integrated EPG.

"The immediate short-term application is in the area of offering a seamless electronic programme guide so the consumer has access to a linear service which is the live feed, if you like, and a library of content, which is provided to them through some form of selection tool. It's about ensuring that the consumer sees no difference in channel change time, picture quality and audio quality between that linear broadcast service and the on-demand stuff; the consumer simply doesn't know."

Making the switch between linear and OTT services undetectable is vital for broadcasters if they are to leverage the time viewers spend in the linear space to lead them to their online offerings, agrees Frode Hernes, SVP of products, core and modules at Vewd. "The red-button applications are shortcuts for the place you spend the most time, so if and when

Kaltura's video platform and solutions are deployed globally by thousands of customers.

viewers transition to OTT, the broadcaster has a chance to catch them on their offering," he explains. "We also see now, with LOVEStv in Spain and, soon, with Salto in France, how HbbTV can be leveraged to 'bundle up' services from multiple broadcasters and create an offering which has a critical mass as a vital service for a country. Now, in Spain and France, we may see pay TV operators struggle, because

the broadcasters keep catch-up to HbbTV, which is typically supported on retail TVs on free-to-air, and not on pay TV devices."

HbbTV

The Hybrid broadcast broadband TV (HbbTV) specification is designed to promote and harmonise the coming together of broadcast and broadband delivery of entertainment services to multiple screens and devices.

"HbbTV is all about enabling interoperability through common international standards for Hybrid TV," explains Patten at Arqiva. "By adopting these standards countries and platforms can maximise scale and help drive down costs for the benefit of all stakeholders: advertisers, broadcasters, platform operators and ultimately consumers."

Recognising the need for the industry

to collaborate on the latest innovations, the HbbTV initiative is working closely with the DVB-I project. "Both the DVB-I project and the HbbTV initiative are similar in structure and they are peopled by the same people," explains MacAvock at the DVB. "I retain a position of responsibility within HbbTV also. The DVB project is going to work closely with HbbTV to define how the DVB-I initiative – which is

> ### "We're seeing an evolution in the way people consume TV with consumers getting the best of both worlds."
>
> **Laurie Patten, Arqiva**

all about trying to make the online experience easier for the consumer – fits in with what they have done on things like operator applications and also the common work that we are doing on targeted advertising. I see HbbTV as a compliment to the way in which DVB does its work."

The most recent HbbTV initaitve, HbbTV OpApp, is designed to allow TV operators, in partnership with TV manufacturers, to provide an operator-branded experience as an application on TVs. This virtual set-top-box has proved more of a bonus to retailers than broadcasters however, claims Hernes, who in addition to his role at Vewd is also a member of the HbbTV steering board.

"The HbbTV OpApp is designed specifically for small to medium operators that wish to avoid investing in operator-controlled devices. It is an opportunity for the retail TV manufacturers to establish a commercial
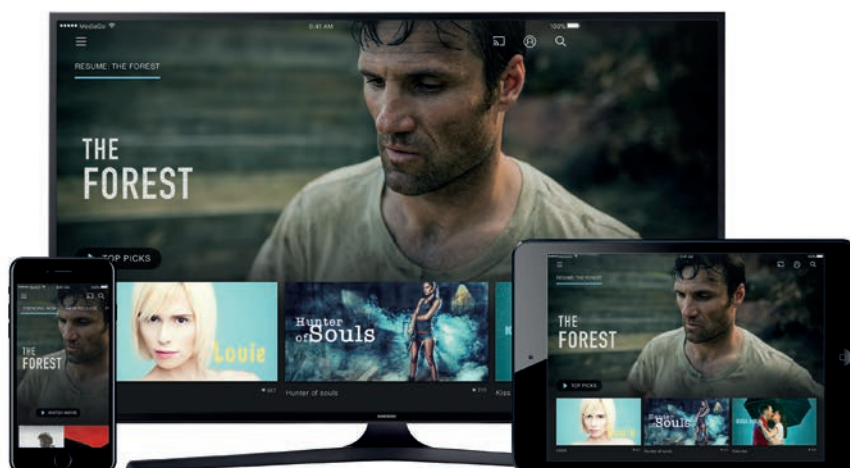
relationship with these operators and gain some after-market revenue. For broadcasters, OpApp is less important, as the services a broadcaster normally needs are already in the standard HbbTV 2.0.2 specification," he says.

Hernes says it is too early to judge whether the working partnership HbbTV has with DVB-I will prove successful, but he is watching it with interest. "If the DVB-I initiative is successful in Europe, it will be important to have HbbTV on those channels. But there are of course other ways to serve live channels over the internet also."

The HbbTV organisation is currently working on several new initiatives. These include application discovery over broadband – the functionality to let a TV connected to a pay TV device or TV service that does not support HbbTV use the internet to detect and

load HbbTV applications. Another initiative is targeted advertising – specific functionality to improve the user experience when a broadcaster or operator replaces a broadcast advertisement

with one loaded over IP. "This is already possible with today's HbbTV 1.5 and newer, but with this new initiative, we believe we can give the user a better experience, and also improve the 'backend side,'" explains Hernes.

The organisation is also working on HbbTV updates. "We are currently discussing what is required to keep HbbTV relevant and easy to use for content owners," says Hernes. "This

> **"The HbbTV OpApp is designed specifically for small to medium operators that wish to avoid investing in operator-controlled devices."**
>
> **Frode Hernes, Vewd**

mainly means adding new, media formats and features to the platform to ensure that the best quality experience can be achieved, and that content owners can serve the same media streams to HbbTV devices as to other devices out there."

The disconnect between the various mobile devices and the main screen platforms is impeding the development of a range of common solutions to be offered across all the different platforms, says the DVB's MacAvock.

"What I think we will see over time, and what the DVB project is working on, is trying to minimise those differences and simplify the proposition for the broadcasters. Currently, the broadcasters have to serve all of these platforms differently; ideally, they would serve them all the same way," he says. "The other big issue in this is the fact that people consume content on different devices in different ways. So what works on mobile doesn't necessarily work on a large screen and vice versa. The classic example is if you look at the statistics in relation to Netflix usage, you will see that once the 'sunrise period' of adherence to the platform wanes, after about one month, viewing migrates to the main screen which is for consistent long-form, high-quality, serialised drama and films."

It works the other way as well, says MacAvock. "If you look at the way in which RTÉ, the local broadcaster in Ireland, has tailored its offering; on its online platform it produces content specifically designed for mobile devices, which is more short-form based," he says. "So different content works on different devices in different ways at different times of the day to different types of users. Getting that mix right is critical, but at the basic level, and where the DVB project comes in, it is about being able to deliver content to different devices, but in pretty much the same way." ●

Spectrum wars

As broadcasters move over to streaming, it is predicted that they may be pushed to give up some more of their free-to-air terrestrial or satellite spectrum. And there are other entities waiting in the wings to pick this up.

"Spectrum, particularly spectrum in the lower part of the UHF band, is very attractive for a number of different applications. It brings with it the possibility of traditional broadcasting coverage and it also brings a reasonable data rate. It is a valuable resource and as a valuable resource it needs to be deployed for the good of the population that it serves," says Peter MacAvock, chairman of the DVB. "It's all very healthy. If there were no demands for spectrum then I think it would be more difficult to ensure that the best use of that spectrum is guaranteed."

There are quite a few satellite operators that are already thinking about when there won't be so much demand for satellite capacity from broadcasters, points out Gideon Gilboa, SVP of product and marketing at Kaltura's media and telecom group. But, while broadcast satellite spectrum may be relinquished, Laurie Patten, director of strategy and ventures at Arqiva, doesn't see free-to-air broadcast spectrum being rescinded by many broadcasters soon.

