DIGITAL TV EUROPE

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Contents

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The defining issues

As IBC approaches, *Digital TV Europe* this month looks at four key topics that will likely be at the top of visitors' minds.

First, we look at Ultra High-Definition TV, in particular at developments beyond 4K and the prospects of the industry agreeing a set of standards that will define the overall UHD experience for viewers. Is 4K on its own something that will engage viewers or must higher resolution be accompanied by the inclusion of HDR and wider colour gamut if UHD is to capture the public's imagination?

We look at recent case studies of 4K/UHD deployments and assess whether early adopter services are likely to help or harm ultimate adoption of the technology.

OTT TV and the ongoing expansion of Netflix internationally has given pay TV operators – and in particular cable and IPTV providers – pause for thought. Do they fight the OTT threat or embrace OTT apps as part of the overall experience they can provide for their subscribers? In this issue of *Digital TV Europe* we look at the emergence of hybrid delivery strategies to provide IP-based OTT content alongside pay TV services. Should operators invest in high-end hybrid CPE devices – the Horizon or TiVo boxes, RDK or Android-powered devices – and what do they need to consider in order to ensure a return on investment?

Mobile broadcasting is back on the agenda, with multiple trials of LTE Broadcast technology over the past year. Vodafone recently tested the technology with Valencia FC in Spain, and other trials have taken place in Poland, Germany, the Netherlands, Russia and elsewhere.

The technology has been talked about as a way of delivering services around live events or even as a replacement for DVB-T. It is certainly seen as a key application for much sought-after, and fought-over, 700MHz spectrum. But is this a technology in search of a market? We consider the views of key players.

With new distribution requirements continuing to appear, the challenges on broadcasters to deliver their content in multiple formats to multiple end points are only becoming greater. Also in this issue, we look at the current requirements being placed on broadcasters' workflows as they adapt to the changing nature of content distribution. The growing interest in creating new channels quickly, including 'pop-up' event-based channel and time-shifted channels, and creating on-demand assets more quickly and comprehensively from live feeds will also be assessed.

To what extent can channel creation, branding and playout now be managed more efficiently and cost-effectively than was previously the case?

Elsewhere, we look ahead to some of the key highlights for IBC and fill you in on the latest industry and technology news.

Finally, in this issue, we unveil the shortlist for the first ever Content Innovation Awards, an event organised by *Digital TV Europe* in partnership with its sister title *TBI,* to be held in Cannes on October 4. The awards will honour innovation across all aspects of content creation and distribution.

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News digest

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Netflix teams up with Vodafone in Spain and Softbank in Japan

By Stuart Thomson
& Jesse Whittock >

Vodafone Spain has signed up to provide Netflix on its platform, the first such deal struck by the streaming video provider in the country.

Using the Netflix app, Vodafone TV homes will be able to watch Netflix content through their set-top box. Netflix will be available through Vodafone TV when it launches in Spain in October. The Spanish service will be localised, offering a choice of subtitles and dubbing.

Netflix will be available on Vodafone TV through an app on the decoder. Viewers will also be able to find titles using the search engine or recommendations section of the Vodafone service. According to Netflix, Vodafone customers will be able to enjoy its content in good quality thanks to distribution on Vodafone's ultra high-speed fixed and mobile broadband networks. Vodafone TV customers will be able to enjoy the Netflix service without having to update their set-top boxes. Netflix will also be available on smartphones and tablets. The Netflix app for those devices will be available in the app stores.

Netflix had already announced that it would be sold through telecoms operator Soft-Bank for this month's Japanese launch. The deal with the mobile phone provider will allow customers to purchase Netflix subscriptions through SoftBank shops, electronics outlets, the SoftBank website and call centres. Additionally, SoftBank will pre-install Netflix on its smartphone handsets.

The pair announced at a joint press conference in August that they would seek to create original programming, though no specific details were revealed.

Netflix Japan has also unveiled its pricing. A basic standard definition plan will cost a monthly ¥650 (€4.80), with a HD version costing ¥950 and an ultra-high definition 4K stream costing ¥1,450.

The company will be up against the likes of Nippon TV's SVoD platform, which it launched after acquiring Hulu Japan and SoftBank's own Uula, which has a content deal with CBS Studios International.

Separately, Netflix in August raised the price of its service in Europe for new subscribers, upping the Eurozone price of the standard service from €8.99 to €9.99. The standard offer allows subscriber to access HD content and view it on two devices. Netflix's other two offers, the basic 'Essential' tier, offering access via one device without HD, and its 'Premium', providing content including 4K video on up to four devices, remain unchanged, at €7.99 and €11.99 respectively. In Switzerland, Netflix raised the price of its standard service from CHF12.90 (€11.87) to CHF14.90.

The increase currently only affects new customers, and the company guaranteed that its offer to existing subscribers will remain unchanged for a year.

In an email to subscribers, Netflix said that the hike was necessary to ensure that it can continue to add new series and films to its offering. Netflix has faced growing competition for rights in key markets.

Belgium

IPTV > Proximus SwipeBox
Proximus (formerly Belgacom) has launched SwipeBox, a device for 'swiping' photos, videos and music to the TV screen via a smartphone or tablet. The device allows users to access personal videos on a smartphone, photos from Facebook, music from a web radio or holiday snaps stored in the Proximus Cloud, and share them, via the SwipeBox , with friends and family on the TV screen. Proximus customers can use the SwipeBox with any brand of television set, any mobile device and any type of Proximus decoder. The device is available for purchase for €59.95.

France

OTT > News service plan
France Télévisions plans to launch a digital news channel, on the web initially, that will have a distinctive remit and content from existing commercial news channels, according to the pubcaster's new director-general, Delphine Ernotte-Cunci. In an interview with Le Monde, Ernotte-Cunci said that the new channel would do more than "provide information", providing a space to "give voice to different points of view, to clarify and decode" the issues of the day. The channel is expected to launch in September next year, and will be distributed via a number of digital channels, according to Ernotte-Cunci. She said she was studying "several possibilities" for other distribution.

Germany

CAB > Mobile launch
German cable operator Tele Columbus has launched a mobile phone service, offering mobile voice and data for €19.99 and providing flat-rate calls to German networks. Tele Columbus is providing LTE broadband at speeds of up to 50Mbps. The operator is offering mobile in combination with its existing fixed-line double and triple-play packages dubbed 2er Kombi and 3er Kombi. Mobile

services will start at €19.99 on top of these, with an additional €4.99 charged on top for users who require an additional data allowance of 1GB. Tele Columbus has teamed up with low-cost provider Drillisch to offer the service, a move initially announced in May. Drillisch offers mobile services using the Telefónica O2 network.

PROG > Digital boost for RTL
Digital growth has boosted RTL Group's figures for the first half of this year, despite a mixed picture on the advertising front. The group saw digital revenues rise by 94% to €219 million. Overall revenue was €2.788 billion, up 3.8%, and EBITDA was €628 million, up 2.6%. The companies of the RTL Digital Hub – RTL Group's recently acquired digital businesses BroadbandTV, StyleHaul and SpotXchange – continued to show strong revenue growth year-

on-year: BroadbandTV was up 84%, StyleHaul was up 112% and SpotXchange was up 90%. Catch-up services, websites and MCNs attracted 42.5 billion online views in the first half, up 171%. RTL estimated that net TV ad markets were up in Germany, France and Spain, while the Netherlands, Belgium and Hungary remained "challenging". All RTL units except M6 Group outperformed in their respective territories.

Hungary

IPTV > Convergent offering
Deutsche Telekom-owned Magyar Telekom has launched a new converged offering combining fixed and mobile broadband, communication and TV services. The operator's Magenta1 package includes residential services along with a post-paid mobile service and

the operator's TV Go mobile TV offering. The latter can be used without impacting users' data allowance. Users can also access the Moziklub movies on-demand service either at home or on the go within Hungary. Discounts are available on equipment required to receive the TV service, and Magyar Telekom is also making a version of the service available to business customers. Deutsche Telekom is also making the Magenta1 offering available via its subsidiaries in Slovakia and Romania.

Ireland

CAB > UPC becomes VM
Liberty Global-owned UPC Ireland has confirmed plans to adopt the Virgin Media brand, in a move that the head of Irish operator described as "a big investment in

our business and our future." Commenting on the rebrand, UPC Ireland CEO Magnus Ternsjö said "the Virgin brand is famous for its entrepreneurial spirit in delivering more for customers" and that the renamed UPC Ireland plans to build "even further on all our innovation and achievements to date." UPC Ireland confirmed that all operations, products and services will move to the new Virgin Media brand with further details to be announced "in due course." The move comes after Liberty Global bought UK operator Virgin Media in 2013, with UPC Ireland becoming part of the Virgin Media UK subsidiary in December 2014. Virgin Media CEO Tom Mockridge described the rebrand as a "step change" for UPC Ireland. "We have some exciting plans in the pipeline to step up competition for consumers which we will announce in due course," he said.
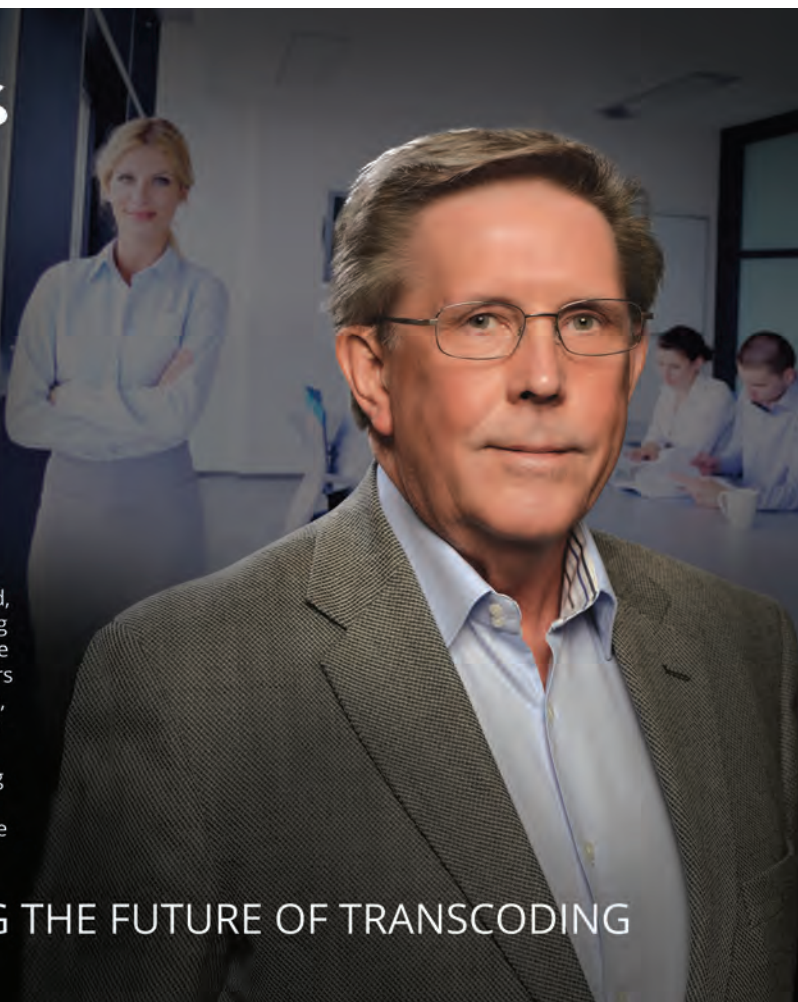
Events

Italy

SAT > Mediaset encrypts

Mediaset has chosen to encrypt its free-to-air channels Canale 5, Italia 1 and Rete 4, having failed to strike a deal with pay TV operator Sky to pay for retransmission of the services. Mediaset said that in the absence of a deal with Sky, it had no choice but to encrypt the services, which will continue to be available via the country's digital-terrestrial platform and via free satellite service TivùSat. The move follows the recent battle between Mediaset's pay TV unit Mediaset Premium and Sky over European football rights, and a decision by regulator ACGOM that Sky should pay public broadcaster Rai to retransmit its channels.

Luxembourg

SAT > Fine Living HD on M7

Pay TV operator M7 Group has extended its existing agreement with channel provider Scripps Networks UK & EMEA for the European launch of the latter's Fine Living HD channel on its platforms. Fine Living HD will be made available to M7 Group's pay Skylink platforms in the Czech Republic and Slovakia, Canal Digitaal in the Netherlands and TV Vlaanderen in Flanders. M7 Platform Services will also arrange for the satellite delivery of Fine Living HD to third-party operators within the footprint of Astra 3B at 23.5° East. This includes providing smartcards and CI modules, monitoring and help desk support to the operators.

Poland

SAT > Cyfrowy Polsat up

Cyfrowy Polsat saw its revenue grow by 6% on a like-for-like basis in the first half of the year to PLN838 million (€197 million). Including Metelem Group – the holding company of mobile group Polkomtel – which was fully consolidated in the 2Q results for the first time, revenues amounted to PLN2.469 billion. Cyfrowy Polsat had 4.375 million post-paid pay TV customers at the end of June, up 2.8% year on year. While the number of post-paid mobile customers fell by 1.9% to 6.519 million, the number of internet customers rose dramatically by 32.1% year on year to 1.483 million. EBITDA excluding Metelem rose by 9.7% to PLN306 million.

Vivendi reorganises Canal+ management

By Stuart Thomson >

Vivendi chairman Vincent Bolloré has become chairman of the Canal+ Group supervisory board as part of a wider management restructure at the French pay TV operator .

NC+ CEO Julien Verley and Bolloré Média chairman Jean-Christophe Thiery also join the Canal+ board at part of the restructure, with Thiery becoming chairman of the Canal+ Group management board.

Canal+'s recently appointed CEO, Maxime Saada, continues in this role, but current president of Canal+'s board, Bertrand Méheut will relinquish his position after more than a decade in charge.

"The Supervisory Board wishes to warmly thank Bertrand Meheut for his outstanding work at the helm of Canal+ Group for the last 13 years,"

Bolloré: taking supervisory board chairman role at Canal+.

said Canal+'s parent company Vivendi in a statement. "He has been responsible for the company's spectacular recovery and its transformation into the largest French media group, with leading positions in television and film. Bertrand Meheut will remain as special advisor to Vincent Bolloré on the significant transformation that Vivendi wants to achieve with Canal+ Group."

The Canal+ Group Management Board is now made up of Jean-Christophe Thiery, Maxime Saada, Grégoire Castaing and Julien Verley.

Confirmation of the restructure comes after the French press reported this week that Bolloré was planning to make significant changes to the organisation of Canal+ in an effort to more closely integrate the pay TV operator with Vivendi.

Separately, Vivendi is in talks to buy a minority stake in the soon-to-be merged Banijay and Zodiak production and distribution group.

Vivendi confirmed that it is in exclusive talks to buy into to the new company. In a note in its 1H15 financial results, the Canal+ French media firm said: "Vivendi has entered into exclusive negotiations to become a minority partner in the international group that will be created as a result of the merger between Banijay and Zodiak."

Vivendi reported 1H15 revenues of €5.1 billion, 8.3% up year-on-year. EBITA profit was €516 million, up 13.4%.

Q&A: Matt Smith, Anvato

Matt Smith, chief evangelist at Anvato, talks about the challenges and opportunities facing broadcasters in developing OTT services.

What are the main technical and commercial challenges facing content owners as they address growing demand for on-demand viewing?

The main challenges in recent years have involved mitigation of the various legacy streaming formats. Many programmers and broadcasters had to wrestle with a Chinese menu of formats: from Smooth Streaming to Flash, HLS to HDS. These acronyms created not only confusion and frustration, but also drove up cost in terms of storage and delivery. Today's HLS (and MPEG-DASH) driven world means that content owners can offer one format to reach every screen and be able to monetize through ad insertion or subscription with a simplicity and ease that was impossible until recently.

What do broadcasters and other content rights holders need to put in place to ensure that they can meet demand for video-on-demand and multiscreen viewing alongside linear channels?

Ideally, not more infrastructure. Some solutions on the market today provide the rights holder with the ability to turn a live channel (and the programming therein) into on-demand assets within seconds of an episode's airing. That means no secondary workflow to generate files for VOD consumption. In the event that the content is back catalog and not necessarily airing on a channel today, much of this same infrastructure can be used to process on-demand content alongside the live channel.

How significant an impact is the move to on-demand having on the channel providers' business model and what needs to be done to create sufficient revenue from non-linear viewing to offset this?

While on-demand consumption numbers outpace live linear broadcast viewing overall, we cannot discount the value and immediacy of live content. One of the more compelling trends today is the ability to take a live event that has been delivered over the top and mark the boundaries of the event or episode, as well as the start and end of each ad pod, as the live event happens. Why is this useful? When the live event is completed, the archived asset can be made available within seconds so that the on-demand asset can have ads played/replaced, representing new and incremental ad revenue for the content provider. Subscription revenue is also playing a role with this content, but dynamic ad insertion (DAI) seems to be an early and significant driver.

What do broadcasters and TV operators need to put in place to maximise the value and usefulness of advertising around content? Will on-demand and targeted advertising substitute a longer-term decline in linear ad viewing?

I don't believe that this is something that is "put in place", per se, but rather a value proposition presented to the viewer. If a viewer is watching a stream and receives an inserted ad for the coffee shop right around the corner from them as they exit the tube station, they will see the value in having a more relevant ad delivered to them. Taken one step further, if this same ad were also supplemented with an overlay ad that could be tapped to download or save a coupon for a discount on their next coffee, an ideal ad experience has been achieved. The infrastructure is in place to deliver this today – we just need a better connection between the ad world, content world and technology providers.

What challenges do content owners face in delivering TV everywhere services and how can this be done in a way that makes economic sense?