"Broadcasters are likely to hold on to valuable spectrum for a long time to come because the services and content they provide continue to be extremely valuable, widely used and play

a very important role culturally and within society," he says. "For instance, over 18 million households in the UK regularly use DTT services and the number of primary DTT households has actually continued to grow through the ongoing success of platforms such as Freeview Play, BT TV and Talk Talk TV, which are also built around the DTT platform."

Frode Hernes, SVP of products, core and modules at Vewd agrees that spectrum sacrifice is possible, but unlikely to happen on a wide-scale in practice. "There is some push to get some spectrum freed for mobile services, but achieving this is extremely complicated," he says. "There was an attempt in radio, closing down FM and introducing DAB with much more efficient codecs and better services, but in the end, full adoption did only happen in Norway, and even in Norway we cannot re-use those frequencies since our neighbours – Sweden mainly – did not close FM."

BBC Three was one of the first UK channels to migrate from being a digital terrestrial channel to being purely streamed via the BBC's iPlayer service. Yet, it remains one of the exceptions to the rule. Most of Europe's long-standing broadcasters have dipped more than their toes into the OTT space, but neither the technology nor the viewing culture is quite ready to leave the old linear world behind just yet. Broadcast media is not about to become extinct, and it has not yet made the endangered list.

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Bolt from the Blu

Dogan Yalcindag, the founder and CEO of Turkish VOD platform BluTV, discusses the company's growth, international expansion plans and its original content strategy.

BluTV was established in 2016 with plans to both dominate the Turkish SVOD market and offer Turkish shows around the world. The company started locally, launching first in Turkey before expanding to the Middle East and North Africa (MENA) with an Arabic version of its website in 2018. It now has plans to launch across Latin America in summer 2019.

"In the Middle East, Turkish content has been the number one content over the last 10 years on free-to-air channels in places like Saudi Arabia, Egypt, North Africa, and other parts of the Gulf," says BluTV founder and CEO Dogan Yalcindag. He claims that in the past four years Turkish shows have also found success Latin America – particularly in markets like Argentina and Chile – and he sees a "huge opportunity" in bringing its Turkish SVOD service to both regions.

With the company's Latin America push slated for June or July, BluTV already claims to have more than 2,000 hours of TV and movie content dubbed into Spanish with more hit Turkish shows to follow. Looking further ahead, Yalcindag says the next key expansion area for the business is to target the 20 million Turkish-speaking people living outside of Turkey – including diaspora audiences in countries like Germany and Poland and Turkish speakers in Azerbaijan and other surrounding countries.

BluTV's current subscriber breakdown by region is: 82% in Turkey and the Turkish-speaking world; and 18% in the Middle East and Arabic-speaking world. In Turkey, Yalcindag explains that BluTV's growth has been organic and achieved without striking deals with telecom operators like Turkcell, Türk Telekom and Vodafone Turkey, which have their own strong virtual pay TV subscription offerings.

In MENA, by contrast, much of its growth has been fuelled by a non-exclusive partnership with Saudi Telecom Company, with BluTV available as part of the operator's Jawwy TV service in the region. Yalcindag says that the company is also doing more deals with Turkish producers, claiming that online platforms are becoming an attractive alternative to free-to-air television in the region after Dubai-based satellite broadcast company MBC made the decision last year to cut Turkish drama from its schedules, in an apparent response to Arab-Turkish political tensions.

Overall, BluTV says it has signed up more than 4.2 million customers to date and attributes much of its success to originals. "At the beginning of our second year we launched our first original show and that's where we saw our biggest subscriber jump," says Yalcindag. "Then as we continued to provide these, we saw more and more subscribers coming in."

Masum (*Innocent*), the company's first original series, launched in January 2017 and BluTV has now produced 11 originals – including a second crime drama, *Bozkir*, two documentary series and two comedy series. Its vampire drama *Yasamayanlar* (*Immortals*) caught the attention of Netflix, which bought up the show's international rights, and BluTV now has five originals planned for 2019 – two new and three returning series. Genre-wise, Yalcindag says "we're trying to experiment with everything."

"We understood early on that our offering with various Hollywood shows and Turkish content wasn't enough. It was the originals that made the difference, because people were fed up with what they were seeing on free-to-air channels."

To Yalcindag's mind, the quality of the shows that appear on Turkey's free-to-air TV channels has "decreased significantly over the last five years". He claims these channels have lost a lot of younger audiences to pirate websites and the internet, but says that BluTV has succeeded in converting a portion of that market.

"When we launched in 2016 we were the first paid SVOD service and everyone in Turkey said no one would pay for content online because piracy was huge," he says. "It was a difficult battle for us the last three years, because we had to raise awareness and we had to convince people to pay for content online. We've done this by signing up millions of people."

BluTV now competes in a bigger market – both against ad-supported players like YouTube and the big global SVOD providers. However, Yalcindag feels that BluTV still has an advantage thanks to its central focus on Turkish content. "Since Netflix is fairly new, and they're not producing a lot of local content, we're basically the only stop for talent in Turkey if they want to do a show for a digital platform." ●

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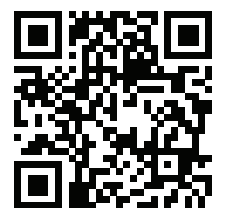**BroadcastAsia** **CommunicAsia** **NXTAsia**

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ANGA COM 2019: the preview

Peter Charissé, managing director of ANGA COM, talks to Digital TV Europe about the key themes of this year's event and the central issues facing the industry.

What will be the main themes of the ANGA COM conference this year, and how do these reflect current trends in the industry?

Hot topics of the exhibition and our conference agenda are 5G, the smart city, app TV, Internet of Things, smart home, cloud TV, copyright and personalised TV. Especially this year, big data, artificial intelligence and cybersecurity will be expanded. These keywords reflect the ongoing industry trend of bringing together connectivity and content.

What will be the stand-out features of the exhibition?

We already count more than 450 exhibitors for 95% of the exhibition space – including leading international vendors like Cisco, Huawei, Nokia, Arris, Appear TV and Commscope. Our exhibitors will particularly showcase latest innovations in the field of fixed mobile convergence and intelligent TV solutions for app TV and personalised TV. All these topics will be discussed at or new International Content Summit and the International CTO Summit. A completely new feature dealing with digital transformation will be the ANGA International Keynotes.

What do you see as the main priorities facing German cable and telecom operators in a year that will potentially see consolidation in the industry?

Currently we see two fundamental questions: the implications of 5G for the broadband market and the impact of streaming on TV competition. This also raises the question of how the interaction between larger and local providers will develop.

How much progress has the industry made towards offering Gigabit broadband connectivity and what still needs to be done to ensure progress?

Both the fibre roll-out and the upgrading of HFC cable networks have accelerated considerably in recent years. To make even better progress, it is particularly important to have an investment-friendly regulatory framework and a technology-neutral subsidy policy.

What impact do you think the growing penetration of OTT TV players and the response of commercial and public broadcasters will have on the established pattern of TV distribution in Germany this year?

Competition in the field of television and content distribution will continue to intensify. Network operators will therefore have to further diversify their own offerings. This applies to IPTV and OTT, but also in particular to time-shifted and personalised services. This will be one of the main topics to be discussed at our new International Content Summit with C-level experts from Eutelsat, Freenet, HD+, M7, Metrological, Nordija and Synamedia. The requirements on the level of broadband technology will be addressed at our International CTO Summit with, among others, Liberty Global, TDC Group, Tele2 and Vodafone. Both summits will be held on June 4.

The ANGA COM summits

With 450 exhibitors already registered covering 95% of last year's exhibition space, ANGA COM is expecting to grow in 2019. This year, the highlights of the conference programme will comprise four summit discussions: The International Content Summit, the International CTO Summit, the German Broadband Summit and a new German Media Summit.

The International Content Summit on June 4 will feature speakers from Nordija, Metrological, M7 Group, Eutelsat, Synamedia, HD+ and Freenet.

At the International CTO Summit, also on the first day of the event, senior executives from Liberty Global, TDC Group, Tele2, Vodafone Deutschland, Arris and WISI will take to the stage.

June 5 will feature the German Broadband Summit and the German Media Summit will take place, focusing on the rollout of fibre networks and impact of streaming services respectively and featuring key executives from ZDF, Constantin Film, Vodafone Deutschland, Mediengruppe RTL Deutschland, Tele Columbus, Bavaria Film, NetCologne, Deutsche Glasfaser, Unitymedia, Amazon Prime Video Germany, EWE TEL/EWE Vertrieb and Deutsche Telekom.

On June 6, the Federal Broadband Bureau and the Association of Telecommunications and Value-Added Service Providers (VATM) will organise a joint Broadband Day for the second time, focusing on the Smart City. The Broadband Day offers free access for all visitors upon prior online registration.

Overall, ANGA COM will feature 36 conference panels on topics including fibre, 5G, app TV, the smart city, the Internet of Things, the smart home, cloud TV, copyright, media policy and personalised TV. Within the core areas of ANGA COM, sessions on big data, artificial intelligence, start-ups and cybersecurity will be expanded.

The complete ANGA COM conference programme is published in this issue of *Digital TV Europe*.

ANGA COM will take place in Cologne, Germany from June 4-6. ●

CONFERENCE AGENDA STRATEGY

4 June
11:00

Copyright: Retransmission, IP and Direct Injection

11:00 – 12:00 a.m. | Room 3

Petra Arts Senior Manager Public Policy, Liberty Global
Agnieszka Horak Director of Legal and Public Affairs, ACT Association of Commercial Television in Europe
Thomas Roukens Director Regulatory Affairs, Telenet
Stephanie Struppler Senior Director Legal GSA, Discovery Communications
Moderator: Prof. Dr. Stefan Sporn Senior Vice President International Distribution, RTL International GmbH

in cooperation with:

RTL INTERNATIONAL

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4 June
01:00

Big Data and Artificial Intelligence *

01:00 – 02:00 p.m. | Room 3

Marcus Hartmann Chief Data Officer, ProSiebenSat.1 Media SE
Dr. Andrea Malgara Managing Director and Partner, Mediaplus Gruppe
Moderator: Dr. Alexander Henschel Managing Director, goetzpartners Management Consultants GmbH

International Content Summit: Content Strategies for Broadband Networks, Satellite and OTT

01:00 – 02:15 p.m. | Room 1

Thomas Christensen CEO, Nordija A/S
Jeroen Ghijsen Founder & CEO, Metrological
Marc Antoine d'Halluin Chairman of the Board, M7 Group SA
Philippe Oliva Executive Vice President of Sales and Products, Eutelsat
Jean-Marc Racine Chief Product Officer and General Manager of EMEAR, Synamedia
Wilfried Urner CEO, HD PLUS GmbH
Christoph Vilanek CEO, freenet AG
Moderator: Dr. Jörn Krieger Media Journalist

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4 June
03:00

International CTO Summit

03:00 – 04:15 p.m. | Room 1

Colin Buechner Managing Director Access Network, Liberty Global
Michael Fränkle Senior Vice President Networks & CTO, TDC Group
Thomas Helbo EVP, Fixed Technology, Tele2
Gerhard Mack CTO, Vodafone Deutschland
Steve McCaffery President International, ARRIS Group
Axel Sihn Managing Partner & CEO, WILHELM SIHN JR. GmbH & Co. KG (WISI)
Moderator: Stuart Thomson Editor, Digital TV Europe

Copyright: Modernizing the German Retransmission Framework *

03:00 – 04:00 p.m. | Room 3

Jochen Berg Head of Licensing Broadcasting and Cable Division, GEMA
Dr. Peter Charissé Managing Director, ANGA Association of German Cable Operators
Dr. Michael Müller Chief Officer Distribution, Legal & Regulatory, ProSiebenSat.1 Media SE
Matthias Schmid Head of the Copyright and Publishing Law Department, Federal Ministry of Justice and Consumer Protection
Timo Seidel Department Head Legal Content, Procurement & Technology, Vodafone Deutschland
Moderator: Michael Schmittmann Attorney/Partner, Heuking Kühn Lüer Wojtek

Learning from Start-Ups, Cooperating with Start-ups: New Corporate Cultures, new Partnerships? *

03:00 – 04:00 p.m. | Room 2

Dr. Niklas Brambring CEO, Zattoo International AG
Dr. Marcus Dimpfel Head of Strategy and Business Development, Mediengruppe RTL Deutschland
Axel Menneking Startup Incubation & Venturing, Managing Director hub:raum Investment Fund, Deutsche Telekom AG
Dr. Oliver Vesper Managing Director, SpotX Deutschland GmbH
Andreas Westhoff CEO, Smart Mobile Labs
Moderator: Peter Kerckhoff Vice President Content, Telekom Deutschland GmbH

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4 June
04:45

5G – Potentials, Concepts, Products *

04:45 – 05:45 p.m. | Room 1

Volker Held Head of 5G Market Development, Nokia
Dr. Alexander Lautz Senior Vice President 5G, Deutsche Telekom AG
Guido Weissbrich Division Head Network Planning, Vodafone Deutschland
Moderator: Marc Ennemann Partner Consulting and Head of Telecommunications, KPMG AG Wirtschaftsprüfungsgesellschaft

Media Law and Platform Regulation: An Interim Review *

04:45 – 05:45 p.m. | Room 3

Carine Chardon Head of Media Policy / Media Law, ZVEI e.V.
Dr. Harald Flemming Managing Director, VAUNET – German Media Association
Andreas Gerhardt Director Distribution / Regulatory Affairs, Sport1 GmbH
Andreas Hamann Office Manager, die medienanstalten
Dr. Andrea Huber Managing Director, ANGA Association of German Cable Operators
Moderator: Torsten Zarges Chief Reporter, DWDL.de

CONFERENCE AGENDA STRATEGY

5 June 10:00

Smart Home: How can Monetization be achieved?*
10:00 – 11:00 a.m. | Room 1

Christian Constant General Manager, European Operations, Plume Design Inc.
Martin Czermin Senior Vice President B2B and Housing Industry, Unitymedia
Olav Fritz Manager Sales Provider, AVM
Matthias Greve Co-Founder, 320EAST GmbH
Stefan Riedel Chief Consumer Officer, Tele Columbus AG
Guido Schwarzfeld Head of Product Management and Marketing Controlling B2C, CC Housing Industry, Telekom Deutschland
Moderator: Sebastian Artymiak Director Public Affairs, ANGA Association of German Cable Operators

5 June 11:00

ANGA International Keynotes*
11:00 a.m. – 02:00 p.m. | Room 3

The ANGA International Keynotes offer presentations on broadband, television and online topics. With an international focus, innovative aspects from the areas of Digital Transformation, Internet of Things and Content will be addressed.
The agenda of the ANGA International Keynotes is available online: www.angacom.de/en/conference/agenda.html