The largest challenges lie in trying to connect disparate components in search of a complete solution. Recognizing where ad breaks are present in live content isn't trivial and there is a complex orchestration that must take place "behind the curtain." Therefore, a more cohesive, end-to-end approach that incorporates all the features and functionality necessary to provide a TV Everywhere/OTT experience without issue or failure is a trend that is rapidly emerging.

What is Anvato planning to highlight at this year's IBC and why?

First and foremost, we will be helping existing and prospective customers to think about OTT and TV Everywhere as a profit center and not a cost center. That means taking advantage of monetization and ad replacement opportunities around their content from Day One. We'll also show our Live-To-VOD bridge, a feature that makes a live event a fully marked asset (to include commercial breaks) available within seconds of airing. Lastly, we're seeing increasing interest in a "single stop" approach to OTT where we help power not only the entire video supply chain, but also help with the user-facing functions, where we provide some customers with an application as well. Bring your programming and go.

Anvato will exhibit at stand 14.L20 at IBC 2015. For more information contact info@anvato.com.

Global Wrap

Amazon Prime Instant Video is to launch in Japan, putting it in direct competition with streaming rival **Netflix.** The Amazon Prime delivery service is already in operation in the territory, but to this point it has not distributed its SVoD service there. The video service launches this month, with Netflix available from September 2. Half of US internet homes now own a connected TV device, such as a games console, streaming media player or smart TV, according to **NPD Group.** The new research claims that the smart TV industry is a "primary driver" of growth and that the total number of US homes with a connected TV device is now 46 million, a four million home increase from Q2 2014. **NBC Universal** has invested US$200 million (€178 million) in news and viral media site **Buzzfeed,** with the companies due to explore "strategic partnerships" in the coming months. Commenting on the deal, NBCU CEO Steve Burke said that Buzzfeed is "among the most creative, popular and influential new media players" and uses technology, data and "superior editorial abilities" to create and share content. NBC Universal has also made a US$200 million investment in **Vox Media** – the parent of digital brands like tech site The Verge, news site Vox.com and sports site SB Nation. The proportion of TVs connected to the web will climb from just 4.5% at the end of 2010 to 29.9% by 2020, according to **Digital TV Research.** The report says that the number of connected TV sets will reach 876 million by 2020, up from 415 million this year.

Portugal

CAB > '5x-play' growth

The number of multi-play packages taken by Portuguese consumers reached 3.1 million at the end of June, up 2.6% on the previous quarter and 12.7% year-on-year, with take up of 'quintuple-play' packages growing fastest, according to regulator Anacom. The number of quintuple play packages – or packages including fixed phone, fixed broadband, pay TV, mobile phone and internet, and modem-based mobile broadband – grew by 5.5% in the quarter and by 99% year-on-year Triple-play packages, accounting for 42.5% of all multi-play packages, declined by 0.9% in the quarter and by 14% year-on-year as subscribers upgraded to offers including mobile. Growth of quad-play packages –

including mobile phone and internet but excluding modem-delivered mobile broadband – accelerated during the second half of last year and have now been supplemented by the bundling of additional broadband services, according to the regulator. Triple-play packages account for about 1.3 million subscribers, while quintuple-play services account for 1.1 million, with double-play pay TV and landline phone services accounting for 336,000 subscribers. Altice Group/Portugal Telecom had a 51.4% share of the bundled product market by revenue at the end of the second quarter, followed by Nos with a 32.2% share. Altice also led in terms of mutliplay subscribers, with a 48.8% share, followed by Nos with 38.8% and Vodafone with 12.4%. Altice led in the double-, triple and quintuple-play categories, while Nos led in the quad-play category.

South Africa

OTT > Netflix rival launches

South African SVoD platform ShowMax has launched with "more than a year's continuous viewing" for customers and claims it "changes the game" for on-demand in the country. The Naspers-backed service will have complete box-sets of HBO shows and a catalogue of more than 10,000 hours from major studios and local African content, and will be offered on smart devices with internet connections, including phones, iOS and Android tablet apps, web browsers, connected TVs and computers. Customers will be offered a seven-day free trial, with the monthly rate priced at ZAR99 that allows access from five different devices.

Fashion One 4K channel launches globally

By Andy McDonald >

Fashion One Television has launched what it claims to be the world's first global Ultra HD channel dedicated to fashion and entertainment in partnership with satellite operators SES and Measat.

The free-to-air Fashion One 4K channel has gone live across North America, South America and Europe via SES's satellites, and across Asia Pacific, the Middle East, Australia and East Africa via Malaysian satellite operator Mseasat.

The channel launches worldwide as Fashion One 4K, and in Europe as Fashion 4K, with the rollout coming after Fashion One began upgrading its production format from HD to Ultra HD in 2014.

Fashion One 4K now claims to own an "extensive library of Ultra HD content with 100%

Fashion One claims to have an extensive library of Ultra HD content.

content rights", with Fashion One Television's chief operations officer, Gleb Livshits claiming the firm has "invested heavily in producing Ultra HD content over the last two years."

"Together with SES, our long-time partner, we are committed to leading the industry and providing our audiences with the highest quality content," said Livshits.

SES claims the 4K channel will have a technical reach of 100 million households across North America, 23 million households across South America and 116 million households in Europe.

It will be broadcast in North America on the SES-3 satellite at 103° West, across South America on the NSS-806 satellite at 47.5° West, and in Europe via SES's prime orbital position at 19.2° East.

In the Asia Pacific, Middle East, Australia and East African regions the channel will have an estimated reach of 130 million households on Measat-3a at 91.5 degrees East.

"Now Ultra HD is a reality for millions of viewers worldwide, with the first global broadcast channel launching on SES satellites. There is no better way to broadcast Ultra HD than over satellite and we are delighted that Fashion One is also relying on our expertise for the playout, encoding and uplinking of their Ultra HD channel," said Ferdinand Kayser, chief commercial officer at SES.

Switzerland

IPTV > TV 2.0 growth

Swisscom had signed up 564,000 customers to its TV 2.0 service by the end of June, up 258,000 in the first half of the year. The company had a total of 1.238 million TV customers at the end of the second quarter, up 13.5% year-on-year, and up 73,000 in the first half of this year. Fixed fee subscriptions accounted for 1.09 million of these. The majority of TV 2.0 subscribers upgraded from a previous Swisscom offering. Swisscom said that the growth in TV and broadband connections more than offset the company's decline in fixed line customers. Broadband subscribers numbered 1.922 million, up 3.6%, while fixed-line customers fell by 4.7% to 2.697 million. Swisscom posted overall revenues of CHF5.758 billion (€5.3 billion) for the first half, up 1% and EBITDA of CHF2.133 billion, down 2.2%.

UK

OTT > Amazon downloads

Amazon Prime Instant Video will allow customers to download movies and TV series, making it the only major subscription streaming service to offer such an option. Amazon subs in the US, UK and Germany with access to iOS and Android platforms will be able to download content at no additional charge to the monthly subscription fee. The move, effectively allowing customers to bank content and access it offline, gives Amazon a key point of difference to streaming rivals such as Hulu and Netflix. Customers with Amazon Fire platforms are already able to watch content offline. Separately, Amazon Prime Instant Video is to make its original content available in the High Dynamic Range (HDR) format in Europe for the first time. Amazon is launching HDR TV on

its Prime Instant Video services in the UK, Germany and Austria, as well as the US, where it made content available on the Samsung SUHD range of TVs in June. In the UK, Amazon will debut its original series *Mozart in the Jungle* and the pilot of soon to launch *Red Oaks* in the HDR format. Amazon Prime members will be able to watch HDR content via the Amazon Video app on Samsung SUHD TVs.

SAT > Sky debuts restart TV

Sky has added restart, recommendation and other features to its Sky Movies service for Sky+ customers. The Watch from Start feature, which is already available in Italy, will enable viewers who missed the start of a movie to watch it from the beginning by clicking on the green button on their remote control and downloading the film. Other new features include a new recommendation service called More Like This, enabling viewers to click on the yellow button to be served suggestions based on a single title selected, while Watchlist enables viewers to create personalised lists of movies using the green button.

PROG > Licence fee support

Households that either would like to be exempted from paying the UK licence fee and not receive BBC services, or who would like to pay a reduced fee, are likely to change their minds if deprived of the pubcaster's content, according to a study carried out by MTM for the broadcaster. The BBC commissioned the survey to understand what households that said they would forgo the BBC or who thought the licence fee was too high valued and what, if anything, they would

miss. MTM surveyed 70 households nationally, of which 22 said they would prefer to pay nothing and not receive the BBC and 24 said they would be willing to pay less than the current licence fee for the current BBC. Twenty-two of the surveyed households said they would be willing to pay the licence fee or more to continue to receive services. All members of each household agreed to forgo BBC access across all platforms for nine days. Apps and websites were removed or blocked, TV channels locked, and pre-set radio stations changed. At the end of the period, the survey found that of the 48 households who originally said they would prefer to not pay at all and not receive the BBC, or who wanted to pay a lower licence fee, 33 changed their minds and said they were now willing to pay the full licence fee for the BBC.

Discovery forms alliance for Russian distribution

By Andy McDonald >

Discovery Communications will continue to distribute its pay TV portfolio in Russia and will develop a regional free-to-air channel, thanks to a new alliance that keeps it in line with media laws.

Discovery has signed an agreement with Russia's National Media Group to form a limited liability company, called Media Alliance, which will distribute its portfolio of 11 pay TV channels across Russia. These include factual channels Discovery Channel and Animal Planet, lifestyle channel TLC, as well as sports network Eurosport.

Kasia Kieli, president and managing director, Discovery Networks central and eastern Europe, Middle East and Africa said that the agreement to form Media Alliance is part of its strategy to extend its reach across "all categories and platforms."

Kieli: Russia remains an important market to Discovery.

"Russia remains an important market and we are confident that this deal will allow us to continue our growth there," said Kieli.

Olga Paskina, senior vice president and country manager of Discovery Networks, North East Europe said: "With this arrangement, Discovery will keep providing Russian citizens with the scientific, educational and factual content that we have broadcast for 17 years."

Paskina will take the position of Media Alliance general director in addition to her responsibilities for Discovery's operations across North East Europe.

The news comes after Russia amended its law on mass media at the end of last year that will limit foreign ownership of media companies in Russia to 20%, down from the current limit of 50%. This will apply to both existing and future foreign ownership and comes into effect on January 1, 2016.

National Media Group claims to be one of the largest private media holdings in Russia. It was established in February 2008 by merging media assets belonging to AB Russia, A.A Mordashov, Surgutneftegas and the Sogas Insurance Group.

Completion of the Media Alliance deal is expected in the coming weeks, subject to customary closing conditions including regulatory approval.

Separately, Discovery World in Russia has changed to Discovery Turbo Xtra (DTX), addressing a male audience.

Q&A: Charles Dawes, Rovi

Charles Dawes, senior director international marketing, Rovi, talks about the importance of search and recommendation to pay TV

What challenges do pay TV operators and others face as they attempt to provide unified search and recommendation, bringing content together from multiple sources including OTT?

We are witnessing more and more Pay-TV operators embrace content from multiple sources. This can include linear, all types of VOD and content that is stored on the customer's DVR. We're also increasingly seeing OTT sources being included in products, as consumers look to discover content in the most seamless way possible. Therefore the operator, along with their suppliers, needs to be able to build a product that provides a consistent window into the whole range of content.

This can be more challenging than it sounds, as for instance you could need to match up multiple ID spaces and adhere to the business rules of the operator. Consumers don't want to have a set of search results that returns the same film three times because it's on TV, VOD and an OTT service because this is not an optimal experience. Likewise, an operator may want to underline the value of their VOD offer by showing content that is already included in a consumer's package by pushing it to the top of the list when available from multiple sources.

To what extent can the user interface and the associated consumer experience serve as the key differentiator for Pay-TV operators rather than, say, exclusive content or the number of channels they provide?

Exclusive content will always be a potential differentiator for Pay-TV, be this access to a specific sports league or latest TV series. However, the user experience itself is also a factor that can really help to make a service stand out from the crowd. For example, our Fan TV interface is designed around the user and uses innovative input methods that are more aligned to how we swipe on our smartphones in contrast with the old fashioned cable remote. Having a user experience that entertains and delights customers, whilst enabling them to find and enjoy content as quickly and simply as possible is paramount in today's marketplace.

How much difference is there in approach to content discovery between Pay-TV providers, free-to-air platforms and smart TV and other consumer electronics providers? What are the main points of distinction?

Over the last few years, this is an area that has become increasingly converged as the user experience has become more engaging and more visual in nature. Clearly one of the differences between the types of platforms is the breadth and depth of the content that is available and the consumer's expectation about how much information is provided. For example, Free-to-Air platforms used to be driven by cheap hardware that displayed a basic set of DVB information delivered with the broadcast stream. This is no longer the minimum standard and as devices have become internet connected the expectation is that the content discovery experience is 'Google-like' – i.e. fast, ubiquitous and relevant – independent of whether you are a Pay-TV, FTA or OTT customer.

How is metadata best used to deliver meaningful recommendations to users? What advantages and disadvantages are associated with different methodologies?

There are two types of metadata involved when giving recommendations to customers. There is the traditional programme specific metadata that has acted as the backbone of content discovery. At Rovi we consider this to be 'static' information as our editorial teams will create this data and it will remain largely unchanged but it would be used to drive, for instance, content to content recommendations based on a field like Genre or Actor.

There is also a new type of data that has emerged as the world has moved to rely on semantic, graph-based systems for search and discovery. Systems, like our entertainment focused Rovi Knowledge Graph, allow us to have a more dynamic set of associations between content where relevancy and relationship, both between the content items and how they relate to the real world, are crucially important in providing a set of unique and relevant recommendations to the consumer based on their context as well as their relationship to the content.

What new developments can we expect in the area of content discovery and what impact could they have on the Pay-TV and free TV businesses?

One area that we project will really take off in content discovery is around what we call 'conversational interfaces'. This is where you use your voice as the primary means of input but when taken to the next level it facilitates a conversation that builds the content discovery experience. Microsoft's recent launch of Windows 10 and the availability of Cortana, along with other intelligent digital assistants like Siri and Google Now are helping to introduce this exciting technology into the mainstream.

When put into an entertainment discovery experience, this has the ability to transform something that was traditionally limited to typing in a title one character at a time, to being able to build out very complex sets of search queries. Take, for example, 'Show me some James Bond films', which is followed up with 'How about the older ones without Roger Moore?' These queries are complex and require a conversational system that understands the nuances of the natural language used and the context of the previous query.

What is Rovi highlighting at this year's IBC and why?

This year at IBC, we've moved to Hall 14, which features the IBC Content Everywhere Hub. We'll be demonstrating a range of products that help our customers facilitate the entertainment discovery experience. This includes our entertainment metadata that covers over 70 countries across TV, Video, music, games and books. We'll also be showcasing our patented Knowledge Graph that turns metadata into dynamic metadata which takes detailed relationships between content items into account and reacts to changing influences in the outside world. The Rovi Knowledge Graph powers our Search, Recommendation and Conversation services to deliver highly accurate and personalised results. Our award winning Fan TV user experience that is available to operators to deploy their next generation service, will also be there.

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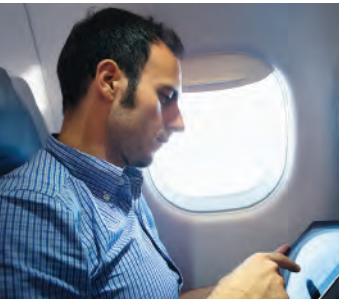
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To learn how we've helped other operators and how we can put solutions in place for you, please contact our team at **intl@tivo.com**.

Come see the new TiVo® Lite product at **Cubiware Stand 5.B48**.

TiVo®

Q&A: David Sandford, TiVo

David Sandford, TiVo vice-president and general manager, International, talks about the company's recent acquisitions and the evolution of advanced TV services. TiVO will exhibit at IBC on stand 5.B48.

How have TiVo's acquisitions over the last year or so – Digitalsmiths and Cubiware – enhanced your ability to serve customers internationally?

TiVo's acquisitions have enhanced our ability to serve international operators by expanding the breadth of TiVo's best of breed technology as well as significantly growing the portfolio of solutions TiVo can provide to our customers.

The acquisition of Digitalsmiths has augmented TiVo's capabilities in search, discovery and analytics, and has allowed us to deliver the most comprehensive video discovery platform that improves viewer engagement and increases customer ARPU. Our recent acquisition of Cubiware has added to our ability to target a range of affordable set-tops with a highly portable and performant software platform.

The acquisitions have also increased our flexibility to serve the needs of a range of international operators. TiVo continues to offer the most advanced whole-home and multi-screen television solutions encompassing set-top clients, mobile applications and cloud services. TiVo's expanded product offerings allow us to service the needs of operators that may require different solutions, whether it be a video discovery solution or more advanced functionality. TiVo can now address a broader range of markets and operator needs.

How do you see hybrid TV platforms – for example combining cable broadcast with IP delivery of OTT and on-demand content – evolving and what role can TiVo play in facilitating that evolution?

Since our first integration of Amazon OTT services in 2009, TiVo has been at the forefront of delivering hybrid TV solutions combining linear broadcast, on-demand and OTT content sources. Our operator customers were also the first to be able to offer Netflix alongside their own video services. TiVo has focused on providing consumers with one user experience and one remote for all their content options. Operators are increasingly embracing this same goal while leveraging OTT technologies as well as third party applications to increase the choices they can offer their subscribers and reducing their delivery costs.