5 June 11:30

AppTV and OTT: New Platforms on the Test Bench*
11:30 a.m. – 12:30 p.m. | Room 1

Nicole Agudo Berbel Chief Distribution Officer & EVP Digital Publishing, ProSieben Sat.1 Media SE
Thomas de Buhr Executive Vice President, DAZN
Wolfgang Elsäßer Senior Vice President Business Unit TV, Telekom Deutschland
Dr. Holger Enßlin Chief Officer Legal, Regulatory & Distribution, Sky Deutschland
Rolf Wierig Vice President Entertainment Products Consumer, Vodafone Deutschland
Moderator: Christian Meier Media Editor, Welt N24 GmbH

5 June 01:00

Media Summit: Streaming as a Game Changer for Film and Television*
01:00 – 02:15 p.m. | Room 1

Dr. Thomas Bellut Chairman, ZDF
Oliver Berben Managing Board Television, Digital Media, Entertainment, Constantin Film AG
Dr. Manuel Cubero Chief Commercial Officer, Vodafone Deutschland / Chairman of the Board, Kabel Deutschland Holding AG
Matthias Dang Managing Director Marketing, Technology & Data, Mediengruppe RTL Deutschland
Dr. Christian Franckenstein CEO, Bavaria Film GmbH
Dr. Christoph Schneider Managing Director, Amazon Prime Video Germany
Moderator: Thomas Lückerath Editor-in-Chief, DWDL.de

5 June 03:00

Broadband Summit: Fiber Roll-Out on the Test Bench*
03:00 – 04:15 p.m. | Room 1

Keynote: Thomas Braun President, ANGA Association of German Cable Operators
Timm Degenhardt CEO, Tele Columbus AG
Timo von Lepel Managing Director, NetCologne Gesellschaft für Telekommunikation mbH
Uwe Nickl Managing Director, Deutsche Glasfaser Holding GmbH
Winni Rapp CEO, Unitymedia
Norbert Westfal Spokesperson of the Management Board, EWE TEL GmbH and EWE Vertrieb GmbH
Dr. Dirk Wössner Member of the Management Board for Germany, Deutsche Telekom AG
Moderator: Ina Karabasz Director Journalism Live, Handelsblatt

Personalized TV: Replay, Voice Control and Recommendation Engines*
03:00 – 04:00 p.m. | Room 3

Dr. Stefan Fuchs Chief Marketing Officer, UPC Schweiz
Peter Kerckhoff Vice President Content, Telekom Deutschland GmbH
Simin Lange Senior Vice President Commercial Distribution, Sky Deutschland GmbH
Andre Prahl Head of the Programme Distribution Division, CBC GmbH / Mediengruppe RTL Deutschland
Timo Schneckenburger Managing Director Marketing and Sales, HD PLUS GmbH
Moderator: Carine Chardon Managing Director, German TV Platform

in cooperation with:
DEUTSCHE TV-PLATTFORM

5 June 04:45

Quo Vadis TV Distribution:
Switch-Off SD, All over IP and Streaming only?*
04:45 – 05:45 p.m. | Room 3

Nicole Agudo Berbel Chief Distribution Officer & EVP Digital Publishing, ProSieben Sat.1 Media SE
Christian Heinkele Managing Director, Eviso Germany GmbH (M7 Group SA)
Christoph Mühleib Managing Director, ASTRA Deutschland GmbH
Dr. Michael Rombach Director Production, ZDF
Wolfgang Wagner Director Production and Technology, WDR
Moderator: Dr. Jörn Krieger Media Journalist

5G as an Opportunity for Local Operators and new Market Players*
04:45 – 05:45 p.m. | Room 1

Tim Brauckmüller Managing Director, Federal Broadband Bureau
Nelson Killius Spokesperson of the Management Board, M-net Telekommunikations GmbH
Dr. Marc Schütze Management Board, Drillisch Netz AG
Theo Weirich Managing Director, wilhelm.tel GmbH
Moderator: Wolfgang Heer Managing Director, BUGLAS Bundesverband Glasfaseranschluss e.V.

in cooperation with:
BUGLAS Bundesverband Glasfaseranschluss e.V.

BROADBAND DAY SMART CITY

6 June 10:00

Opening*
10:00 – 10:15 a.m. | Room 1

Tim Brauckmüller Managing Director, Federal Broadband Bureau
Dr. Peter Charissé Managing Director, ANGA COM / ANGA Association of German Cable Operators
Jürgen Grützner Managing Director, Association of Telecommunications and Value-Added Service Providers (VATM)

6 June 10:15

Opening Discussion Broadband Day: Smart City and 5G*
10:15 – 11:30 a.m. | Room 1

Dr. Christoph Clément Member of the Management Board, Vodafone Deutschland
Wolfgang Kopf Head of Central Division Policy and Regulatory Affairs, Deutsche Telekom AG
Timo von Lepel Managing Director, NetCologne Gesellschaft für Telekommunikation mbH
Dr. Tobias Miethaner Head of the Digital Society Directorate-General at the Federal Ministry of Transport and Digital Infrastructure
Bernd Thielk Managing Director, willy.tel GmbH
Martin Witt Management Board, 1&1 Drillisch AG / Chairman of the Board, 1&1 Telecommunication SE
Moderator: Kerstin Stromberg-Mallmann Moderator

6 June 12:00

Best Practice Smart Cities*
12:00 – 01:00 p.m. | Room 1

Denise Nelkert Consultant Digital Model Regions NRW, Ministry of Economics, Innovation, Digitisation and Energy of the State of North Rhine-Westphalia
Frans-Anton Vermast Strategy Advisor & International Smart City Ambassador, Amsterdam Smart City
Moderator: Jürgen Grützner Managing Director, Association of Telecommunications and Value-Added Service Providers (VATM)

Key Issue Underground Construction –
How do we solve the Bottleneck?*
12:00 – 01:00 p.m. | Room 3

Johannes Bisping Managing Director, Bisping & Bisping GmbH & Co. KG
Dr. Klaus Ritgen Consultant, Deutscher Landkreistag
Stefan Tiemann Managing Director, RFT kabel Brandenburg GmbH
Dr. Stephan Zimmermann CTO, Deutsche Glasfaser Holding GmbH
Moderator: Christian Zieske Deputy CEO, Federal Broadband Bureau

6 June 01:30

From Megabit to Gigabit: Future-Proof Public Broadband Funding*
01:30 – 02:30 p.m. | Room 1

Florian Braun MdL Spokesman of the CDU Parliamentary Group NRW for Digitisation and Innovation
Stephan Drescher Managing Director, envia TEL GmbH
Dr. Andrea Huber Managing Director, ANGA Association of German Cable Operators
Uwe Nickl Managing Director, Deutsche Glasfaser Holding GmbH
David Zimmer Managing Director, inexio
Moderator: Tim Brauckmüller Managing Director, Federal Broadband Bureau

Game Changer 5G: Nationwide, regional, local?!*
01:30 – 02:30 p.m. | Room 3

Dr. Christoph Bach CTO Service Providers, Ericsson GmbH
Gerhard Mack CTO, Vodafone Deutschland
Jörn Schoof Head of Broadband, E.ON SE / Managing Director, e.discom Telekommunikation GmbH
Theo Weirich Managing Director, wilhelm.tel GmbH
Moderator: Sebastian Artymiak Director Public Affairs, ANGA Association of German Cable Operators

6 June 02:30

Quo Vadis Regulation:
The new European Electronic Communications Code*
02:30 – 03:30 p.m. | Room 1

Jürgen Grützner Managing Director, Association of Telecommunications and Value-Added Service Providers (VATM)
Rainer Helle Chairman of the Working Group of all Federal States
Marcus Isermann Director of Political Interest Representation, Regulation and Federal States, Deutsche Telekom AG
Dr. Stephan Korehnke Head of Regulatory Affairs, Vodafone Deutschland
Dr. Wolf Osthaus Member of the Management Board, Unitymedia
Moderator: Dr. Iris Henseler-Unger Director and Managing Director, WIK GmbH

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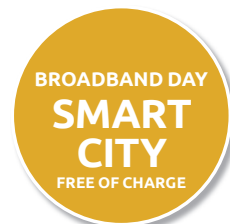
ENTRANCE FEES

Exhibition	22.– €
Conference	220.– €
Conference and ANGA COM Night	290.– €

Executive Ticket	790.– €
Conference Technology Panels	100.– €
Broadband Day on 6 June 2019	Free of charge

REGISTER ONLINE NOW: www.angacom.de

CONFERENCE AGENDA TECHNOLOGY

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4 June 11:00

10 Gigabit and Beyond: Powering the Future of Cable
11:00 a.m. – 12:15 p.m. | Room 1

John T. Chapman
CTO Cable Access & Fellow, Cisco

Robert Ferreira
General Manager of Intel's Connected Home Strategy and Technology Office, Intel

Frank Hellemink
Director Deployment, Vodafone

Chris Lammers
EVP/COO, CableLabs

Moderator: **Mark Dzuban** President/CEO, ISBE

in cooperation with: ISBE

Cloud and Satellite Integration for Streaming Video & Social Media
11:00 a.m. – 12:15 p.m. | Room 2

Eutelsat CIRRUS – Hybrid Satellite TV and OTT Delivery anytime, anywhere, on any screen
Markus Fritz Executive Vice President Commercial Development & Strategic Partnerships, Eutelsat

Video Services in the Cloud
Dr. Frank Hoffmann SVP Customer Experience and Strategy Video Solutions, SES

Creating an affordable End-to-End IP Chain for Media Broadcasting – anywhere
Hans Massart Market Director Broadcast, Newtec

A Modern Approach to Connecting Great Content to Global Consumers
Steve Oetegenn President, Verimatrix

Moderator: **Guy Bisson** Research Director, Ampere Analysis

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4 June 01:00

PNM – The Multiple Layers of Network Maintenance, Management and Monetization
01:00 – 02:15 p.m. | Room 2

Managing End-to-End Complexity by using Workflow Automation
Alon Bernstein Distinguished Engineer, Cisco

Maintenance of End-to-End Networks
Brady Volpe CEO and Founder, Volpe Firm

Silicon to Service: Leveraging Big Data through AI for the Provision of modern Home Services
Bill McFarland CTO, Plume Design

Converting Network Data into Business Opportunities
Mark Trudeau CEO and Founder, OpenVault

Moderator: **Volker Belz** Partner, Goldmedia

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4 June 04:30

DOCSIS®3.1: Best Practices from the Field
04:30 – 05:45 p.m. | Room 2

Gaining Network Performance the passive Way, with Distribution Passives
Anders Moller-Larsen Product Manager Coax, DKT

Low Latency DOCSIS – Limits and its Value
Jeff Leung Senior Director of Product Management – Cable, Casa Systems

From the Field: Real Life Experiences with operational Aspects of vDAA
Mike Gannon Lead Solutions Architect, Nokia

From WAN to LAN – DOCSIS 3.1 CPE Architecture Requirements
Tim Kroll Product Manager, AVM

Moderator: **Mark Dzuban** President/CEO, ISBE

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5 June 10:00

WiFi and 5G Access – The wireless Combination for the Future
10:00 – 11:15 a.m. | Room 2

WiFi ax and Mesh – Joint Forces to meet Gigabit Service Needs
Henning Kroll Product Manager, AVM

Managed In-Home WiFi: Transforming WiFi from Headache to Opportunity for Operators
Metin Taskin CTO, AirTies

How a Multiservice 5G Core can capture new Revenue Opportunities and lower Operating Costs
Gibson Ang VP Technology, Casa Systems

Lessons learned from deploying remotely managed Residential WiFi Networks
Dr. Gabor Molnar Evangelist, Video Technology & Science, Divitel

Moderator: **Thomas Küpper** Scientific & Technical Programme Officer, EU Commission

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5 June 11:45

10 Gigabit – Cable Today and Beyond
11:45 a.m. – 01:00 p.m. | Room 2

The right Solution for cost-effective Gigabit
Dr. Tom van Caenegem Bell Labs Consulting

HFC Ethernet Overlay Networks
Jörg Hellwig CEO, Giax

A modern Tale from the Field of low Latency and high Bandwidth Delivery in DOCSIS Networks
Karsten Brauner Product Management, WISI Communications

MoCA: Multi-Giga Bit to the Home and throughout Home
Dr. Zongliang Wu CTO, Luster Teraband Photonics

in cooperation with: SCTE

Moderator: **Mike Thornton** Co-opted Member, SCTE International Ambassador, SCTE – Society for Broadband Professionals

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5 June 01:30

RDK – Open Source: New Quality of Experience
01:30 – 02:45 p.m. | Room 2

An Open Source Platform for the Connected Home
Steve Heeb President and General Manager, RDK Management

Cloud and Ground unite for the new Broadband Service Delivery Era
Charles Cheevers CTO Customer Premise Equipment, ARRIS

Speed Dating with Premium OTT and Regional Apps
Albert Dahan CTO and Co-Founder, Metrological

New Services and QoS for Customers based on the RDK Platform
Alex Ball Director of Connectivity Software, Liberty Global

Moderator: **Stuart Thomson** Editor, Digital TV Europe

All conference panels in room 1 will be translated simultaneously (German/English). * All marked conference panels will take place in German.

CONFERENCE AGENDA TECHNOLOGY

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5 June
03:00

Future proofing your Network – Fiber Optics and more
03:00 – 04:15 p.m. | Room 2

Scalable and dynamically reconfigurable IP/Optical Cable Networks
Dr. Ben Tang DMTS and Principal, Bell Labs Consulting

Coherent Optics Impact on Cable's Network Evolution
Dr. Alberto Campos Fellow, CableLabs

10 Gig DAA and SDN/NFV Strategies supporting new Bandwidth Horizons
Hossam Salib VP Cable & Wireless Strategy, ADTRAN

Smashing together Next Gen HFC Architectures and small Cells
Kevin Bourg Director, Optical Network Architect, Corning Optical Communications

Moderator: Edward Fitzgerald Entrepreneurial Technologist

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5 June
04:45

Cyber Security & Safety:
Prepare your Network and protect your Customer
04:45 – 06:00 p.m. | Room 2

Security for today's Digital Economy: Multi-dimensional, insight-driven and network-based
Roland Thienpont Director, Product Marketing for IP, Nokia Deepfield

Cyber Security for Operators, Broadcasters, and Suppliers: Key Areas of Focus
Marcel Mangel Managing Director of Cyber Security, Eurofins Digital Testing Cyber Security Division

Using collective Intelligence to combat Piracy – and generate new Revenues
Orly Amsalem Product Manager Security, Synamedia

Affected – Think offensively, develop a Strategy and secure the Cable Network Experience
Steve Harris Executive Director, Education and L&D Sales, ISBE

Moderator: Dominik Röske Telecommunications and Postal Law, Federal Ministry for Economic Affairs and Energy

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6 June
10:00

Video Delivery from the Cloud to the Consumer – What happens on the last Mile?
10:00 – 11:15 a.m. | Room 2

Opportunities and Challenges of OTT
Fabian Birgfeld Managing Director & Co-Founder, W12 Studios