TiVo continues to invest in providing the underlying technology foundation for hybrid TV delivery – providing software configuration to support either QAM or IPTV/FTTH support for linear and VOD services, as well as supporting all the leading DRMs and streaming formats for OTT content. More importantly, TiVo enables the operator to provide a much more compelling offering than simply integrating disparate third party streaming applications. We integrate all the content sources and present them with a single search and discovery experience, such that for any given program the consumer can choose from all the sources available and launch directly into watching it from their favourite provider. In this way, operators have a differentiated experience relative to typical television streaming devices.

What are pay TV operators looking for from advanced user interfaces and how is this likely to evolve?

We see operators focused on four key criteria in evaluating a user interface: (1) a modern, visually rich presentation, (2) simplicity and ease of use, (3) flexibility to refine usability or to incorporate new features and technologies, and (4) support for a seamless mobile experience.

The growth in mobile consumption and the proliferation of CE devices capable of supporting operator content has already impacted user interaction with TV services. Increasingly consumers interact with content from multiple devices – for example, command and control may increasingly be performed from mobile devices. Within the home, content can be streamed from a gateway or the cloud to devices that may present a simplified user interface focused on consumption only. Finally, we expect to see increased use of voice technology to interact with operator services.

What role can TiVo play in enabling pay TV operators to differentiate their offerings?

Over the last few years TiVo has helped our operator partners differentiate their offerings through rapid innovation in consumer services, from the integration of OTT, to whole home PVR and multi-screen capabilities, to broadband applications. We continue to invest heavily in new innovation as a product company that provides a direct to consumer service – we're driven by the same market forces as our partners. We help operators differentiate themselves and succeed in a chaotic environment, and create mechanisms with which they can address the demands of their customers. Our solution is particularly important for operators in three key ways: (1) It highlights the entire vast library of content, including Linear, Operator VOD, TV everywhere, web video, and OTT SVOD; (2) The library is personally curated for each subscriber; (3) The constantly updated results are presented to a subscriber each time they interact with our solution on any device.

What types of services are operators finding most in demand from subscribers now and which are likely to gain popularity in the future?

Without question one of the most important capabilities has been in the area of mobile content consumption – the ability to stream or download content to portable devices both inside and outside the home. TiVo has supported the growth of mobile content solutions by giving operators the ability to experiment with mobile-only options for different devices, allowing them to reach new audiences and markets.

Moving forward, subscribers will continue to demand the ability to watch their content whenever and wherever they want and to find that content across multiple platforms. Operators are in a unique position to bring value here as they occupy the primary input to the television and often are the incumbent broadband provider. We are still in the early days of advanced television, but we're beginning to see potential new services arise out of the proliferation of "connected" devices and in the internet of things.

The big picture

With the first 4K channels starting to go live in Europe, Ultra High Definition has become a reality. But, with standards still evolving, what challenges to its adoption still remain? Andy McDonald reports.

With the first 4K TV broadcast channels starting to appear across Europe, and high profile online players including Netflix and Amazon backing the technology, higher resolutions are no longer confined to trade shows and technology trials. 4K TV sales are tipped to rise in the coming years and prices are already coming down, putting us at the beginning of the Ultra High-Definition (UHD) revolution.

However, while DVB's UHD-1 Phase 1 standard, which is widely being followed by the industry, offers a step-change from HD in terms of resolution, it does not currently incorporate other Ultra HD technologies like wide colour gamut and High Dynamic Range.

This leaves operators and broadcasters with the difficult question of whether to launch and iterate or wait to launch a more comprehensive UHD offering that promises to truly dazzle the consumer. With various industry bodies all trying to define what the future of UHD should entail, there are also further risks of fragmentation, consumer confusion and device upgrades for the market to navigate.

Market moves

In August, UK operator BT launched Europe's first live sports Ultra HD channel, marking a significant milestone in the deployment of 4K technology. BT Sport Ultra HD is broadcast over IP to a new UHD-compatible YouView set-top box and was, according to Jamie Hindhaugh, chief operations officer, BT Sport, the product of around 19 months of trials.

"This was never driven by a competitive edge, but by our wish to be able to bring live sports to the customer in a more immersive way," says Hindhaugh. "The Champions League was obviously a great springboard, because all eyes are on us because of that fantastic set of rights that we've got. But it was always about how you could showcase sport in this fantastic, immersive format from a range of the portfolio that we have."

Hindhaugh describes BT's Infinity fibre broadband infrastructure, its TV platform and its sports rights as a "perfect storm" for launching a UHD channel. Starting from the 2015/16 season, BT has exclusive live UK TV rights to all Champions League football matches as part of a £897 million (€1.07

BT launched its BT Sport Ultra HD channel in the UK in August.

movies will be of interest as more people capture in native 4K." He says BT is also "in discussions with Netflix about enabling their 4K content to our box".

With BT now in the market, the signs are already there that a host of new UHD channels will start to come on air in the coming months. In July, German shopping channel Pearl.tv announced it will start broadcasting in Ultra High Definition via satellite and the web this September, in what it claims will be a first for a European free-to-air channel. SES Platform Services is due to provide HEVC encoding of the UHD live signal, uplink to the Astra satellites at the orbital position 19.2° East, and internet streaming.

Pearl.tv is not the only UHD channel due to launch soon via SES. In its July earnings announcement, the satellite operator said it had has signed client agreements for three new UHD channels in Europe.

Thomas Wrede, SES's vice-president, reception systems, says "the first wave" of UHD channel launches via SES is due to start this autumn. "In terms of what's happening and the uptake, it's similar to what happened with HD ten or 11 years ago," he says, predicting that private broadcasters or specialist channels with an enthusiasm for the technology will help lead the way, followed next year by the pay operators. Wrede draws a parallel between broadcasters like Pearl.tv, and early adaptors of HD in 2003 and 2004 like Belgian network Euro1080.

SES itself has helped to spur interest in UHD with three Ultra HD demo channels currently broadcasting over its 19.2° East orbital position with content designed to highlight viewing experience of Ultra HD in terms of detail, colour and movement – featuring city scene footage from Chicago, Paris and Luxembourg. The satellite operator has also partnered on a number of live UHD broadcast trials in recent years.

These include a collaboration with Samsung Germany to transmit coverage of the US rock band Linkin Park's concert from the O2 World arena in Berlin in November 2014, encoded in 10-bit HEVC/H.265 in 4K resolution at 50 frames per-second (fps). SES also partnered with Sky Deutschland last December to do a live UHD broadcast of a concert by German hip-hop group Die Fantastischen Vier – in

what Wrede claims was "Sky Deutschland's first Ultra HD live production [test] beyond the soccer field."

Technological evolution

In July, Sky in Germany signed a new deal with satellite operator SES, leasing more capacity on Astra at 19.2° East for Ultra High Definition broadcasts. Though the firm has not announced an Ultra HD service launch, it has been trialling UHD internally since early 2012 – primarily around live football.

Stefan Kunz, vice-president of business and distribution services at Sky Deutschland, says that while sharper picture quality and more pixels are attractive propositions for consumers, they are not the only interesting factors related to UHD.

"More important for us are the new functionalities that are coming along with UHD, which are of course High Dynamic Range (HDR) to increase the full colour space of the picture itself, [and] also wide colour gamut," says Kunz. He pinpoints HDR, which Sky Germany is currently testing, as "the most interesting one for us at the moment" but says: "I think for us to launch all factors are important."

"The goal is to convince the customers right from the beginning. That's why we need a composition of many new features which are visible to customers, including also audio enhancements," he says. "We are still in a testing phase and we are trying to find the right set-up and we also need to give the market some time to develop functionalities."

As Ericsson points out in its 'Understanding Ultra High Definition Television' white paper, published earlier this year, HDR is currently the "front-runner as the next enhancement" for UHD, with HDR displays having the ability to look sharper than a standard dynamic range display at the same resolution.

"In theory, some HD TV content with HDR appears to be subjectively 'sharper' than 4K TV without HDR," says Ericsson, adding that modern digital cameras are able to capture a much wider dynamic range than is currently used in TV transmissions.

The problem relating to HDR is that this technology is not included as part of the DVB's UHD-1 Phase 1 specification. The DVB (Digital Video Broadcasting organisation) – a global industry-led consortium of over

billion) three-year deal, and will air matches in the higher resolution format, along with domestic football and sports like rugby, squash and MotoGP.

Hinting at BT's wider aspirations in the UHD space, Hindhaugh says that the operator has already experimented producing sports-themed content in 4K – such as the documentary *One Day in May: The Story of The Bradford City Fire*. He says that by using the "halo effect" of a large-audience UHD Premier League game, BT will start scheduling docs and other content captured in 4K off the back of that.

While Hindhaugh says that UHD is part of "the wider strategy for BT Sport to be seen as a credible and innovative broadcaster," he adds that across BT's wider portfolio "obviously

Q&A: Steve Christian, Verimatrix

Steve Christian, senior vice president, Verimatrix, talks about the use of data to improve revenue security.

How can user data and analysis help pay TV operators improve the efficiency of their networks and improve revenue security?

Pay TV operators constantly strive to improve the quality of experience for their customers. More detailed subscriber behaviour and usage visibility is essential to reaching this goal. The analytics component increasingly relies on a 'big data' approach with computing resources and extra customer data from outside the operator's network. In-house expertise, data capture capability and computing infrastructure of all but the largest operators will not be able to scale to deliver the promise of analytics, which can help to answer questions like: what is a given piece of studio content worth to an operator? What value does a given operator add to a studio's distribution strategy? How can consumption patterns drive the best-informed recommendation engines? Which audience segmentation provides the most value to advertisers and programmers?

How can revenue security technology help operators gather and analyse data?

Analytics relies on data from multiple sources including the end device, the delivery network, and headend, as well as key service components such as content security. Over the next few years, all broadband and video service providers will have to deploy analytics effectively to remain competitive and this means they must tackle the associated issues that arise.

Privacy and security are two of the biggest topics to consider because some of the data feeding the analytics can be considered sensitive – and because the more data that is accumulated, the more operators have to consider the implications of breach or loss. Verimatrix is well placed to meet these challenges through our Verspective™ Intelligence Center, an innovative cloud-based engine designed specifically for pay-TV system deployment, management, monitoring and analytics, with the objective of optimizing performance and reducing operational expenses across the whole video delivery infrastructure. Through Verspective, Verimatrix can provide an additional layer of data that operators and their monitoring systems are otherwise unable to obtain. Because of our 'preferred real estate' in the network and devices, our revenue security solutions provide us with a unique capability to gather data. This means that by working with partners we can give operators a secure and, yet comprehensive, analytics capability.

As the world becomes increasingly connected, what new content security threats are emerging and how can pay TV operators combat these?

In the pay-TV environment, a wholly defensive security posture has traditionally been the norm. However, now it is common that devices, such as set-top boxes (STBs), are connected to the Internet inside the home. Subscribers also expect to have their TV services available on mobile devices, which are connected to more generic cellular and broadband distribution networks. It is clear now that management of physical security alone is an insufficient approach, and even trying to architect a highly isolated network environment has its limitations. It is the nature of the environment that any defensive walls will always be under attack, and these attacks must be proactively addressed in order to eliminate the threats they pose. At the very least, this requires active management—an extension to this thought process is the field of offensive security measures. Offensive security extends the proactive stance and has been gathering momentum as a model. It includes pre-emptively upgrading or changing security to make a pirate's objectives harder to achieve, monitoring the market for pirated content, gathering information about would-be hackers, and anticipating trends.

What challenges do operators face in delivering content to multiple devices and what solutions, if any, are on hand to help overcome these?

As consumers demand support for more devices to access their preferred OTT services, complexity seems likely to increase further, with operators required to support multiple streaming formats and DRM schemes native to browsers and device families. The situation is predicted to get worse at least over the next two to three years, but fortunately to reduce the impact of this complexity operators can partner with specialist revenue security providers such as Verimatrix – our MultiRights solution, for example, helps operators provide their users with a common experience that is transparent to the network or device platform, without any arbitrary restrictions.

What key threats are raised by the distribution of UHD content over the web, and what do operators need to prioritise to minimize the risk?

Because it is much higher quality, UHD content offers greater scope for pirates to copy, even just by camcording, and then redistributing over the Internet. To minimize this risk, content owners need to take a three-pillared approach to revenue security. These pillars reinforce each other and when combined provide a strong security platform for UHD content, whether live or on-demand and however it is delivered. The whole is greater than the sum of the three parts in isolation.

These three pillars include: (1) Hardware-based security; (2) Trusted software security; (3) Forensic watermarking.

The approach represents a shift away from client-based towards server side security, which is easier to manage and harder to compromise. It also adds multiple layers of protection via a "moat and castle" approach that means the whole system does not collapse just when a single component is compromised. But it does rely on the whole being greater than the sum of its part with each reinforcing each other, just as a castle moat is harder for invaders to cross if defenders are firing arrows from behind the walls.

What will be the main highlights of Verimatrix's presence at IBC?

We have several exciting announcements in the works for IBC, including the launch of our new Verspective™ Analytics suite of services that leverages the inherent power in globally interconnected instances of VCAS™ to aggregate data, and help operators harness the power of detailed yet secure, subscriber behavior and usage visibility. We will also be hosting our fourth annual Multi-network Solutions in the Real World Forum on Saturday 12 Sept. from 8:00 – 9:30 hrs. at the RAI. This year's theme, "Creating Connected Video Experiences with IP," will highlight case studies where operators are leveraging the latest in IP and software-based technologies to deliver a more engaging experience for consumers. To register for the Forum, visit www.multinetworkforum.com/ibc2015

200 broadcasters, manufacturers, network operators, software developers and regulators– is due to tackle higher dynamic range, a wider colour gamut, frames rates of 100/120 per second and deeper bit sampling depths – in its second phase specification. However, there is, at the time of going to press, no exact rollout date for Phase 2, with current estimates suggesting 2017 or later.

DVB's UHD-1 Phase 1, which is where

> ## "We need more than just [high] resolution to make a step-change in quality beyond High Definition."
>
> **Simon Gauntlett, DTG**

the industry stands right now,. stipulates 3840x2160 resolution, which is four times the spatial resolution of 1080i HD and sets down maximum frame rates of 50/60fps, compared to 25/30fps for HDTV.

Technicolor's vice president of partnership relations and business development, Mark Turner, claims that HDR and a wider colour gamut are the two factors that are "truly impactful for almost all content."

"High frame rates are very appealing in one category of content, and that's sports.... 120 fps sports content would be incredibly life-like, a great experience. But on the movie side, there has been a general apathy about high frame-rate content, because it just doesn't look like a movie any more," he says.

Turner agrees that resolution needs to be combined with the likes of HDR and colour gamut to "move into this new world" of UHD, and claims that the price premium for 4K resolution alone has not yet been proven and may not justify the "three-or-four times increase in bandwidth" needed to deliver 4K content.

"I think in Europe at least, next summer is going to be a crucial one with the Euro 2016 [football] championships. There will be a lot of people that will want to pile in and get a 4K service launched [by] then, just to appeal to that one event, so we expect a big uptick there in very premium sports and movie channels. But I think there is a law of diminishing returns,

Technicolor is a founding member of the UHD Alliance, which launched at CES this year.

if you're just talking resolution – not talking HDR and all the other things," says Turner.

Fragmentation risks

The 'problem' relating to the lack of agreed standards for technologies like HDR and colour gamut helped to spur the launch of the UHD Alliance at the Consumer Electronics Show in January.

With an aim of creating a "seamless, integrated and high-quality Ultra-HD ecosystem", this powerful coalition of Hollywood studios, consumer electronics makers, content distributors and technology companies including Technicolor, LG Electronics, Panasonic, Sharp, The Walt Disney Studios, and Warner Bros. Entertainment.

The alliance aims to create its own broader standard for Ultra High Definition by the end of the year. "The branding is yet to be finished, but it will be called something else to delineate the difference between [UHD and] just resolution," says Turner. "The CEA has defined the logo that means resolution – it's 4K Ultra HD – so it has to be different to that

because it will delineate something more than that."

Turner claims that the UHD Alliance's new logo will make it "very clear to consumers" that a device is capable of delivering a next-generation viewing experience without having to go into the detail behind colour standards or brightness levels. "Your Average Joe consumer who doesn't need to know what a wider colour gamut really means can comfortably go 'this is the one that has been badged by someone as being a premium product'."

Though the logic seems sound, in reality the UHD Alliance is just one of a number of bodies working on UHD standards – leading, ironically, to the possibility of further fragmentation and market confusion.

The Ultra HD Forum is a separate US-based body designed to bring together "market leaders from every part of the industry", while the Forum for Advanced Media in Europe (FAME) – a an initiative led by the EBU and Digital Interoperability Forum (DIF), a group representing pay TV operators on technology matters – also aims to plot a course for the UHDTV rollout in Europe.

Simon Gauntlett is chief technology officer for the UK-based Digital TV Group (DTG), an industry association for digital television that was responsible for launching the UK UHD Forum back in 2013 – a group that works hand-in-hand with the FAME and other European standardisation bodies.

"It's difficult to have a single body. What we did with HD was each European territory had their own HD forum and they all met under a European HD forum. We do a similar thing

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in Europe now where we run the UK's UHD Forum. France and Germany and others have similar forums and we meet under an organisation called FAME where we try to co-ordinate a European view on where things are going," he says.

Gauntlett claims that while the industry generally agrees that "we need more than just resolution to make a step-change in the quality beyond HD", consumers are already being sold 4K TVs, meaning there are now issues surrounding how you handle the devices that are already in the market.