Targeting True QoE for MSOs: End-to-End Monitoring and unifying Metrics to maximize Viewer Experiences
Prof. Zhou Wang Chief Science Officer, SSIMWAVE

Bringing the Power of automated ABR Video Optimization to live/linear Workflows
Elke Hungenaert Director of Product Management, Synamedia

Beyond Personalized TV – Personalized Pixels and Audio Streams
Charles Cheevers CTO Customer Premise Equipment, ARRIS

Moderator & Kick-off: Simon Murray Principal Analyst, Digital TV Research

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6 June
11:30

Why are Operators moving to Network Virtualization?
11:30 a.m. – 12:45 p.m. | Room 2

Using AI / ML for Intelligent Network Management
Thuy Nguyen Director of Fixed Networks, Intel

Self-Healing Network – a Dream comes true
Tal Laufer Director Product Line Manager, ARRIS

Total Cost of Ownership benefits of moving to vCCA
Peter Wolff VP Wireline Product Management, Casa Systems

Considerations for NFV in the Access Network
Bartlomiej Lewicz Access Network Innovation System & Solutions Architect, Liberty Global

Moderator: Alan Breznick Cable/Video Practice Leader, Light Reading

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Leveraging DOCSIS 3.1 to Maximize Network Security ISBE Speed Boot Camp
11:30 a.m. – 12:45 p.m. | Room 4

Steve Harris ISBE Executive Director, Education & L&D Sales, ISBE

Dr. Alexander C. Adams ISBE European Representative

organized by: ISBE

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6 June
01:00

Modern HFC Infrastructures for the 10 Gigabit Era
01:00 – 02:15 p.m. | Room 2

RPHY CIN Architectures for Digital HFC
Luis Martins Head of Cable Access, EMEAR Global SP, Cisco

Navigating the HFC Network Migration Maze into the 2020 Decade
Dr. Ayham Al-Banna Engineering Fellow, CTO-Office Network Solutions, ARRIS

Full Duplex DOCSIS over European Networks
Arttu Purmonen Vice President, Teleste

Remote PHY and Virtualization Deployment Experiences
Asaf Matatyaou VP Solutions and Product Management, Cable Edge Business, Harmonic

Moderator & Kick-off: Christian Till Application Engineer, EXFO

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6 June
02:30

Migration to Fiber enables new Business Opportunities
02:30 – 03:45 p.m. | Room 2

FTTH Deployment across Europe – Facts and Figures
Erzsebet Fitori Director General, FTTH Council Europe

WDM Strategies for Distributed Access Architectures
Rudy Musschebroeck Director Market Development, CommScope

Great Wires make great Wireless: How R-PHY unlocks 5G Markets for Cable
David Hering Senior Product Line Manager, Viavi

Evolution of the testing Needs in a constant evolving Network
Mike Venter VP of Optical Product Development, VeEX

Moderator: Hansjörg Pätz Founder, HSB media

Technology in focus

Infrastructure equipment and product news for digital media distribution

Sky and NBCUniversal team up on advanced ads

Sky and new Comcast stablemate NBCUniversal are to combine their advanced advertising offerings under Sky's existing AdSmart brand.

The pair said they were expanding the AdSmart offering by bringing together NBCUniversal's Audience Studio platform with Sky's addressable advertising tools.

According to the pair, the aim of the joint offering is to enable global brands and businesses to use targeting and optimisation technology to reach customers in key international markets and measure results across NBCUniversal and Sky's combined TV and digital portfolio. This unification of capabilities marks the first joint advertising initiative following Comcast's acquisition of Sky.

NBCUniversal and Sky will

enable advertisers to optimise their linear spend against a selection of consumer segments, using Comcast set-top box data in the US and Sky set-top box data in the UK for a total data set of more than 50 million households.

The pair will also enable advertisers to target consumer segments through addressable video for ads delivered directly to target households through long-form content;

and can also enable advertisers to target consumer segments across digital platforms for ads delivered to target users through online content.

NBCUniversal is also piloting AI-powered contextual media planning for TV, aligning brand messaging with relevant scenes across national programming.

"Over the years, Sky has built a suite of advanced advertising tools and we're excited to share them with international marketers in the United States. Together with NBCUniversal we're launching a global product unlike anything the market has seen before, that combines the quality and reach of TV with best-in-class addressability." said Andrew Griffith, group chief operating officer, Sky.

Futuresource: set-top shipments to grow 1% in 2019

Shipments of set-top boxes (STBs) and media streamers are expected to grow 1% globally in 2019 following a period of "market stagnation," according to Futuresource Consulting. The research firm said that the global media box market is on track to exceed 350 million units this year, driven predominantly by media streamers with "a little help" from free-to-air STBs.

Declining shipments in the pay TV STB segment, due to cord cutting, are expected to be largely offset by a rise in free-to-air STB shipments, resulting in a relatively flat market. However, media streamer shipments are forecast to grow 8% this year to reach 57

million units, with North America to account for more than 33% of these. Across the market as a whole, declines in North America are expected to be counterbalanced by growth in Latin America and Asia. For the period 2019-2023 Futuresource forecasts worldwide STB shipments will increase at a 1% compound annual growth rate.

"While satellite pay TV STB volumes will remain flat during the forecast period and digital cable boxes will see a CAGR decline of 2%, we expect IPTV to grow from 56 million shipments in 2019 to 67 million in 2023, representing a CAGR of 5%, as internet infrastructures improve," said Matthew

Rubin, senior market analyst at Futuresource Consulting.

"Consumer appetite for SVOD services such as Netflix and Amazon Prime Video continues to feed demand for media streamers and the public's interest shows no signs of waning. Hardware is dominated by the likes of Amazon, Google, Roku and Apple, who are all enjoying a plentiful wave of growth. "Most mainstream pay TV operators won't fully commit to existing media streaming devices, as, despite them being cheaper to adopt for the business, they lose control over the UI and the ability to retain customers within their own content garden.

Operators look to live sports as 5G opportunity

Over 90% of European network operators intend to deliver new 5G enterprise services to major live sports and eSports event organisers to help improve the fan experience and drive efficiencies inside the stadium, according to research carried out by Ovum for Amdocs.

According to the research, 94% of network operators view sports events such as the 2020 Euros and Tokyo Olympics as an opportunity to create new enterprise services based on 5G technology.

European operators are optimistic about the impact of 5G on sports-related businesses, particularly those that operate in media. Some 53% believe 5G will drive mainstream adoption of virtual reality services and 47% believe 5G will drive growth in sports TV subscribers.

Other findings include that 76% of operators plan on creating new partnerships with broadcasters and OTT service providers in their search to transform the delivery of sports coverage to consumers. Some 59% of European operators are looking to partner with virtual reality app providers while 47% intend to create partnerships with augmented reality app providers.

Some 65% of European operators will seek partnerships with tournament organisers and 53% of operators want partnerships with social media companies, according to the research. Asked about anticipated network-related challenges regarding new 5G services for sports and eSports, the main concern cited by 76% of the operators was delivering the required levels of capacity and connectivity to support live HD video.

Indoor coverage at stadiums was also seen as a major challenge by 36% of respondents. In terms of IT-related challenges, end-to-end management of sports-related services was regarded as a key challenge by 64% of European operators. This was followed by scalability of business and operational support systems (BSS/OSS), cited by 42% of the operators. The research surveyed C-level and other senior decision makers from 60 of the world's 100 largest operators, including operators in Europe.

"Operators see both short-term benefits in supporting sports with 5G, including growth in ARPU and their media business line, as well as longer-term benefits, such as enhanced brand appeal among younger demographics," said Gary Miles, chief marketing officer, Amdocs.