"Some people, like BT are starting with 4K resolution-only services that don't have the colour or the dynamic range or the high frame rates," says Gauntlett, pointing to BT's 50fps deployment, which, though in line with

some opportunities to consider how much variation you're going to see in the standard and to cater for that," Thexton claims, citing over-the-top providers that deliver UHD content through a VoD model, which is different from the multicast broadcast model in that it only delivers video that is suitable for a given device.

Thexton says that a few years ago consumers and industry-watchers may have been surprised that over-the-top providers like Netflix and Amazon Instant Video, would be leading the push towards 4K – with each now investing in original UHD productions. "It would have sounded contradictory because everybody expected the content quality and the quality of video to be rather poor. Now the situation has completely flipped in the other

Bird 4K1, was launched in 2013, broadcasting at 25 frames per second, before later switching to the "significantly better and more accepted quality" 50fps, explains Eutelsat's director of commercial development and marketing, Markus Fritz. SPI International has been previewing its first native Ultra HD content on the Hot Bird 4K1 channel, and will launch its own 4K FunBox UHD commercial network via Eutelsat's Hot Bird satellite this autumn – marking the first commercial UHD channel to do so.

Fritz claims that having done focus group tests in Germany, France, Poland, Turkey, Ukraine and the UK, the feedback it got was that "there is a recognisable difference between HD and Ultra HD" in today's DVB UHD-1 Phase 1 standard. He claims a phased approach to UHD deployment is simply "the philosophy of how you create markets" and should not stunt uptake. Similar to Apple's frequent update cycle for the iPhone, Fritz says that "as long as the market accepts the tangible value increase, there is a justification not to wait [before upgrading]".

"We expect HD to become the de facto standard definition in a few years time. As such, Ultra HD will become the HD of tomorrow," says Fritz.

SES's Wrede agrees. Though he claims something in the order of 10 UHD channels or above by the end of next year may be realistic, he says: "I think Ultra HD over time will replace HD, or will be the new HD. The real factors that could hamper the fast take-up is if channels would start in a not good enough quality."

YouView's Thexton says he believes that the trend towards UHD is "irreversible," even though it may take "a number of years" to build up the volume of UHD channels. "I think it's an unstoppable, but relatively slow-moving force, in the market [as] the replacement cycles happen," he says.

Recent IHS research claims that shipments of 4K TV panels will reach a record 40 million units in 2015, up 108% compared to last year. The research firm predicts that 20% of all TV panels that will ship in 2016 will be 4K panels – thanks to a trend towards higher resolutions in the high-end TV segment and better production efficiency among panel makers. UHD uptake has already started and looks only set to climb. But what form the Ultra HD standard will take in years to come is still to be seen. ●

> **"BT Sport Ultra HD was driven by our wish to be able to bring live sports to the customer in a more immersive way."**
>
> **Jamie Hindhaugh, BT Sport**

the DVB UHD-1 Phase 1 specification, is "not what we would regard as high frame rate".

Gauntlett says that discussions are ongoing about what the right "recipe" should be for quality that is above HD. "There are a lot of commercial pressures to deliver this change soon, but equally you have to have a balanced decision as to what are the benefits," he says. "Obviously the longer you wait, the better the technology becomes and the more you can potentially do. But you've got to strike a balance between affordable and available, and when the commercial time is right to launch a service with what is technically possible."

Future prospects

YouView's chief technology officer Nick Thexton doesn't believe it is an issue that components such as frame rate and colour gamut are still to be locked down to a common standard. "I don't think this is unusual. I think it's the normal shakeout that happens at the start of a new standard emerging in the market," he says.

"I think the one good thing about digital infrastructure is it genuinely does give you

direction, but the reality is that it's still costly for them to deliver," he says.

With industry hype historically being centred on cable and satellite as likely to have the best opportunities for UHD, Thexton says that BT's deployment of a UHD, broadcast IP service may even now be surprising to some – even though the investment on BT's side has been "absolutely colossal".

"I don't know if a few years ago people would have predicted that the first UK real service for 4K for broadcast would have actually been happening over IPTV infrastructure. The point is that all of the elements coming together has made it quite a suitable infrastructure to do this," says Thexton.

While BT customers need to have BT Infinity fibre speeds of 44Mbps or higher to receive its new Ultra HD Sport service, the company estimates that it still has a substantial addressable market. A representative for the company claims that BT has roughly three million Infinity customers and that around 80% will be able to receive the service.

Elsewhere, satellite operator Eutelsat, like SES, is gearing up for its first Ultra HD launches having launched two UHD demo channels of its own. The first of these, Hot

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Q&A: Lars Janols, Telenor Satellite Broadcasting

Lars Janols, head of strategy and business development at Telenor Satellite Broadcasting talks about THOR 7 and the CEE DTH market.

What can THOR 7 offer to broadcasters in the central and eastern European region and beyond, and how much successes have you had with the satellite since the satellite entered commercial operation in June?
With THOR 7 we can now offer much awaited growth capacity to our DTH and broadcast customers at 1°West, targeting the Central and Eastern European region, specifically, the Czech Republic, Hungary, Romania and Slovakia –countries whom already have large subscriber bases at 1°West and are eager for growth capacity.

More capacity on 1°West will also allow us and our customers to expand into nearby markets- there is much interest to draw synergies from the existing 1°West channel line-up.

A number of transponders will be commercialized during the autumn, but at this time I am not in a position to disclose customer names.

What are the prospects for growth DTH in Central and Eastern Europe and what markets offer the most compelling prospects?
Our main priority is to support customers at 1West in their business development.

Top of the agenda now is the launch of further HD channels and the migration from MPEG-2 to MPEG-4. Technology migration will require additional capacity within the transition phases, and longer term we expect growth in capacity demand from today's levels due to the increase in number of HD services. Slovakia and Czech broadcasters are front runners in this respect, with a clear direction for the phase out SD (standard definition) services, and we think they will set the standards in the region, with more countries to follow.

Furthermore, we are forward leaning in addressing new markets, both by ourselves and in partnership with our DTH customers. The powerful footprints of THOR 5, THOR 6 and THOR 7, offer a good basis for growth in the whole Central and Eastern European region.

What types of operators are typically looking to launch or expand DTH across the region? To what extent is satellite primarily seen as complementary to fixed networks and used to extend operators' reach?
I think we have seen the peak of telecom operators launching new DTH platforms in Central and Eastern Europe, although I would happily be mistaken. There has been a lot about increased reach to new customer groups and complimentary services in your bouquet, but with more and more operators now having the same wide portfolio, we are back at the basis of actually competing on product level. This means that operators need to constantly develop their competitive position with new attractive satellite services and to work on the efficiency of operations. There has been an increased interest amongst the 1°West community to further develop the concept of sharing the cost of satellite services, and with THOR 7, we are well equipped to further support this development.

What impact is growth in demand for non-linear, on-demand TV having on DTH and how far do you expect the DTH market in CEE to evolve around a hybrid model?
It puts pressure on the business models and thereby the need to improve in efficiency, but also on the quality of product development. The impact varies from country to country and in speed, largely due to the state of the ground infrastructure, which in many countries also is a matter of city vs district. No doubt the development is in direction of product blends from a technical and commercial perspective. It also triggers development on the content side, specifically the interest in live events, and notably sports. To be able to monetize on the rising rights cost for these events, you need reach, and satellite television is a very important distribution channel in Central and Eastern Europe, and will continue to be for many years.

What further plans do you have to develop the 1° West orbital position and your other orbital slots?
We are always working on a number of projects, but the nature of such projects is that I cannot reveal anything specific, other than to confirm that we are pursuing a number of routes with the intention to grow our satellite-based business in the broadcast and maritime areas.

THOR 7 provides us a good basis to develop 1°West in a very important region to Telenor, and it will certainly keep us busy for some time to come, to which we are very much looking forward to.

Telenor Satellite Broadcasting will exhibit at IBC on stand 1.A59

Pay TV providers are increasingly embracing hybrid delivery and the inclusion of OTT services such as Netflix. But how far down this route do they want to go and what implications do their technology choices carry? Stuart Thomson reports.

Open all apps

Pay TV operators – at least in Europe – are increasingly being driven by the popularity of services including Netflix to provide IP-based OTT content alongside legacy MPEG broadcast services.

Most advanced pay TV broadcasters are looking to develop hybrid platforms that combine linear broadcast channels with IP-based on-demand and catch-up services. Not everyone is convinced of the merits of providing access to Netflix on their set-top boxes. However, a significant number of cable and telecom service providers are of the opinion that the more popular content they offer to their customers – from whatever source – the better.

The steps being taken towards migration to IP delivery by DVB-based pay TV broadcasters – particularly cable operators – are well documented. Operators are progressively moving towards all-IP headends, and towards delivering video in IP as close as possible to the edge of their networks. However, taking IP-based video, including OTT services, all

Operators such as Com Hem have embraced OTT services including Netflix.

the way to end users has implications for the design and functionality of set-top boxes. Cable operators such as Liberty Global-owned Virgin Media, and Com Hem with TiVo, have deployed hybrid boxes that allow them to continue to support legacy DVB broadcast delivery alongside new IP-based services, including the likes of Netflix and YouTube.

In setting off on this path, operators have taken steps to migrate from older middlewares that supported limited interactive TV services to more advanced technologies, including the RDK platform promoted by Comcast and Google's Android TV system, as well as the likes of TiVo.

Perfect platform

According to Asanga Gunatillaka, chief product officer at Swedish cable operator Com Hem, TiVo provides the "perfect platform" for advanced services and "provides both technology and market-leading expertise" that Com Hem, as an operator, can leverage.

"Some of the things operators need to think about include not just technology but what they are getting in terms of product features. A lot of the technologies out there are really operating systems and you have to develop functionality on top," he says.

Gunatillaka gives the example of mobile multiscreen delivery as an area where the use of TiVo's platform has enabled it to get services up and running quickly and enabled it to avoid long and costly integration efforts.

"TiVo has integrated mobile multiscreen, allowing customers to set a recording or use their iPad as a virtual remote," he says.

One of the key questions facing operators that have developed hybrid and IP delivery is how far to open up their platform – whether to form partnerships with a limited number of high-profile providers such as Netflix, or open up to a much wider range of OTT apps.

For Gunatillaka, developing a hybrid platform is about enabling customers to do additional things. It is not a substitute for cable's role as an aggregator and packager of content and custodian of the user experience. He stops short of endorsing the view that pay TV providers should simply act as storefronts for others' content and services.

"We are curators of the customer experience. We make the billing and discovery of content simple and provide a one-stop shop. From a user-experience perspective, it's important to have a single user interface as a prime point of discovery for content but also have the flexibility to enable them to go into a full screen environment," he says. "We have an app-enabled platform. We have YouTube on the platform and users can enable a full-screen experience for that. However, we are the curator, and it's about helping the consumer find the best content. We partner

with selected services rather than have a bewildering mass of icons on the screen."

For Gunatillaka, OTT is "complementary – and that is why we are happy to include it". In the case of Netflix, he says, the operator has taken the approach of providing access to the full Netflix experience but also integrating Netflix content into its own search tools. "Netflix is an impressive service not just in terms of content but the elegance of its UI. As a one-stop shop we have integrated that app but the beauty of our search functionality is you can find something from Netflix [on our

Content providers and the free-to-air

While content providers' most obvious route to deliver services to TV viewers is to pair up with pay TV operators, there are other choices, such as delivering content to a free-to-air audience equipped with hybrid devices.

Tom Cape, Arqiva's director of connected solutions, says that content providers are increasingly using connected digital-terrestrial platforms, such as Freeview in the UK, to reach consumers direct with OTT services that are integrated into the Freeview EPG.

"People can buy services on top of [free TV] as a value add. It works really well against a big bundle approach that costs the earth and forces people to pay for stuff they don't want," says Cape. While buying broadcast spectrum requires scale, piggy-backing on a broadcast platform allows niche-interest content providers to reach a large audience while only paying for the bandwidth they need.

"Content providers have struggled in the past to reach the scale they need to get onto pay TV platforms, but now they have an opportunity to get on cost-effectively," says Cape. The OTT route provides for the use of simple, flexible payment models.

Arqiva enables content partners to reach a Freeview audience via the internet, providing them with an individual EPG listing.

For Cape, the hybrid model is only likely to grow in popularity, not only because it provides a way for niche content to reach a wider audience but because pay TV providers, being under pressure from consumers to provide more à la carte options, are losing interest in subsidising smaller channels as part of a big bundle. On top of that, the economics of IP delivery mean that costs are falling, while

the cost of over-the-air spectrum is rising. The 'hybridisation' of DTT also enables existing broadcasters and OTT content providers alike to supplement their own channels with Red Button services including restart TV, something Arqiva will highlight at IBC.

"If you look at the EPG listing, the top channels will probably always remain broadcast-based. However, OTT channels will move up from the bottom and – what I hope will happen – we will extend the EPG downwards with more content to make it richer," says Cape.

Content providers can also reach viewers through smart TV portals. However, in the words of Luke Gaydon, vice-president of media, EMEA at online video specialist Brightcove, "the smart TV ecosystem is pretty complicated", with a need to build apps for specific TV manufacturers. More popular are connected devices such as Roku and Apple TV, which "represent quite a straightforward way of delivering content to the TV".

A standard such as HbbTV, on the other hand, can enable broadcasters to develop services that will work across a wider range of TV sets. Brightcove is working with broadcasters in the UK on HbbTV 2.0-compliant services for the forthcoming Freeview Play service.

While there are variations in implementation, HbbTV does hold out the promise to OTT of delivering a rich user experience on a mass-market platform. "There are definitely limits on the UI if you go via smart TV portals, and broadcasters and other distributors would like to have more control and ownership of the UI – because that is the window to their business – to their content," says Gaydon.

platform], and then launch the Netflix app," he says. "Our preference is to focus on our core UI and we will then look at things on a case-by-case basis. Netflix offered a very good discovery experience and we were happy to have that on board."

In general, says Gunatillaka, operators will continue to play the role of content aggregator as well as differentiating their service through the user experience. "We need to bring on the best content but at the same time deliver the best discovery experience," he says. "Our focus has been on broadband for the last 18 months, which has paid off. The work we have done has given us an all-time high customer base but we have also seen a high rate of TiVo growth – from zero to a third of the base. TV is very much at the heart of the business and underpinned by strong broadband growth. You need to be a leader in both."

Gunatillaka says that Com Hem's TiVo box is "not just a box but a multiscreen service – the box is what you have in the home but the experience is also about multiscreen apps. We have the set-top in the home and cloud-based delivery of content to iPads and smartphones".

"Some of the things operators need to think about include not just technology but what they are getting in term of product features."

Asanga Gunatillaka, ComHem

He says that the box still has a central role to play. "Consumer premises equipment is a great way of ensuring a robust TV services that customers frankly expect, especially on the main TV," he says. "Over time more and more things may be app-centric but there is still great relevance in having a media hub in the home. It is all about being pragmatic and making sure that customers can do what they want to do, and that the navigation tools provided are robust."

RDK and OTT

While Com Hem, along with Virgin Media in the UK and Vodafone-owned Ono in Spain, opted for TiVo, Virgin Media's parent company Liberty Global, which earlier launched the Cisco-supplied Horizon TV platform in various western European countries, has turned to RDK for its latest Horizon launch in Poland. (Vodafone-owned Kabel Deutschland has also licensed the RDK software for its own advanced TV plans).

"The RDK platform has a number of benefits because RDK was built [on the initiative of] an operator and not a technology provider. They put in ideas and concepts that they had in mind as an operator," says Peter Hahn, director of product management, Seachange, which has been closely involved with and aligned to the RDK project. "A lot of these are around three elements – innovation, flexibility and quick time to market, and control. Control is very important for a lot of operators so that they...can make their decisions and define where they want to go in the future. They want to control the UI, because that is very important and going forward will be the part of the service that differentiates the operator most. They also want control over the future of the platform – the way it evolves, which elements will be supported technically and control of the costs that will be associated with these platforms."

Because RDK only deals with the basic elements, says Hahn, operators are able to retain flexibility and room to innovate at the application layer. Most operator UIs are built using HTML5 and content apps can be deployed on top of this.

"We are also working with app providers that provide apps as part of a store that brings added flexibilty on top of the HTML5 layer. Today it is still a niche, but all the new projects involve app stores. Going forwards the majority of deployments will have some sort of app store," says Hahn. However, operators are willing to sacrifice the app-rich world of Android for a degree of influence, he suggests. "They want some sort of control over the app store. If you go for Android you are opening up to potential competitors. With operator-controlled app stores you can secure your investment in the set-tops."

This is an important aspect for operators that are deploying set-tops that sit on their balance sheet, putting money on the table in the expectation that the sale of content will provide a predictable return on investment.

For Hahn, cable's migration to IP is something that will happen in stages. He points out that, in the case of RDK, DVB technology is used simply to deliver video rather than accompanying metadata.

"Cable operators are thinking of going pure IP – definitely with metadata and as IP delivery becomes more affordable they will go that way for video," he says.

Open source options

While cable operators started in TV and added broadband and telecom services to their portfolio later, telecom operators see TV as a way of boosting and reinforcing their core offering of broadband. As such, they have been more open to Android and less fearful of giving up too much ground to Google than a cable operator may be. However, not every telecom operator views the world the same way, and some are looking at alternative strategies, with select very large players even looking to RDK as the best option.

Android for TV has two variants – the full-fat Android TV platform, certified by Google, which includes access to the Google Play store and integration with Chromecast and the Android Open Source Project (AOSP), whereby Google makes most (but not all) of the elements of the Android source code available royalty-free to third parties to develop their own proprietary devices and services. In the AOSP approach, Google is not providing its services such as its store, Chromecast and YouTube app. Swisscom, among others, has enthusiastically embraced Android Open Source as the basis of its TV 2.0 platform, believing that it gives enough control to the operator while allowing it to leverage some of the benefits of Android.