"Out of a multitude of potential 5G use cases, our research shows that sports and eSports is certainly among the most compelling."

Panasonic deploys HbbTV OpApp for HD+ access

Panasonic has launched the first commercial deployment of the HbbTV Operator App, allowing viewers in Germany to access the HD+ platform direct through their TV.

The HbbTV OpApp specification lets users access the full HD+ bouquet of live and on-demand TV on any 2019 Panasonic OLED UHD smart TV sold in Germany.

HD+ channels and interactive services can be accessed through an HD+ branded user interface on the Panasonic TVs without the need for additional hardware or smartcards.

HbbTV Association chair, Vincent Grivet, said that the launch is the perfect illustration of what the OpApp is supposed to do: "enable an operator-specific user experience on a TV set without the need

Panasonic's HD+ interface, powered by HbbTV OpApp.
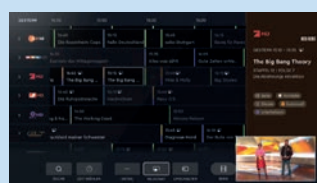
for additional hardware".

"We are confident that many more broadcast platforms will realise how powerful this is and will soon also adopt this approach, leading more TV manufacturers to ship OpApp-compliant TV sets," he said.

Panasonic's managing director for Germany, Austria, Switzerland and the Netherlands, Kai Hillebrandt, said: "As the leading company in the area of TV receiver technologies, Panasonic is convinced that the HbbTV OpApp will be an essential element of future devices.

"The direct implementation of HD+ in TV sets and the new HD+ comfort feature are quantum leaps forward in customer experience. Watching brilliant HD and UHD content gets more convenient and flexible than ever before. Hence, we are very happy to be the first manufacturer to bring the HbbTV OpApp into the homes of our customers in Germany."

HbbTV, or the hybrid broadcast broadband TV, is a global initiative aimed at harmonising the broadcast and broadband delivery of entertainment services to consumers through connected TVs, set-top boxes and multiscreen devices.

In Brief

MBC taps Du and Telstra
MBC in Dubai has partnered with Du and Telstra, which have teamed up to offer a new video contribution solution. Du and Telstra will provide MBC with a fully-managed video network service on the Telstra Global Media Network, enabling reliable and high-quality video streaming to Europe. Du said that through strategic partnerships with video network providers it continues to build on its vision to provide "best-in-class dedicated video services to multiple destinations worldwide".

Videofutur to use SFR RIP
Altice France/SFR has struck an agreement with French service provider Videofutur whereby the latter will make its commercial fibre offering available via the Réseaux d'Initiative Publique (RIP) – shared networks supported by local authorities – that are exploited by SFR. Videofutur plans to deploy its commercial fibre offering to two million homes covered by the SFR networks.

Canal+ Myanmar taps Conax GO Live
Content security provider Nagra has deployed its Conax GO live multiscreen OTT solution with Canal+ International subsidiary Canal+ Myanmar FG. The move marks the first cloud deployment of the Conax GO Live solution in the Asia-Pacific region. The new service, which launched last month, enables subscribers to watch linear pay TV channels on iOS or Android devices, with support for Apple AirPlay and Google Cast. GO Live also offers features such as start-over and catch-up TV with EPG functionality.

LG starts rollout of 2019 TV line

LG has started to roll out its 2019 premium TV line-up in South Korea and the US, with availability in key markets in Asia, Europe and South America to follow soon after.

This year's OLED and NanoCell LCD TV sets will feature screen sizes of up to 86 inches and upgraded AI picture and sound quality from LG's second generation Alpha 9 Gen 2 intelligent processor and deep learning technology.

Out of the box the new TV line includes Google Assistant support with a firmware update to add Amazon Alexa in the works.

An upgrade due for the middle of the year will also add Apple AirPlay 2 and Apple HomeKit

LG W9 OLED features LG's a9 Gen 2 intelligent processor.

support so that users can stream content from Apple devices.

LG said that OLED models will make up 20% of its high-end TV portfolio this year and with demand for OLED TVs expected to grow to 3.6 million units this year, 7 million units in 2020 and 10 million in 2021.

"LG continues to push the boundaries of TV technological innovation, as can clearly be seen from our premium TV line-up for 2019," said Brian Kwon, president of mobile communications and home entertainment companies. "LG's advanced AI technologies to improve picture and sound enrich and expand the viewing experience."

Telefónica and Orange highlight 5G TV initiatives

Telefónica and Orange España have separately teamed up with Ericsson to highlight the TV broadcast and production capabilities of 5G mobile technology.

Telefónica used Mobile World Congress to demonstrate the use of 5G connections to deliver signals from 5G-connected cameras over a 5G network, with production software installed at the edge, very close to where the cameras were located, receiving images almost immediately with very low latency, according to the group.

Ericsson provided network equipment, including 5G radio equipment, as well as the Edge and network core, with the latency and high bandwidth capabilities needed for these types of solutions.

The technical production solution was designed by Madrid-based Idronia Multimedia Solutions, and the mobile devices used for the 5G connectivity are latest generation Samsung 5G
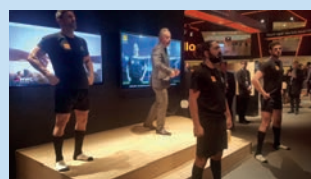
smartphones; specifically the Samsung Galaxy S10 5G.

Juan Cambeiro, head of the Telefónica España Innovation Project, said: "Nowadays, high level media coverage is something reserved only for large events or competitions due to the cost and complexity of the infrastructure that it requires. This TV5G rebroadcasting and production solution allows to have professional media coverage for even very local content. In fact, we could talk about a democratisation of professional television coverage because it allows [us] to broadcast very local content using less resources than ever before."

Orange España meanwhile teamed up with Ericsson to imple-

ment what it described as the first real-time 5G transmission over a commercial network in Spain.

A real-time transmission of a Maori tribal dance, a Haka, was carried out over Orange's 5G network between Mobile World Congress in Barcelona and the Puerta del Sol in Madrid.

The transmission connected three separate venues, the Orange stand in the Barcelona Fira, Orange's offices in Barcelona and its flagship store in Puerta del Sol.

Ericsson's Radio System team provided three AIR6488 active antennas working in mid-band spectrum assigned to Orange.

Tomás Alonso, director of product engineering at Orange España, said: "Orange and Ericsson demonstrated in Barcelona how 5G can contribute to society with a value proposition like these use cases, never before seen, that synchronise human activities from remote sites in the same temporal frame."

On the move

Liberty Global-backed Belgian cable operator Telenet has named Liberty's EVP and chief technology officer **Enrique Rodriquez** (pictured) to its board following the departure of Liberty commercial chief **Diederik Karsten** last month. Rodriquez will be appointed as director in the run up to Telenet's general meeting on April 24. Rodriquez joined Liberty Global in July last year, having previously served as CEO of TiVo. He has also previously served as CTO at AT&T Entertainment Group. Karsten departed from Liberty Global following its January move to decentralise its organisation in line with the reduced size of the company following the ongoing sale of its assets in Germany, Switzerland and central Europe.

Netflix's chief marketing officer **Kelly Bennett** is stepping down from the company after seven years in the role. Bennett joined Netflix in 2012 and has led the company's marketing efforts as it went from 26 million subscribers to 139 million global members. He will stay in his role for a transitional period until a new CMO is named. Netflix has also hired the head of London-based STXInternational **David Kosse** to head up its international film division. As VP of international film, Kosse will oversee all international production and acquisition for the company and focus on non-English language films. Kosse will be joined in London by **Funa Maduka**, who will serve as director of international film and acquisitions, and **Teresa Moneo**, who will act as director on international film.

German cable operator Tele Columbus' supervisory board chairman **Frank Donck** is resigning ahead of the expiry of his term later this year. Donck has served as chairman since the incorporation of Tele Columbus in 2014, during which time he helped push through the company's IPO, the acquisition of cable operators Primacom and Pepcom and the successful completion of a number of rounds of financing. Tele Columbus said the search for a successor was now underway. Donck will play a role in the succession process.

German commercial broadcaster ProSiebenSat.1 has named former YouView and Cisco service provider video technology chief **Nick Thexton** as its CTO. Thexton, who comes to ProSiebenSat.1 from Inmarsat, where he is currently chief digital and product officer, will take up his new role in June, reporting to CEO Max Conze. He will be part of the group's new extended executive board.

WarnerMedia has reorganised its leadership team and has named **Robert Greenblatt**, formerly chairman of NBC Entertainment, as chairman of WarnerMedia Entertainment and direct-to-consumer, following completion of AT&T's acquisition of Time Warner. WarnerMedia CEO John Stankey has also given an expanded role to **Jeff Zucker**, who becomes chairman, WarnerMedia News & Sports, and president, CNN. **Gerhard Zeiler**, meanwhile, has been moved from his role as president, Turner International to become WarnerMedia chief revenue officer. WarnerMedia will consolidate its affiliates and advertising sales groups under a single structure led by Zeiler. Greenblatt's WarnerMedia Entertainment will include HBO, whose long-term chief **Richard Plepler** recently announced his departure, linear cable networks TNT, TBS and truTV, and the direct-to-consumer business. **Kevin Tsujihara**, who was chairman and CEO, Warner Bros, was to be given additional responsibilities including a new global kids and young adults business but has since departed following a well-publicised scandal.

Synamedia, the new Permira and Sky-backed technology company that was created from Cisco's service provider video business, has hired **Mark Billinge** (pictured) as VP of operations and services product management and **Avidan Lamdan** as VP of platform product management. Alongside Synamedia's other product management heads, Billinge and Lamdan will be responsible for refining and driving Synamedia's platform, operations and services to meet current and future market requirements. Billinge joins Synamedia from DTH satellite operator OSN, where he spent 12 years, the last six as CTO. Lamdan was previously CTO and VP of R&D at Tvinci until Kaltura acquired the business in 2014.

Polish pay TV service nc+ has named **Wojciech Rzazewski** As director of digital products. Rzazewski, who will be responsible for the development of digital products and services, was previously director of online product development at Axel Springer Poland. Prior to that, he worked as chief digital officer, responsible for online channels and the digital transformation of press titles from the Ringier Axel Springer Polska portfolio.

Insight TV has appointed **Mark Romano** as vice-president of Americas, tasked with leading the UHD adventure and lifestyle service's North American multiplatform expansion efforts. Romano was most recently vice president of strategic accounts, for Captivate, a marketing and advertising business.

ProSiebenSat.1 and Discovery's German joint-venture 7TV's CEO Alexander Vassilev has strengthened his team by naming **Katja Hofem** (pictured) as co-managing director for content, marketing and partner management and **Jochen Cassel** as co-managing director responsible for finance, legal and HR. The JV has also named **Contanze Gilles** as SVP of distribution and partnerships. Hofem was previously COO of ProSiebenSat.1 TV Deutschland and managing director of ProSiebenSat.1 TV Deutschland for small and new channel development. Cassel, previously managing director of ProSiebenSat.1 Digital, will become CFO of 7TV on April 1. Gilles was previously VP of partner channels at Sky Deutschland. ●

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> "Netflix's biggest worry, according to CEO Reed Hastings, is not about other telly or streaming competitors. On the contrary, he told investors on the latest financial call that he is most worried about *Fortnite,* a game where players spend an average of six to ten hours a week."

Netflix's game theory

There is a scene in the ground-breaking interactive hit and Netflix original *Black Mirror: Bandersnatch* where the viewer gets to choose the next narrative arc – either 'Shout at Dad' or 'Throw tea over the computer'. This is one of many seemingly simple decisions that has huge repercussions for what the viewer sees because one choice cascades into many others, with different resulting outcomes to the story's narrative.

Content producers, content owners and platform operators now have their own *Bandersnatch*-style choices of how to work with the super streamers like Netflix and it's growing ever-more complicated. It's not just about the money. These days it's also about how to protect your own brand and your own business model.

At the recent INTV conference sponsored by Keshet in Israel, Netflix head of original content Cindy Holland told the audience: "Netflix is leading the way in the on-demand television revolution. The companies that stay rooted in historical distribution models, for example, mainly television, they'll find themselves quite challenged."

This sounds plausible enough and Netflix has the wind in its sails, at least for the moment. But there are a growing number of other choices out there. These include the upcoming Apple streaming video service, Amazon Prime Video and upcoming local SVOD services from national broadcasters as well as streaming launches from Disney, WarnerMedia, Viacom and NBCUniversal.

Too little, too late to be Netflix killers? Netflix is not going away any time soon. Subscribers continue to sign up and superstars including Ricky Gervais and David Attenborough are clamouring to work with the streamer on original programming. Attenborough may seem like a BBC institution, but the 92-year old documentary maker was attracted to Netflix for his *One Planet* series because the platform reaches some 200 million viewers simultaneously around the globe.

For Netflix, it's all about offering their subscribers choice. Understanding what their audience wants is a combination of watching the data of who is watching what, when and for how long and taking calculated risks. Holland revealed in Israel that the average subscriber watches a whopping two hours of Netflix a day but weekends and holiday viewing is higher because people have more time.

Looking at the data also lets Netflix find the "white spots" of opportunity like its conclusion that the teen market was underserved. *Stranger Things* came out of that data observation while the success of *Narcos* gave Netflix the "confidence" to invest in more non-English content, said Holland. Netflix is commissioning across 190 markets. The projects it really loves to commission are programmes that have a strong local feel but with global appeal. Netflix believes that local broadcasters are locked into advertising demographics that are limiting their choices on the original commission.

In terms of original commissions, Netflix is way out in front among the super streamers. According to Ampere Analysis, Netflix has 360 titles already made and an additional 238 in production; Apple has 29 originals in production and has made only two; while Amazon has 96 originals commissioned. Apple has "a very long way to catch up with Netflix especially, but also Amazon and others," says Guy Bisson, an Ampere analyst.

That said, there are a growing number of choices beyond Netflix for both producers and content owners as well as consumers. UK and German homes on average take two SVOD services. In the US that figure is 2.8. Will the number of SVOD subscriptions continue to rise or will they plateau? When will the bill payer start to question just how many subscriptions are needed?

Clearly the success of Netflix has woken the TV business up. Other big beast steamers are turning to original commissions to attract users and subscribers while traditional TV businesses work to recalibrate their businesses and add new services. But while all this is happening Netflix's biggest worry, according to its CEO Reed Hastings, is not about other telly or streaming competitors. On the contrary, he told investors on the latest financial call that he is most worried about *Fortnite,* a game where players spend an average of six to ten hours a week. He is more concerned about consumer time and whether he can continue to get enough of it, not about Disney's new SVOD service set to debut later this year.

That may be a clue to why Netflix has been commissioning interactive series like *Bandersnatch*. The next interactive Netflix series, set to debut on April 10, is *You vs Wild*, an eight-episode series starring survival expert Bear Grylls. The conceit of the show is that viewers' choices determine whether Bear survives or not. That's the kind of jeopardy that gamers love. At least in part, it's Hastings' bid to beat the *Fortnites* of the world at their own game. ●

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