Switzerland-based iWedia has been closely involved in developing Android platforms. Marketing director Hervé Creff says that Android's advantages include its open source nature and app ecosystem. This includes the ability to develop new services via apps, the wide range of existing apps and the existence of an extensive community of app developers.

Q&A: Donald McGarva, Amino Communications

Amino's CEO Donald McGarva talks about the company's recent acquisitions and the challenges facing pay TV operators

Amino has recently been in the news thanks to its acquisition of Booxmedia and Entone – why are you hitting the acquisition trail and what will these acquisitions enable you to do?

There is a compelling logic to what we're doing with both acquisitions. Effectively, we're transforming Amino into a significant global tier 2 player that now spans both the IPTV and broadcast pay-TV industry – plus mobile – with the ability to offer customers the combined resources of a larger business.

Our respective portfolios are highly complementary – with Entone bringing broadcast hybrid expertise and partnerships plus valuable service assurance capability which plays very well with our own IPTV pedigree and home monitoring and control portfolio. When you add in the cloud-TV platform capability of Booxmedia, you can see how we'll be able to deliver some powerful new offerings for a wider pay-TV operator customer base that combines quality devices in the home supported by cloud-based "TV everywhere" capabilities. For us, and customers and partners we've spoken to since the acquisitions completed, that's an exciting proposition.

More generally, what do you think are the main forces driving the current wave of consolidation in the set-top and consumer premises equipment business?

Pay-TV operators across the industry are shifting to IP delivery to manage the delivery of TV everywhere inside and outside the home in line with changing consumer demands. This puts pressure on companies like us to deliver solutions that will help manage this transition whilst ensuring operators retain their core business.

Device manufacturers are looking to bridge this gap – combining broadcast, cable and IP capability – so they can still serve the existing and highly valuable market but also position themselves for both the transition to hybrid IP and full IP service delivery. To do this requires more than just hardware, and that's why we're re-positioning ourselves with our new acquisitions to offer a complete "TV everywhere" solution that aligns with this trend.

Other companies are doing the same – consolidating and acquiring to increase the scale and scope of their offerings but also ensuring they remain highly relevant for current operator requirements.

What are the principal challenges the pay TV industry faces and to what extent can technology help operators overcome these?

The key things – customer retention and growth, ARPU enhancement, service innovation – remain constant. New competitive threats, from OTT players and new market entrants, such as mobile operators transitioning to quadplay providers, are also providing fresh challenges to incumbents. The more agile operators are already responding – bringing well-known OTT content providers into their offerings alongside their premium linear content – but also beginning to rollout 'TV everywhere' solutions to offer a seamless branded experience across multiple screens wherever their customers might be. Plus, in terms of 'owning the home', they have a head start in being able to deliver 'Internet of Things' offerings in areas like home monitoring and control which we see as having real potential in retaining customers and growing subscription revenues.

How do you think the CPE will evolve over the next few years? Will more be done in the cloud or will operators invest in high-end equipment in the home?

There's no doubt the set-top box is evolving into becoming more of a media server acting as the home hub for distributing live and recorded content to a range of devices around the home. The need for more horsepower to handle 4K UHD will also cement the role of a physical device in the home.

The ability to access recorded content from a hard drive or via the cloud is naturally a key function of the device. But there are a number of issues to resolve particularly around content rights with cloud-based recording, which suggests PVR-enabled home gateways will remain a key element in the many operators' offerings.

We do see growing importance in cloud delivery, particularly in terms of 'TV everywhere' deployments. Essentially, we see 'the cloud' as complementary to the in-home device rather than a replacement and certainly that's the feedback we receive from operators when discussing the future shape of their future pay-TV strategies.

What key trends do you anticipate at this year's IBC?

Cloud TV, TV everywhere and 4K UHD will dominate the show like never before. The broadcast industry has standardised on 4Kp60 10-bits for mainstream introduction of 4K UHD content, and whist debate continues on 'better pixels''versus 'more pixels', with a variety of HDR solutions in the mix, the key is delivering the robust foundations to build the new 4K services on.

Premium content security will also be a key issue. In our new range of 4K UHD devices we've made sure the technology enablers are in place to handle the latest content security requirements mandated by MovieLabs for 4K content, including hardware support for watermarking, secure video path and a trusted execution environment. We're also seeing strong interest in practical implementations of "TV everywhere" solutions. It's very near the top of operators' agendas and we're looking forward to showcasing our solutions to support this industry-wide trend.

Amino will exhibit at IBC on stand 14.K20

Q&A: Jon Cobb and Jim Henderson, Pace

Jon Cobb, President of Pace Software and Services, and Jim Henderson, President of Pace International, talk about next-generation TV services and consumer premises equipment.

What key requirements do pay TV operators have as they look to invest in consumer premises equipment to deliver next-generation services?

JC Pace has a wide range of hardware and software solutions for the PayTV operator, from set-top box to user-interface software, to service-management systems, so we find ourselves in many different conversations with our customers and thus well-positioned to observe the marketplace. What we see is that there's a large interest in Ultra HD and 4K video in the higher-end devices, while at the same time there's continual pressure to remove cost from the lower-end devices. We are seeing many operators look to use IP-based video delivery techniques even on their managed networks, with more use of OTT-style streaming video and DRM than in the past. Operators are also looking to expand their services to non-traditional pay TV set-top boxes, with increased interest in Android-based pucks and HDMI sticks; plus apps for a wider range of consumer devices, including tablets, phones, games consoles, and smart TVs. No longer is the operator content with delivering his service just to the main TV in the house: now it must be everywhere. Finally, with the operators wanting to deliver their services to consumer devices, there is an increased focus on the role of the wireless gateway in the home. Many operators are treating the gateway with the same importance as the set-top box, and are focusing on end-to-end monitoring solutions, where the operator can use head-end tools to manage and monitor the performance of his entire service: from individual devices in the home to region-wide reliability.

JH Operators want to deliver a consistent user experience on every device in the home to ensure their content remains relevant and at the forefront of innovation compared to their competition. Operators are attempting to balance their investment across consumer premise and network based solutions with the latest technology as a platform for innovation at a cost effective and affordable price.

What are the main technology choices facing operators in deploying next-generation set-top boxes and what factors will determine the decisions they take?

JC High-end media gateways are being driven by the new Ultra HD standards, including 4K-resolution, high dynamic range colour, and high frame rates. These gateways are typically being equipped with large PVR disks, plus high-speed wireless access points capable of serving the whole household's pay TV needs. The use of lower-cost, yet highly-capable IP devices is another focal point. If an operator is capable of delivering linear video over IP – either directly from the head-end, or via a media gateway STB – then there is likely to be a push to remove legacy options from those devices such as traditional card-based conditional access systems or IP video delivery techniques, and move to an OTT-style delivery of video using adaptive-bitrate streaming and software conditional access or DRM for content protection.

JH It also depends on how far into the future the operator wants to invest. Today, operators are weighing the availability of 4K in order to decide their investment in 4K vs. HEVC; in-home distribution topology and technology and networks based solutions to match their network and service offering maturity. Weighing whether to pursue more cloud/network based or how much to embrace in-home content distribution

Which categories of consumer premises equipment – basic zapper boxes, high-end multimedia gateways, EMTAs etc. – are likely to be most in demand in the future?

JC This depends greatly on the network available: traditional, satellite operators are expected to have very strong Ultra HD credentials due to their massive bandwidth. So, IP-hybrid satellite PVR and Media Gateway STBs are expected to remain popular, where the user can plug in his own Internet access to enable advanced IP features such as VOD, Restart TV, etc; meanwhile, cable operators are shifting towards IPTV over DOCSIS, with a consequent interest in diskless IPTV STBs and network PVR equipment instead. No matter what, wireless performance remains a critical topic, as does the need for end-to-end service management and monitoring.

JH All categories remain relevant – however, there is likely to be a shifting amongst the types of new CPE purchases based on where each individual operator is in the maturity of their content offering. As time goes on video distribution will utilise a greater proportion of IP distribution, wireless and networks based technologies, thanks to OTT experiences which shift content distribution towards media gateways.

What role do you envisage cloud-based technology playing and how far can the deployment of cloud-based applications be considered an alternative to investing in hardware in the home?

JC We believe that it is the operator's choice to select the right topology for their market. Pace has cloud-based content-delivery, video security, and service management software. But Pace also has a thriving business in in-home Media Gateways and PVR STBs. Depending on the market, the Internet infrastructure, and the expertise of the operator, there will usually
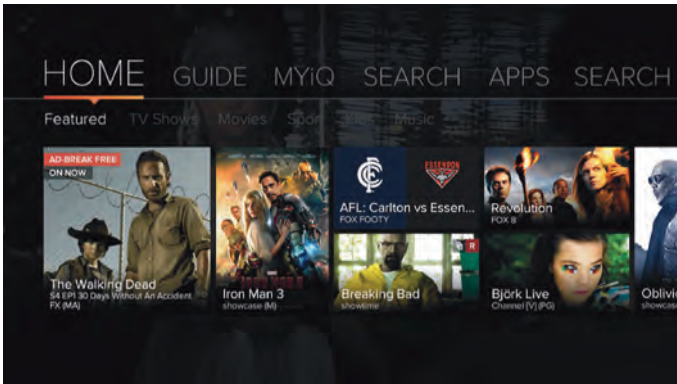
The Pace Elements user interface is delivered, ready-customised to meet operator service requirements and brand identity

be a need to create a blended service, with some parts cloud-hosted, and others based in the home. Even with today's network PVR servers, video trick-mode functionality and response time is still better from a local disk.

JH As broadband interconnectivity increases, the relevance of cloud based technology has the ability to play a greater consideration for in-home content consumption and distribution.

What impact do you think 4K/UHD TV will have on the market and what opportunities does this present for Pace?
JC This is a good opportunity for the traditional pay TV operator to demonstrate how their fully-managed, high-bandwidth, high-quality services can offer the best picture quality in the world. For Ultra HD to really make an impact on the viewer, it has to be very high frame rate, high dynamic-range, and transmitted at a high bitrate. An OTT-delivered stream that is at 4K resolution, but in a low-bitrate, at a low frame rate and standard dynamic range will look very poor in comparison. For the viewer who cares about live sports and the best video quality, the choice is obvious.

JH 4K/UHD is something that will increase year-over-year in a measurable way.

How much opportunity do you see for TV operators in delivering smart home services and what are the main technology challenges that they face?
JC I see this market being played out between the Internet providers, Apple and Google. The operators can and should win here but they need to provide installation and support for a wide number of consumer devices and the integration point for different connected devices in the same home or ecosystem. Operators who invest in providing high-quality wireless access points, and who make use of end-to-end service management systems will be very well placed to act as the interoperation point between the in-home Internet of Things and the wider world.

JH Delivering smart home services puts additional demands on operators – services need to be available ubiquitously across a market or service area in a highly reliable, highly predicable fashion that satisfies customer expectations with true value/utility delivered, regardless of whether it's part of recurring subscription fee or an individual purchase experience. This high level of on-demand instantaneous satisfaction

demands investment across the supply, delivery and support chain, not just in CPE, but increased investment in other areas of the business.

What technology solutions are available to enable TV operators to deliver smart home services and what still needs to be done to ensure that systems work smoothly?
JC There are various competing consumer networks for the Internet of Things, such as Apple's HomeKit, Google's Nest, & Samsung's SmartThings. Furthermore, there are underlying communications standards like Zigbee and Z-Wave that carry the IoT data. Having support for the network technologies, and having the ability to bridge from one IoT network to another will be critical for an operator to play in this space. Customer support and troubleshooting services will also be a key differentiator and network gateways and service-management software can provide an advantage here.

JH Leveraging internet technologies to scale historical point-to-point individual end devices is passé and becoming rapidly outdated. Blending of content regardless of origin is becoming an expected and accepted user experience.

What key trends are you anticipating at this year's IBC and what is Pace highlighting?
JC We expect this year's IBC to be about the productisation and launch of UltraHD services; about the commoditisation of IP video delivery to low-cost OTT-style set-top boxes and consumer devices; about the continued blurring of the lines between broadcast video operators, internet-based video providers, and consumer brands; and about software platforms that enable the rate of change that operators must embrace to keep their services up to date and relevant.

Pace will be showing solutions for all of these concepts, from UltraHD with high dynamic range, to end-to-end service management solutions, high-performance user-interfaces and content security products for both broadcast and IP delivery.

JH Anticipate greater awareness of 4K/UHD, smart home, OTT, and whole home solutions. Expect to see more examples around the Internet of Things that drive greater utility and ultimate satisfaction for consumers from the services delivered by operators to their customers.

Pace will exhibit at IBC on Stand 1.B19

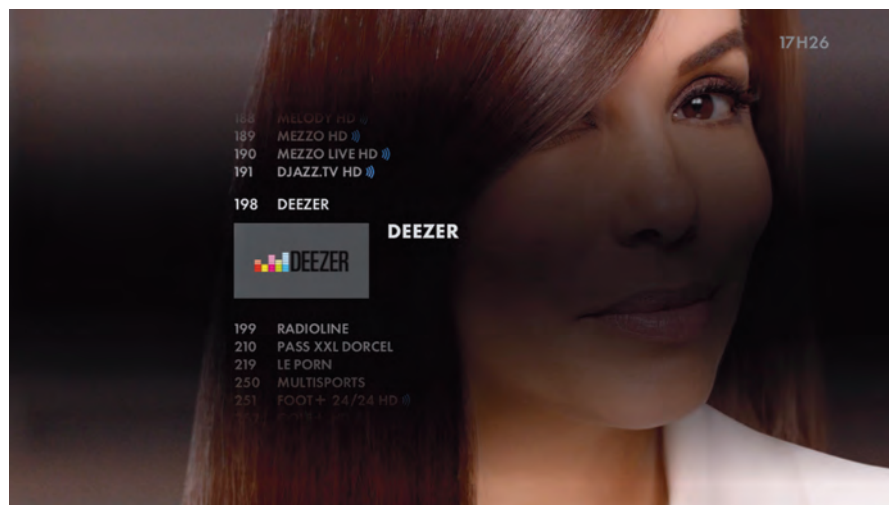**Wyplay has developed hybrid TV platforms for operators including Canal+.**

Creff contrasts this with the "lack of flexibility" of legacy pay TV middlewares, where the time taken to introduce new services no longer "corresponds to the lifecycle of the TV market". RDK, he says, is too cable-oriented. Creff also admits that going for Android does align operators with Google, which may be uncomfortable for some.

"Android TV is perhaps more suited to TV service providers who see themselves as content 'distributors'. This is why it started with telcos – Swisscom, Bouygues Telecom – and has more difficulty convincing legacy sat-cab pay TV operators who have their own consistent policy with respect to content management," he says. "In that respect Android TV should be very interesting for small-to-medium-sized operators who might find it difficult to build a consistent content offering – which naturally comes together with Android TV."

Creff says that operators could combine Android TV with their own search and recommendation tools, allowing them to present different sources of content using an alternative approach to ranking findings. "Even though an operator might use Android TV, it could make the choice to use its own search engine and recommendation engine. And these engines could encompass different sources of content including those delivered by Google," he says. "The other way they could choose [to go] is to use Google's search and recommendation engines and have those engines encompass other sources of content than Google's."

Alternative advanced TV platforms include Frog by Wyplay. This open source operating system from France-based Wyplay has been adopted by players including Sky Italia for the IP-based service it offers in partnership with Telecom Italia. Other key customers include Proximus in Belgium – the former Belgacom – and Canal+.

Dominique Feral, co-founder and general manager of Wyplay, says that the company's installed base of about 10 million devices is still "small" compared with established pay TV middleware providers. However he argues that Wyplay's open-source approach, using Linux components that already exist in many devices, along with HTML5, provides flexibility to operators that older systems struggle to achieve. He says Wyplay's approach is similar to that of RDK, but that the latter provides a 'toolbox' that is quite complex and that operators will generally require the services of a system integrator to make sense of it. "We try to provide a pre-integrated solution for operators but we have an open approach," he says. Regarding Android, he says that Frog is "complementary rather than a direct competitor".

"Android for me is going to deliver the richest app ecosystem, but it is not going to provide all the stuff a pay TV operator is looking for, such as PVR functionality, Teletext, security and all the DVB-related stuff," he says. In fact, says Feral, Wyplay has developed a complete Frog for Android version, which it will demonstrate at IBC, with discussions for deployment underway with two large operators.

Wyplay is involved in one project involving the Android Open Source Project and one full Android TV project, according to Feral. "The pro with Android TV is you get access to the Google Store and apps and a short time to market. You have access to Chromecast and Netflix – the service is populated with content on day one," he says. On the downside, the operator has to have a button on its remote that sends viewers straight to the Google universe with access to apps that might be directly competitive with other services that the operator is trying to promote. With the Android Open Source Project, operators can contract individual Android app developers to create bespoke apps on a case-by-case basis.

Regarding Frog by Wyplay itself, the company provides operators with the capability to create their own app store, as has been done by Proximus in Belgium. Wyplay provides solutions both for the back end and client. The Frog back-end platform can help operators aggregate new content sources and "make them transparent for the set-top box", according to Feral. The platform aggregates metadata from different sources and presents it in an integrated way.

Combining additional sources of content and providing unified search, together with access to the full user experience of a seasoned OTT provider such as Netflix, can be challenging, particularly if operators are looking to make services available over older generations of set-top boxes with different levels of capability. Proximus is planning to release a new version of its own platform that matches the next-generation user experience of OTT providers such as Netflix, which has its own app on the platform.

In the face of demand for services, operators are embracing OTT, but cautiously. Few want to give up control and reduce themselves to dumb storefronts, leaving all the added value to third party apps. Indeed, their investment in set-top boxes – a strategy that lives on, precisely because it enables operators to better control the user experience – means that they can't afford to sell the pass to OTT entirely.

Cable and telecom operators may have entered into an alliance with large OTT players, but they remain reluctant to let go of the reins altogether. In the meantime, their traditional content provider partners are themselves experimenting with direct-to-consumer delivery. Both sides are hedging their bets. ●

Mobile broadcast: the sequel

LTE Broadcast is an impressive technology but it opens up more questions than answers, a major one being what is the commercial application for it? Adrian Pennington reports.

The DVB-H standard once held out a lot of hope for broadcasting live TV to mobile devices, but the technology never took off. To some extent LTE Broadcast (also known as evolved Multimedia Broadcast Service or eMBMS) is similar: a great piece of technology, but one that is still looking for a market.

The critical difference this time around is that where DVB-H depended on a whole new infrastructure for deployment, LTE Broadcast is relatively well integrated with upgrades of mobile infrastructure to 4G. But the big question remains: who is going to pay for it?

Managed service provider Quickplay has no doubts. "The ecosystem is maturing at a rapid space; the network infrastructure and chip manufacturers are aligned around one

EE is among the operators that have begun tests of LTE Broadcast technology.

common standard," says Jim Nelson, co-founder of Roundbox, which was acquired by Quickplay in March to boost the company's LTE credentials.

The first use-cases are in-venue where trials during sports events like NFL and European soccer matches continue. Quickplay's latest trials included one in May, which sent five HD streams over Vodafone's 4G network during a La Liga match played at Valencia FC's Mestalla stadium. Huawei video servers, Qualcomm chips, Thomson video decoders and Samsung handsets were other components.

"Where 80,000 people are trying to access video in one spot (whether the same video stream or not) using LTE Broadcast to alleviate the bandwidth strain is natural," says Nelson. Quickplay sees a subscription model working in this scenario.

Beyond that the company is looking to monetise the network by interfacing Quickplay headends into the LTE network for content providers. Quickplay can provide ingest, encoding, content packaging and apply business rules to push content out to networks provided by Ericsson, Samsung, Alcatel and others.

Applications include push-VoD, where certain sets of VoD assets are cached on the device for later playback. This, says Nelson, would be monetised either as a traditional pay model or ad-supported.

"An operator can push the most common titles or bundles – of sports, lifestyle programming etc – to devices based on user profiles and intelligent algorithms. It will include full DRM with expiry and content protection," he says.

In enterprise use cases, LTE Broadcast could be sold to large corporates or governments looking to push software updates, notifications, or public safety messages to digital signs, for example. Quickplay also suggests a monetization case in leasing bandwidth to third parties.

Another use case is live linear TV in which small packages of channels – focused on sports, entertainment, lifestyle – might be broadcast for a subscription.

"This is not going to replace the US cable system. LTE doesn't have that kind of capacity," says Nelson. "But in developing countries, LTE Broadcast is overtaking the

TV infrastructure. You can have eight to ten channels and that becomes the offer to a large number of people."

Nokia cost analysis

The potential of the technology to replace terrestrial broadcasting standard DVB-T or T2 in Europe has excited many. Nokia has arguably gone the furthest in testing the technology's fitness for purpose in this regard.

Its Munich trial, ongoing since July 2014 and due to end March 2016, is the first and still the only one to apply the eMBMS technology on the UHF spectrum, using part of the 700MHz band to broadcast over a 200 square km area for national broadcasting. The 700MHz band is the hotly contested spectrum used by DTT in Europe.

"We've done cost analysis of deployment of eMBMS, which is a software update of existing base stations, and concluded that it depends on the availability of antennas," says Helmut Schink, head of telco standards, Nokia Networks. "The business case we have analysed is that the cost to operate an eMBMS network is comparable to the DTT network. Because we can reuse the sites of 2G and 3G deployment we do not need to deploy eMBMS on all sites, but only around a third of sites, which drives cost down. We think this makes LTE Broadcast in urban environments absolutely possible and cost efficient with current technology."

Nokia believes the chances of eMBMS replacing DVB-T in certain territories is good.

"When you compare both technologies there are certain advantages with eMBMS," says Schink. "DVB-T is fragmented in Europe and in other parts of the world there's another standard. LTE Broadcast on the other hand provides a global standard. That makes it immediately attractive to companies outside broadcast, such as automotive manufacturers who do not want to cope with regionally fragmented standards."

In addition, says Volker Held, head of innovation marketing, Nokia Networks, LTE Broadcast provides better spectrum utilisation than the high-tower solution of DVB-T.

"When you operate DVB-T you operate multiple frequencies. One of the big advantages is that we are using a single frequency network for covering a wide area and are proving that to be much more efficient

than DVB-T from a cost perspective. LTE for broadcasting is comparable to DVB-T, so we are not adding a more expensive technology. When you add all of these things together the chances of eMBMS replacing DVB-T are good."

Nokia supports this claim by pointing out that its partner in the trial is research body Institut für Rundfunktechnik (IRT), research body for Germany's public broadcasters. "We are also talking with the BBC," says Held. "These two groups are forward-thinking organisations and the BBC in particular has a big impact on the broadcast community. They understand the capability of eMBMS."

Schink admits, though, that the BBC does not see it is a short-term replacement for DTT in the UK where 10.6 million households receive TV via Freeview. "In other countries the scenario is more attractive. There is 10% DVB-T coverage in Germany, and in other areas it's below this, plus there are fewer outdoor antennas so base station density needs to be higher," he says.

Nokia is talking to operators, many of whom recognise the opportunity to use LTE to broadcast content, according to Held. "Not all of them see a requirement to broadcast public service media with full coverage nationwide, but they do recognise use cases for broadcasting content in higher population density metropolitan areas with or at sports events."

Even when the current project ends the Munich infrastructure is unlikely to be torn down, say Nokia. Meanwhile, the company has embarked on Future-UHF in Finland which is testing supplemental downlink. The main advantage of this technique is that LTE Broadcast could be deployed in areas where there is no DVB usage.

The EBU view

Nokia's diagnosis sits at odds with several key members of the European broadcasting community. Among them, the EBU, which states categorically that LTE Broadcast is no substitute for DVB-T.

"DTT and LTE are designed and used for different purposes," explains Darko Ratkaj, senior project manager, technology and innovation, EBU. "DTT is a purpose built platform for a cost-efficient delivery of linear TV services [mainly] to stationary receivers.

It provides near-universal coverage and can be received free-to-view which is essential for public service broadcasters. DTT networks are designed for high reliability, robustness, and a sustained QoS delivered to all viewers irrespective of their number or location within the network. DVB-T2 is a state-of-the-art transmission system and rather spectrally efficient."

LTE Broadcast on the other hand is described by Ratkaj as an operational mode whose "primary purpose is bandwidth optimisation" on a base station for certain types of usage. "eMBMS cannot operate without the unicast LTE network. LTE networks are designed for reception on handheld devices – either stationary, portable, or mobile – but not via fixed roof-top antennas."

In addition, Ratkaj notes that the coverage of LTE networks does not match that of DTT and that there is no free-to-air reception. "LTE is a general purpose infrastructure that delivers best-effort services. Pre-defined and sustained QoS is an issue. Costs for both the broadcasters and the viewers would need to be comparable to the costs of DTT. We do not know what the costs of a large scale linear TV distribution over LTE eMBMS would be."

The cost of converting DTT to eMBMS is a contentious issue. At the turn of the year, Farncombe co-authored a project with Plum Consulting on this topic for the EC and concluded that the economics didn't work.

"DTT is based on fairly powerful transmitters with relatively low density. LTE would require a mobile technology using smaller cell and a higher density network," explains MD Jean-Marc Racine. "We also looked at the argument for using LTE to reach the last 10% of the population in Europe which can't be served by DTT. These are edge cases where most of the time satellite can be used as cover. So I would bet that LTE Broadcast is not going to replace DTT."

The Mobile Video Alliance (MVA), which was set up by operator EE to examine multicast over LTE and is now run out of the UK's Digital TV Group, is set to publish a white paper exploring the technology's potential.

"LTE Broadcast will not replace DVB-T or DVB-T2 and talk of a migration is slightly missing the point," says DTG Principal IP Engineer, George Robertson. "The DTG sees LTE and DVB-T/T2 as complementary solutions for different audiences, neither of which is a universal solution for both domestic and mobile reception."

A push technology

For the foreseeable future, it feels that LTE Broadcast will be a push technology for linear content. "Live or recorded, it's a push scenario with nothing on demand," says Robertson. "Live events are the obvious application. LTE Broadcast is live, to mobile devices and via a mobile network. It is, therefore, ideal for the likes of sporting events. I think mobile operators will want to wait and see how successful this type of application is before expanding support across the entire network. If the business case in venues and live events works, then we will see more applications."

Unsurprisingly, given that it is a co-chair of the MVA, EE agrees with this view. It remains a cheerleader for LTE Broadcast, but has reigned in its ambitions over the last few months, perhaps while BT's £12.5 billion acquisition of EE goes through.

"The MVA are not discussing [LTE Broadcast] as a DTT replacement but as a way of improving performance and efficiencies of delivering live linear TV, predominantly. On top of that we have all the other services [like mass software updates]," says Matt Stagg, EE principal strategist. EE itself is "actively steering away from that and saying let's focus on where we need this technology now," he says. "In the future, who knows?"

EE plans a limited live rollout for LTE Broadcast toward the end of 2016. "We're not saying it's a commercial launch but we will start to put capacity on the network for certain events where it provides benefits," says Stagg.

While Cisco predicts that 72% of mobile traffic will be video by 2020, "we are looking at 75% by 2019," says Stagg. For that reason EE views 4G as a media distribution network, with LTE Broadcast augmenting an operator's ability to maximise resources.

"The biggest fundamental shift we will see in the next decade for mobile distribution of TV is LTE Broadcast," says Stagg. "EE's vision for LTE Broadcast is that it will be better than TV."

Stagg led the team that delivered the UK's first engineering proof of concept at the 2014 Commonwealth Games (partnered with the BBC, Qualcomm and others), and followed that up with a trial at this year's FA Cup Final at Wembley to prove how it could combine the efficiency of broadcast with the functionality of unicast. "It's the next iteration of red

LTE Broadcast and the spectrum debate

Can LTE Broadcast resolve spectrum contention in Europe?

"Not if the TV services currently delivered over DTT networks would need to be provided over LTE Broadcast in [the] future," says Darko Ratkaj, the EBU's senior project manager, technology and innovation. "Actually, this would increase the overall spectrum demand for TV because LTE Broadcast is less spectrally efficient than DVB-T2 for fixed reception."

Technically, some of the niche DTT channels with a very small audience could be delivered via LTE unicast, he says, but it is unclear whether this would reduce the amount of spectrum required to deliver them.

He observes that mobile operators "show no interest" in the business of transporting linear TV services as performed by Arqiva, TDF or Media Broadcast. "Instead, they seek to offer pay-TV services over their – IPTV and increasingly LTE – networks, but also via cable or satellite. In that context,

Ratkaj: LTE Broadcast is less spectrally efficient than DVB-T2 for fixed reception.

DTT is a competitor that can be weakened or eliminated if the spectrum is denied. In our view, the mobile industry has failed to demonstrate that further spectrum is required for mobile broadband beyond the current allocation – around 1000MHz in Europe," says Ratkaj. "In any case, further mobile spectrum allocation is expected at the ITU conference in November 2015 – without the remaining DTT bands. On the other hand, DTT has lost more than 40% of the available spectrum in the last eight years and further loss would undermine the viability of the platform."

Q&A: Ferdinand Maier, ruwido

ruwido CEO Ferdinand Maier talks about pay TV operators' need for advanced remote control functionality.

What are pay TV operators' main priorities for the functionality to be delivered by the newest generation of remote control devices? Do their requirements differ significantly from those of TV manufacturers?

Requirements of pay TV operators do differ from those of TV manufacturers: most often they provide bundled services including internet and phone, as well as TV services. The functionalities available lead to the need of supporting the user to communicate in an enjoyable yet effective way. These next generation remote control devices are bi-directional, multimodal, intelligent and able to support users individually, which includes a set of highly specialized direct access buttons as well as voice command to enhance usability. In the near future, content will be distributed on several devices but the remote control - as the physical device accessible to everyone at home - will remain central for navigating the big screen in the living room.

What impact is the ongoing trend towards viewing on multiple devices and the use of smartphone and tablet apps provided by broadcasters having on user interface and remote control software design and development?

What changed for us is that, step by step, the industry understands that the remote control is an integral part of the TV experience, potentially even the most important part of the TV experience, as it enables access to content. Receiving the red dot design award: 'best of the best 2015' within the category: consumer electronics – not for a TV design or smart phone but for a remote control – confirms our assumption of the growing importance of intuitive input devices. To reach what we call 'user experience excellence' it is now even more essential to develop the remote control together with the user interface software. The earlier we are involved in the design and development cycles of a new interaction mechanism or living room concept, the more innovative it will be. Supporting providers to understand their customers' needs allows us to come up with input solutions that provide the best to all user groups – and not just for early adopters and early majority, but for everyone from 2 to 99 years old, from single to three generation household.

As advanced pay TV platforms and smart TV portals incorporate access to more and more web-based content, including premium services that place their own demands on the user experience, what impact is this having on the requirements for remote controls and onscreen software?

Developing an interaction mechanism for all these services that is easy to use by several age groups will be one of the challenges in near future. It is vital to identify the most important services that people want to control and how the user interface must be structured. The easier it is for the user, the more complicated it is in terms of technology. For example, voice input. The command: "show all movies tonight" requires one button press by the user but the software process in the background must not be underestimated. The complexity of signal treatment is now sometimes as high as in an aircraft cockpit. But not everyone in the industry is aware of this change. And this is why we will see user interfaces appear in the near future that do not support the experience that providers want to deliver.

How far can the remote control and user interface together serve to differentiate either smart TV portals or pay TV services and help their providers to retain customers?

It's about emotion, it's about desire and it's about design. Nowadays, people are willing to invest in valuable furniture and perfectly shaped TV sets, making the living room a personal flagship. Remote controls, set-top boxes and user interfaces have to meet these requirements as well. As the brand carrier, the remote acts as the business card of a provider, finding its place proudly next to the smartphone on the living room table. Good design is the shortest way to touch the emotion of the user and can be seen as key differentiator.

What areas of product innovation and design is ruwido focusing on at this year's IBC?

At last year's IBC, we launched our 'leaf' input device. Extraordinary in design and functionality, 'best of the best' red dot award winning, it has already exceeded all expectations. By adding new features 'leaf' will become the king of remotes. Though, our highlight to be presented at IBC 2015 will be the 'organic haptic'. Intensive research has been put into investigating new forms of touch, as this interaction mechanism technology has become a natural form of moving through content on smart devices. But on a remote control, navigating items on a large screen by using classic touch interaction has proven to be difficult. Therefore we developed a combination of touch with a specialized form of haptic feedback that provides instant gratification. The new 'organic haptic' will be demonstrated at this year's IBC at our booth.

ruwido will exhibit at IBC on stand 1.D69

button," says Stagg.

LTE Broadcast is still in test mode and could be further developed to become capable of delivering linear TV on a large scale. However, technical capabilities alone would not make LTE Broadcast a viable TV platform, according to the EBU. "LTE coverage would need to match or exceed that of DTT, Free-to-view reception would need to be possible, and LTE Broadcast would need to be spectrally at least as efficient as DTT," says Ratkaj.

DTT replacement

Legacy DTT receivers in homes would need to be replaced by the (currently non-existent) LTE Broadcast receivers which could take many years, he points out. "We are not aware of any notable efforts to address these issues."

The EBU acknowledges that the technology does have a certain appeal to operators because of its global standard with which they may be able to reach the whole range of receiving devices. At the same time, the body highlights a major concern that replacing DTT with LTE would "substantially increase the distribution costs for broadcasters" and would "strengthen the gatekeeping position" of mobile operators.

Quickplay reiterates that LTE Broadcast can compete in countries saturated with DVB-T by providing a small number of niche packaged channels as a complement.

"Operators will have the ability to reach customers on mobile – on trains and

"The business case we have analysed is that the cost to operate a eMBMS network is comparable to the DTT network."

Helmut Schink, Nokia Networks

buses, for example - and enhance the video experience."

The EBU asks further questions. Who would finance such a transition? Mobile operators, content and services providers, equipment vendors, governments? What would be their incentives? "It is also unclear [what] would be the benefits of such a migration to the viewers," Ratkaj adds.

Looking around the corner, new business models might possibly drive LTE Broadcast

Can unicast and multicast be combined?

Combining unicast and multicast could provide an opportunity for new use cases and a better use of the spectrum and network resources. However, the technique has yet to be proven to everyone's satisfaction.

According to DTG Principal IP Engineer, George Robertson, LTE Broadcast is not a technology for dynamic allocation of resources. "LTE Broadcast will be delivered over pre-allocated and managed bandwidth. Otherwise that bandwidth might not be there and it wouldn't work reliably. It is able to save bandwidth by monitoring activity. For example, if one person in a cell requests a certain linear feed, then that will likely be delivered in a unicast fashion – think standard OTT delivery," he says. "If then more people in that cell request the same linear feed, LTE Broadcast can jump in and broadcast a single linear feed, on managed bandwidth, to all interested viewers. The mode would switch from serving

several, identical, unicast streams to a single multicast stream. This saves resources for other OTT and web applications."

The EBU has initiated joint work with the industry to better understand the capabilities and the limitations of the underlying technology. "So far we have more questions than answers," says Darko Ratkaj, the EBU's senior project manager, technology and innovation.

Farncombe's managing director Jean-Marc Racine agrees that there might be peak events where such dynamic switching makes makes sense but the key question once again is who pays for the service.

"A lot of the time around live events you can get free apps from the broadcaster in which the user pays for data usage," he says. "Is the broadcaster going to pay for it at a time when they are looking to make savings on their distribution costs rather than increasing it?"

network build-out and deliver the needed technical and cost-efficiency for wide-scale DTT replacement. "There could be an industry-wide consensus that this is the way to go," says Ratkaj. "Political decisions on spectrum allocation could lead to the decline of DTT and so could a shift of the audience onto other platforms like satellite, cable, IPTV for linear TV."

Other drivers influencing a possible shift from DTT to LTE include a major shift from linear to on-demand viewing – abandoning the large TV screen in favour of personal mobile devices. Arguments against the likelihood of this happening are many. "There is no viable business model to sustain the whole value chain," says Ratkaj. "The perceived benefits of LTE are insufficient to justify investment in the technical developments, network rollout, and the transition."

Politically, the decision to maintain DTT, for example to achieve certain competition or audiovisual policy objectives, remain strong.

Ratkaj holds out the possibility of LTE Broadcast being decoupled from the current mobile operator business model and deployed as a standalone DTT network. "This is not possible with the current LTE eMBMS but a future incarnation might allow it," he says.

Operators are in a phase of understanding the business opportunities for the technology. It is possible that many will combine LTE Broadcast with unicast VoD and with fixed TV distribution.

As mobile and fixed line providers are coming together in quad platforms as evidenced by the EE/BT deal, LTE could be used as a product differentiator.

"eMBMS doesn't create value in itself but as part of a quad play bundle to provide quality video over mobile, it could be an interesting product differentiator," says Racine. "That doesn't mean consumer's will pay extra for it, but it's an interesting angle for mobile operators upgrading their network."

Racine thinks LTE Broadcast is a technology that has come too late to the party. DTT may eventually be replaced by IP video delivery, he says, but not through the mobile network – through WiFi access. ●

Arriving on air

Multiplatform deployment, fast time to market and flexibility are becoming ever more important for channel providers. Is playout technology keeping up with the demands being made on it? Anna Tobin investigates.

In the old days of simple linear broadcasting, getting a TV channel on air was a huge financial, technological and logistical undertaking. While many aspects of the process are now simpler, the opportunities offered by anytime, anywhere instant content requirements have added a new dimension of trickiness, particularly to workflow and playout. Broadcasters are now publishers in charge of vast content management systems taking instantaneous orders, often from customers on the opposite side of the world.

The exponential growth in OTT and VoD in particular has put new demands on workflows in recent years. "In many cases, systems have evolved organically over time and have had to accommodate activities not originally envisioned in the design," explains Steve Plunkett, CTO, broadcast and media services at Ericsson. "Business agility can be slowed down in such a situation as each additional requirement means long development and testing cycles. This has caused many organisations to re-architect and deploy newer technologies that allow systems to evolve more quickly and with greater flexibility."

The state of a broadcaster's existing digital supply chain and software-defined workflows is key to how prepared they are for new services, says Steve Smith, CTO of cloud at Imagine Communications. "Almost all broadcasters have transcode and media asset management capabilities, but it is less common for them to be integrated into a manufacture-to-order environment," he explains. "When assets are manufactured to order through automated creation and delivery workflows, versus a human-driven push workflow or 'hot folder' system, delivery to new distribution platforms is straightforward and scalable. The effort is simply in defining the 'what' and 'where' of new distribution. Beyond that, there is the business aspect of planning content availability, scheduling and spot placement to drive revenue."

In response to rapid change, playout and asset management is becoming increasingly automated and software-based. "The key thing to remember here is you can't throw the baby out with the bath water, because the majority of the audience is still on traditional TV. Viewers are migrating. There is no denying that this is happening, but I don't think traditional television will disappear anywhere soon either," says Scott Rose, director of product management at Grass Valley.

Greater integration between channel providers and distribution platforms and outsourcing to service providers who can streamline workflow management is the answer to tackling new challenges, says Valéry Bonneau, media management product manager at Globecast.

Localisation and customisation are becoming key as platforms proliferate.

"Many broadcasters are still struggling with separate content preparation silos for different target platforms and often trying to manage everything in house when they don't have the economy of scale to do so. Service providers such as Globecast can invest once in on-boarding a delivery platform, or in understanding the regulatory compliance constraints of a country and leverage this across all of our customers. Our scale also enables us to provide elasticity in our workflows to allow us to accommodate last minute priority changes," he says.

Lucrative localisation

As broadcasters become more global, content is in many ways becoming more localised.

"Since there are more platforms and distribution options, localisation and customisation of programming and advertising content has become a key differentiator for broadcasters needing to adhere to regional requirements," says KA Srinivasan, co-founder of Amagi. "The bottleneck for broadcasters is shifting from last-mile distribution – i.e. lack of access to platforms or operators – to delivery capabilities for different platforms."

Workflows need to be able to adapt to new markets agrees Alex Pannell, portfolio development director at Arqiva. "As channels move into more markets the workflows have to deal with a lot more complexity around subtitles and voiceovers, graphics and localisation of ads," he says. "The workflows have to change and become a lot more complex, because they are dealing with more markets and, therefore, more complex requirements in terms of compliance. Different markets have different watershed times, for example. There is a lot more work to do around subtitles and voiceovers. Workflows have to become a more automated to deal with all this, as to deal with all this manually would be cost prohibitive."

Taking your content further creates more financial opportunities and this is where localisation of advertising, subtitles and supplementary online content is key. Moving over to cloud-based content distribution is the best way of achieving this, says Srinivasan at

Amagi. "It enables broadcasters to support regionalisation at a country level, along with the capability to monetise advertising in each country. The cloud-based approach also enables broadcasters to move away from a capex-based delivery model involving large onsite data centres, to one that is much more flexible and scalable," he says.

It's now possible to get a simple channel running recorded content up and running within hours. "If we have spare capability, for our existing customers we can get a new channel up and running in half a day," says Pannell at Arqiva. "If we're dealing with a new provider where you have to set up a new process for them to bring in their content, match it to schedules and you don't have connectivity to where you want to distribute it, it can take you six to eight weeks."

Often, however, there are basic obstacles,

"As channels move into more markets the workflows have to deal with a lot more complexity around subtitles and voice overs, graphics and localisation of ads."

Alex Pannell, Arqiva

such as obtaining distribution and access to content to prevent channels launching, says Bonneau at Globecast. "For broadcasters that need rich branding, advanced navigation like dynamic now/next and later promotion, or integration of closed captions, subtitles or live content, more time will be needed to successfully manage the project."

Channel launches are still costly and risky. Anyone that wants to have a channel up and running fast needs to understand how to build real-time synchronous broadcast systems using IT and IP technologies, says Plunkett at Ericsson. "This is not a trivial undertaking and one that can easily go wrong. The best advice today is to experiment and evaluate third-party solutions and note that real world implementations often behave differently to the trade show stand. Learn the characteristics and differences of the new technologies and look to partners who can help," he says.

There is a lot of talk about the possibilities for quick-to-market pop-up channels, but while there has been some experimentation in this area, especially on the OTT side, surprisingly few have materialised.

"It looks like a market that should really work," says Rose at Grass Valley, "but we don't see a huge demand for pop-up TV yet. That might be to do with the fact that it's more difficult to launch a pop-up channel if you've got to get on to a multiplex than if you're going to deliver it as a stream to a device. As more viewers move to different methods of consumption, pop-up channels are likely to become more viable."

Service providers who already have broadcast feeds and knowledge of event distribution are best placed to exploit this market when it develops.

On-demand

Viewing figures prove that time-shifted channels are still popular, but as consumers become more aware and confident about accessing on-demand content, these are likely to start losing their appeal. This will free up a lot of bandwidth. Satellite operators in particular would much rather their precious linear bandwidth wasn't wasted on plus-one and plus-two channels.

For the time being however, content providers will need to juggle these services with the added complication of online delivery and integration with alternative distribution channels such as social networks and web video sites. The key to this, says Plunkett at Ericsson, is "high levels of automation, both in terms of media processing and platform operation. Doing this securely and with high resilience is not easy, but it can and is being done successfully."

With most providers now running file-based content, it is a lot easier to create on-demand assets from live feeds too, either for streaming or as a VoD asset. The mass adoption of HTML5 has also made it much simpler to do this to multiple platforms and devices now. "The technology is there," says Pannell at Arqiva, "but what tends to hold it up

Adoption of HTML5 has made it simpler to target multiple devices.

is editorial or platform standards – overlaying different graphics, putting bumpers at the start and end, for example."

Pannell also says that on-demand feeds are often delayed for commercial reasons. "For some of our customers we can deliver VoD for them pretty much as soon as it's gone out live, but what we find is that they often don't want to do it too soon, because they feel that people won't watch their linear schedule."

Cloud technology is often seen as the future for playout, but there are very few who believe it is ready to cope with the demands of delivering live content. Its current strength lies in coordinating other aspects of playout. Globecast, for example, has developed a cloud-based customer portal to help with creating on-demand assets from live feeds. "This cloud-based tool allows our customers to work with us and other partners collaboratively on media preparation workflows," says Bonneau. "They can see the status of all the content we hold for them, view the content and orchestrate tasks for third party specialist providers such as subtitling or dubbing."

Jumping language barriers isn't the only challenge in the on-demand space when broadcasters work internationally; regulations are another major hurdle to jump. Raul Aav, technical manager, play-out at Levira gives an example: "Levria is operating in a region where we are subjected to both Ofcom and Scandinavian regulations, when broadcasting the channels for our customers. Although some of the regulations are already covered during the programming stage by our customers, we have to be compliant with the technical ones – audio–video levels, de-flashing and compulsory localisation, etc."

Investing in additional channels and services is one thing, but making that investment pay is another; and yet it seems that you need to be in it to win it.

"Making money is important, critical even, but a broadcaster in 2015, must have digital services available on multiple devices to retain an audience. Digital services are no longer just nice to have. If you don't have them, your customers will leave," says Bonneau. "How much money you make depends entirely on how smart you are with your business models and infrastructure. That is why we propose 'pay as you grow' solutions wherever possible.

Those solutions include flexible playout with the ability to localise channels on the fly for different territories or platforms, multi-device OTT offers with integrated catch-up video management and a monetisation suite that enables broadcasters to maximise revenues with ad-funded, subscription or transactional payment models."

Social media

As well as the demands of catch up and VoD, content providers are increasingly integrating their content with social media and web media sites too. This adds another dimension to requirements for QoE and security of content. To approach this pragmatically, broadcasters need to change their mindset, says Smith at Imagine Communications.

"Being under pressure is a good thing. It means there is demand for your product, but it [is] simply not being delivered quick enough or on the right platform. This is easy to fix," he says. "The concept of 'robust' changes dramatically as you switch from broadcast to web. In a broadcast world the failure of any single device in the chain will impact a few thousand to a few million customers. In the web world, content is distributed or proxied by thousands of servers, so failure of any one impacts only a few customers and, in most cases, it will be invisible to the customer. Moving to IP-enabled platforms we

get almost all the environmental robustness we are accustom to for free. It is just achieved differently."

Maximising QoE across multiple platforms is down to selecting the right service provider, says Levira's Aav. "Quality of experience can be achieved by selecting a service provider who fully understands all distribution platforms and end user devices and is able to cater to all of them with the same quality that is expected from a linear TV channel. I like to believe that Levira has earned a place among those companies...as our portfolio includes more and more channels where alternative distribution channels are considered even more important than the primary linear channel," he says. Aav says that security is often overlooked by service providers who rush to second-screen distribution, adding that the same principles should be applied to streaming as are applied to TV and theatrical content today. "As one of the early adopters and developers of HbbTV we have been looking closely into ways of securing streams in such a way that they are only usable for the intended end user. We have been successful in our endeavours and hope to see similar practices being applied to streams originating from other VoD portals and sites," he says.

It's still a minefield out there, but with the right support and technology behind them, content providers should be able to get their channels to market quickly and competently; and, it should only get easier. ●

Q&A: Andrew Burke, Paywizard

Paywizard chairman Andrew Burke talks about his company's international ambitions, growth opportunities in emerging markets and the changing subscriber management and customer care needs of pay TV operators.

Paywizard has expressed an ambition to expand internationally. Which markets offer most promise for you and why?

For us, Asia Pacific is certainly a high growth market - every market throughout the region is launching OTT services. Specifically in Asia Pacific, we believe that India, Indonesia, Australia, China and South Korea to be the markets with the most potential. There was a lot of DTT switchover activity in the region two years ago, and some countries have still to complete their switchover - which for us, gives us plenty of opportunity to help operators and service providers grow their traditional and multiscreen TV businesses.

Africa is another market that has high growth potential. What is interesting about this region is that it's not one market but many markets with widely different conditions between and within individual countries. Some of the biggest challenges they are facing are with piracy and corruption. The DTT switchover is also in progress, which again, provides ample opportunities for us.

Finally, Latin America is another target market for us that has high growth potential. The DTT switchover is in progress and digital TV homes are set to double by 2020. However, some reports this year are showing that Latin America's six-year pay TV boom is petering out - I think Brazil, Venezuela and Chile will continue to enjoy gains – but growth in Mexico is likely to slow down.

In broad terms, developing markets offer opportunity for our growth, but so too are established markets with disruptive new challengers entering the fray and where established operators are fighting against cord-cutting and churn.

What customer care and billing-related challenges do pay TV operators face as they seek to deliver a wider range of TV services including multiscreen services, video-on-demand, buy to keep and OTT video?

As operators seek to deliver more multi-device services across borders, there are a number of challenges they need to overcome. Firstly with payments - not only do operators need to handle multiple payment options, including local, international and cross border billing, they also need to reconcile revenues in one or more tax regimes. Yet the accounting of income, expenditure and reporting is becoming more difficult thanks to the ever-growing number of devices and business models.

There are also a number of challenges related to payment processing, complex credit control cycles, reconciling discounts and vouchers. Data management and financial analysis is also becoming more complex, and there is an ongoing need for integration with accounting systems.

In terms of customer care, operators need to have a range of multichannel customer contact methods, including calls, SMS, social networks and email. Operators also need to provide a consistent user experience over devices, with a simple registration process, including single sign on.

The technology exists to support these operational complexities so the real challenge lies in acquiring and retaining customers – which means effective marketing capability is crucial. Operators and service providers need to support the personalisation of services and deliver marketing campaigns that are tailored to every single subscriber.

What are operators' key requirements for subscriber management systems in emerging markets such as Latin America and South Africa?

In emerging markets, one of the main requirements for a subscriber management system is the ability to extend traditional DSAT/DTT delivery to multiscreen. Operators are also experimenting with business models such as AVOD going through to TVOD/SVOD, which means they need a flexible subscriber management system that can also support various types of business models.

There are also a number of operational requirements, including contact centre support and multichannel contact support. However there is still a strong awareness of good subscriber management practices and the need to handle churn, upsell, cross sell, promotion, bundling and multi-device distribution.

What obstacles do OTT players face as they seek to market pay services to users over multiple platforms and what solutions are available?

Ultimately, OTT players need to deliver multi-channel customer engagement – and provide the same personal, easy to use service regardless of the device customers use. They also need to handle payments across borders and make this process as simple and efficient for the consumer as possible.

OTT players also face high levels of churn due to competition, piracy, pricing and poor customer service. They often lack information about the subscriber base, with analysis and segmentation problems.

What do operators need to put in place to deliver a single integrated subscriber management system encompassing all the services they offer?

When creating and delivering OTT services, it may at first look simple. But operators need to ensure their content is protected, ensure they can bundle and can deliver their service to multi-devices.

Operators will therefore require a subscriber management system that covers a lot of ground. First and foremost, they need a system that can provide content security. They also need a content management system, an online video platform, payment processing capabilities – including payment gateway, PSP, e-wallets – all in one solution that works seamlessly. They also need marketing analytics and tools if they are to engage with their viewers.

Today, operators need to be able to bring on new devices, new contact channels, new bundles and new services. They need to be quick, responsive and cost effective. They need a specialist provider focused solely on pay TV – like Paywizard!

IBC 2015: the preview

IBC 2015 will take place at the Rai in Amsterdam from September 10-15. Digital TV Europe preview some of the key technologies on display.

Albis Elcon
STANDS 14.C11 AND 14.C04

WHAT'S NEW?
SceneGate Flex STB

WHAT DOES IT DO?
Albis Elcon will provide several live demos of its SceneGate STB at IBC2015, showing attendees how they can use it in various applications. The latest SceneGate Flex STB model is based on an ARM CPU and GPU architecture that supports broadcast, broadband, and OTT services, combined with up-to-date middleware and broadband software solutions. Through the SoC's ARM Mali GPU, service providers can deliver 3D graphics, enhancing the user experience. The SoC features HEVC decoding, enabling service providers to deliver HD-quality content at low bitrates, according to Albis Elcon. Elcon will showcase its SceneGate STB as a turnkey solution that is pre-integrated with third-party middleware, conditional access, and backend systems, enabling service providers to introduce new offerings with a short time to market (i.e., approximately 14 days). During the demo Albis Elcon will also highlight a variety of features for the SceneGate STB, such as internal WiFi, USB 3.0, and HDMI 1.4, to enable a connected home entertainment experience for end users. Also on display at IBC will be Albis Elcon's globally deployed SceneGate 8073 and SceneGate 8083 STBs. The SceneGate 8083 is for service providers that want to deploy new services such as multiscreen live TV, VoD, and catch-up TV (for up to seven days). Featuring a simple UI, the SceneGate 8083 can run on an exclusively developed global CDN. The platform is based on an open software architecture that can be integrated with popular OTT services. DLNA-based media sharing is available, enabling in-home streaming and multiroom environments. The SceneGate 8073 is suited more towards operators looking for an entry-level OTT and IPTV STB capable of delivering 1080p HD resolution video. The SceneGate 8073 features what the company says is an extremely small footprint – 85 mm wide x 85 mm deep x 35 mm high – and advanced functionalities, such as DLNA-based in-home media streaming and sharing.

CONTACT
www.albistechnologies.com

Amagi
STAND 2.C23

WHAT'S NEW?
Managed playout; mid-roll insertion demo

WHAT DO THEY DO?
Set to debut at IBC 2015, Amagi's managed playout service is based on a hybrid architecture consisting of cloud-management and edge-playout solutions, and enables content owners to transfer assets through fast file-transfer on the internet or transport content into the cloud infrastructure via portable storage methods. Amagi then ingests and transcodes the assets into the required formats, archiving the content as needed. The service features an automated content ingest workflow with built-in heuristics to prioritise assets scheduled for earlier playouts. Amagi will demonstrate personalised mid-roll ad insertions in linear and on-demand OTT content utilising its watermark detection technology, which automatically detects ad breaks and splices different mid-roll ads to various users based on their user profile. Amagi will showcase Cloudport 2.0, the company's flagship cloud-based channel playout platform. Cloudport 2.0 provides TV networks with end-to-end broadcast workflow capabilities on the cloud, including media asset management, quality control, subtitle editing and management, and automation and scheduling features. It will also show its

ABox42 launches 4K smart set-top
STAND 14.J13

ABox42 will unveil its new M40-Series smart set-top platform at IBC, which was developed for advanced operator projects.

The M40-Series SmartSTB supports the HEVC compression standard and is capable of playing 4K video at up to 60 frames per second. Multichannel video recording is possible via fast external USB 3.0 hard disks or a built-in hard disk of up to 2 Terabyte capacity. The M40 STB platform also includes fast WIFI up to 802.11ac as an option, 1Gbps Ethernet, and supports built-in Bluetooth 4.0 and RF for hybrid remote controls and home control system support.

The M40 platform is based on Broadcom's latest Ultra High Definition 10,000 DMIPS system-on-a-chip, BCM7251S. In terms of software, the M40 STB platform includes ABox42's SmartSDK middleware and development environment, and can be integrated into existing operators' environments as the software stack is compatible with all other current ABox42 M-series STB platforms. The SmartSDK supports a fast HTML5 browser-based user interface and application environments including HbbTV and all major streaming formats for OTT, IPTV and DVB are supported.

In terms of security, the M40 is ready for Verimatrix VCAS, Marlin, Playready, SecureMedia and WideVine DRMs or software-based central authentication services. The M40 SmartSDK has been upgraded to support HEVC on 4K and full-HD and with all streaming formats.

CONTACT
www.abox42.com

Storm regionalisation platform to insert local advertising and local content, without using separate satellite feeds, to match viewer preferences, abide by broadcasting regulations and content rights obligations, and monetise regional markets by attracting local advertisers. At the heart of the solution is Storm IRD, Amagi's enhanced satellite receivers, which are capable of storing content, detecting remote-insertion triggers, and inserting HD video, multiple audio tracks including Dolby surround, subtitles, and multi-layer animated graphics. Amagi will also demonstrate its Cloudport OTT platform. Amagi has been named a finalist in the IBC2015 Innovation Awards contest in the 'Content Distribution' category for its content regionalisation solution provided to Sundance Channel Global.
CONTACT
www.amagi.com

Artel Video Systems
STAND 2.A20

WHAT'S NEW?
DigiLink DLM205 and DLC205 modules
WHAT DOES IT DO?
Artel Video Systems will showcase its DLM205 and DLC205 nine-port Ethernet aggregators and optical transceivers at IBC. The modules include VLAN trunking and tagging capabilities and can aggregate up to nine channels of 10/100/1000 Ethernet traffic. This can be transported across electrical or optical networks. Up to nine VLANs can be defined and managed via DigiLink's DL-Manag-

er Element Management System, allowing end users to trunk and tag video and Ethernet data streams for subsequent routing through their networks.
CONTACT
www.artel.com

ATEME & NexGuard
STAND 1.D71 AND 2.B41

WHAT'S NEW?
Watermark for pre-release HDR content
WHAT DOES IT DO?
ATEME and NexGuard will launch a joint solution for the forensic watermarking of pre-release High Dynamic Range (HDR) video content at IBC. The solution is based on NexGuard's SDK and is integrated with ATEME's Titan Software Transcoders, to allow customers to identify leaks prior to delivering content to the home over UHD

and High Dynamic Range (HDR)-ready TVs. The ATEME-NexGuard solution uses UHD 12 or 16-bit uncompressed source content to prepare HDR versions of content for Blu-Ray and electronic distribution. The images are watermarked and encoded to 10-bit Perceptual Quantiser (PQ) HDR with 45Mbps High Efficiency Video Coding (HEVC), then rendered on an HDR capable UHD TV, according to the companies. The watermarking solution will be integrated with ATEME's Titan Software Transcoder, which will be demonstrated on the ATEME stand. NexGuard demonstrations will be held during IBC to help the industry understand how watermarking can help deter piracy by allowing content owners and rights holders to easily identify the source of a leak.
CONTACT
www.ateme.com
www.nexguard.com

BBright
STAND 2.B39A

WHAT'S NEW?
UHD-Record, UHD-TS, HEVC-Master

WHAT DOES IT DO?
BBright, will launch three new products at IBC that will complement its UHD baseband player and live 4K HEVC encoder: UHD-Record for quad 3G-SDI baseband recording; a 4K HEVC transport stream player called UHD-TS; and its HEVC-Master file mastering station for HEVC. The firm said that the updates will extend its capability across the UHD workflow ecosystem. The 4K baseband recorder will enable capture of an Ultra HD live content source. The UHD HEVC transport stream player will enable cost effective distribution of 4K compressed content at lower bit rates. Meanwhile, the HEVC mastering station enables creation of non-live content or VoD file such as movies and TV documentaries at the highest video quality – HEVC encoded up to 4:4:4 12 bit. France-based technolgy company BBright claims to have grown rapidly to become a reliable source of 4K content to leading UHD sport trials.
CONTACT
www.bbright.com

Broadpeak
STAND 4.B78

WHAT'S NEW?
BkS350 Origin Packager
WHAT DOES IT DO?
Broadpeak has added to its range of streaming servers the BkS350 origin packager with on-the-fly packaging capabilities. Opera-
tors can use the BkS350 origin packager to dynamically convert recorded and video-on-demand content into any ABR streaming format while securing content with DRM encryption, according to Broadpeak. By enabling operators to package video content on the fly, the BkS350 reduces storage costs and optimises resources for multiscreen delivery, making it suitable for a range of applications, including VoD and cloud PVR services, the firm added. The BkS350 origin server supports a range of adaptive bit rate formats, including Apple HLS, Microsoft Smooth Streaming, Adobe HDS, and MPEG-DASH, allowing operators to deliver video content to any screen – including TVs, PCs, smartphones, and tablets. Using HTTP adaptive bit rate technology, the servers offer the best possible video quality depending on their device. The BkS350 origin server can be integrated within a video delivery system from Broadpeak or implemented as a standalone product. Broadpeak is a provider of content delivery network (CDN) technologies and live and video-on-demand servers for cable, IPTV, OTT, hybrid, and mobile TV operators.
CONTACT
www.broadpeak.tv

Comigo
STAND B.52

WHAT'S NEW?
Comigo Multiscreen TV Platform
WHAT DOES IT DO?
Widely deployed and endorsed by various pay-TV operators around the world, Comigo's TV platform enables pay TV operators to control and offer a TV viewing
experience on any screen. Using the engagement solution, pay TV operators can develop, control, and roll out interactive applications (WatchApps), based on the content the viewer is watching, whether live TV, VoD, or Internet-based content, in a simple and non-intrusive way, to every screen. Comigo's TV experience is facilitated by the company's back-end engines. These Experience Engines are fully controlled by the operator. Comigo also provides a full set of client-based solutions including mobile apps for smartphones and tablets and an Android-based STB solution, which supports HEVC and 4K technologies, according to the company.
CONTACT
www.comigo.com

ContentWise
STAND 14.K05

WHAT'S NEW?
Knowledge Factory
WHAT DOES IT DO?
TV personalisation, discovery and recommendations specialist ContentWise will show off the latest version of its ContentWise Knowledge Factory metadata management solution at IBC. Knowledge Factory is an integrated set of metadata management software and tools designed to help operators source, enrich, integrate and maintain better content metadata. The product is designed to help operators struggling to understand metadata coming from several different sources, as viewers watch content across linear TV, catch-up, DVR, TVoD and SVoD. Knowledge Factory blends, de-duplicates and enriches data from these different sources to eliminate metadata silos and deliver personalised TV experiences, according to ContentWise. New features in the updated version of Knowledge Factory include: data source adapter, data
export adapter and scripting; item reconciliation; data enrichment; data normalisation and data deduplication; and editorial tools for metadata.
CONTACT www.contentwise.tv

Easel TV
STAND 14.M25

WHAT'S NEW?
Suggested TV
WHAT DOES IT DO?
Multi-screen video software company Easel TV will launch the latest version of its Suggested TV platform at IBC this year. The new version of the cloud-based software-as-a-service solution is designed to give more control to content owners, offering improved analytics, enhanced reporting, enhanced security and the ability to run promotional campaigns. At the same time, Easel has launched a service based on its Suggested TV platform for Airwave's hotel TV offering, Airtime. This service will be delivered to Samsung Hospitality TVs and gives hotel guests the choice to search and find programmes and movies to watch on-demand. The service will be made available in selected hotels across the UK this year and then globally from 2016. Airwave is a European installer and integrator of digital hotel televisions, signage and audiovisual equipment, providing digital-ready TVs to hotels, hospitals, student accommodations and commercial buildings.
CONTACT
www.easeltv.com

Envivio
STAND 1.D73

WHAT'S NEW?
Virtual headend
WHAT DOES IT DO?
Encoding specialist Envivio will introduce a virtual, all-software headend for satellite, terrestrial,

cable TV, broadband and wireless IP networks at IBC. According to Envivio, the platform will enable video providers to now deliver traditional TV and multiscreen services from a single encoder. Envivio's platform is optimised for Intel architecture. The company says that operational improvements are delivered via three Envivio products. First, it includes virtual software processor Envivio Muse, which is available as software/virtual instance or embedded in a server and supports MPEG-2, AVC, and HEVC, from SD to UHD with the latest audio coding and advanced statistical rate control (SRC). Envivio Spark is a new all-software multiplexer, which enables integration with legacy transmission equipment. As an advanced IP gateway, it demodulates, descrambles, and de-multiplexes for signal reception and for distributing the live channels over IP networks. As a multiplexer, it ingests the various channels over IP produced by the headend and performs multiplexing, scrambling, and signal modulation as required for each type of signal transmission. Finally, it includes Envivio Guru, its network management system which monitors each service end-to-end. Unlike the traditional headend, where a proprietary interface is required between the encoder and the multiplexer, there is no interface with Envivio: a control module is embedded in Envivio Muse, the company says. Envivio's statistical multiplexing technology requires 1Mbps or 30% less bandwidth for the same reliable video quality normally transmitted in 1.5Mbps, the company claims. The converged all-in-one headend can deliver live or offline content in all current formats; and provides functionalities such as content replacement – ads or blackouts – live stream monitoring, seamless input switching, and a complete service view. All of these enhancements are delivered with up to 67% less rack space required while using up to 40% less power, according to the company.
CONTACT www.envivio.com

Ericsson
STAND 1.D61

WHAT'S NEW?
Advanced video processing, cloud DVR and VoD updates; on-booth live studio
WHAT DOES IT DO?
Ericsson will launch new solutions and services at IBC that empower customers to "put the connected consumer at centre stage in the new internet era of television". Ericsson said that among the items it will showcase will be launches and announcements related to advanced video processing and virtualisation as part of its media processing portfolio. It has also promised new product updates around cloud DVR and VoD. Ericsson will highlight media publishing services, including managed playout and information on new Ultra HD channel launches. It will show off media enrichment solutions including immersive sports graphics and portfolio updates around live captioning and metadata. In addition, Ericsson will offer Media insights, including findings from its recently published ConsumerLab TV and Media report, its Media Vision 2020 report and for the first time, an on-booth live studio, presenting ask-the-expert sessions with senior Ericsson spokespeople.
CONTACT
www.ericsson.com

Imagine Communications

STAND 4.AMT

WHAT'S NEW?
Versio 3.0
WHAT DO THEY DO?
Versio 3.0 IS the latest release of Imagine Communications' integrated channel playout solution. Providing all playout functions and features in software, Versio 3.0 is 100% software-based, supports premises-based COTS servers to cloud-based virtual machines, including a traditional integrated playout appliance model and supports baseband, IP-only, baseband and IP, and cloud (VersioCloud) deployment models, according to Imagine Communications. It also supports software-only graphics with 2x2D DVE, internal and external automation, integration with the Nexio Farad SAN solution, as well as third-party SANs and industry standard NAS offerings, and any-to-any transport, including compressed or uncompressed IP (2022-6) and SDI/baseband. The 3.0 release of Versio also marks the introduction of the Versio MCS, an optional touchscreen-based master control surface. The Versio MCS feature brings new efficiencies to master control, enabling operators to manage Versio's advanced switching, graphics and automation capabilities with a simple touch of a button in a single or multichannel environment. The new control surface also enables advanced levels of user interface customisation. Media companies can now optimize their control surfaces for specific requirements and use cases, according to the company. Imagine has also unveiled the line-up for ImagineLIVE, a week-long series of presentations and interactive discussions. Guest contributors include Microsoft, Cisco, HP and IBM.
CONTACT
www.imaginecommunications.com

Harmonic and Dimetis team for DVB-T2 STANDS 1.B20 & 1.B30

Video delivery infrastructure firm Harmonic and German IP broadcast specialist Dimetis have partnered to create a next-generation TV field test system designed to "accelerate the distribution of next-generation terrestrial television services in Germany."

The system is designed to let video content and service providers easily migrate to the new DVB-T2 and HEVC video compression standards and reduce capital and operational expenses. The field test system will use a combination of Harmonic's Electra X2 advanced media processor, ProStream 9100 high-density stream processor, DiviTrackIP statistical multiplexing technology, and NMX Digital Service Manager.

It will be integrated with the Boss Broadcast Manager from Dimetis. Harmonic and Dimet-is say that transitioning to the DVB-T2 standard will provide broadcasters with a wide range of benefits, including improved spectrum efficiency, SD to HD service enhancement, superior video quality, Dolby Digital Plus/AAC audio support, and DVB subtitles. Using HEVC, the DVB-T2 standard enables broadcasters to deliver more services per channel at a low total cost of ownership with high video quality, they claim.

CONTACT
www.harmonicinc.com

IRT
STAND 10.F51

WHAT'S NEW?
HbbTV 2.0 showcase
WHAT DOES IT DO?
The research institute for public-broadcasting organisations in Germany, Austria and Switzerland, the Institut für Rundfunktechnik (IRT), will present an HbbTV 2.0 showcases at its booth at IBC. The IRT developed the HbbTV 2.0 prototype service in close cooperation with the innovation projects division of ARD broadcaster Rundfunk Berlin-Brandenburg (rbb) and TV manufacturer Samsung. It combines live streaming using MPEG-DASH (Dynamic Adaptive Streaming over HTTP) and subtitles based on the EBU-TT-D specification. The work was carried out with HBB4ALL, a European co-funded project on media accessibility in a connected TV environment. Several partners have contributed to the showcase – Samsung is providing a prototype TV based on their current HbbTV development and rbb is supplying sample A/V and subtitle material for the demonstrations, while ARD broadcaster Bayerischer Rundfunk is streaming the TV channel Das Erste to the internet in accordance with the new HbbTV 2.0 specification. The HbbTV 2.0 specification was published early this year and supports the latest web standards like HTML 5, TTML subtitles (EBU-TT-D), the DVB profile of MPEG-DASH and the new video codec HEVC enabling new formats up to UHD. HbbTV 2.0 allows for new applications that will connect devices like tablet PCs or smart phones with the TV to extend the user experience to multi-view and multi-user applications. The first HbbTV 2.0 devices are expected to launch in 2016.
CONTACT
www.irt.de

Netia
STAND 1.A29

WHAT'S NEW?
AirPlayList 2.0 Module for Media Assist Software Suite
WHAT DOES IT DO?
The Netia Media Assist software suite empowers users to manage all types of content in multiple formats on multiple platforms. The new AirPlayList 2.0 module facilitates automated playout of multiple radio channels simultaneously and with guaranteed redundancy. Because the module is AES67- and audio-over-IP-compliant, users can broadcast from a traditional physical sound card or using IP-based virtual drivers. In high-demand scenarios, the AirPlayList 2.0 user interface supports centralised control and monitoring of different playout systems installed across different servers. Users can access and broadcast channels located within separate databases rather than one central database. With the module's web-based interface, remote users can access the module to monitor or supervise playout on each channel. AirPlayList 2.0 module offers users the choice of one-to-one redundancy or a one-to-N option, in which a dedicated pool of servers ensures that even in the event of a disaster, a secondary server can recover media and ensure an uninterrupted broadcast. Netia will also feature the integration of its multiple-device interface for media management with its Radio-Assist radio automation module via a cross-platform, web-based interface that enables repurposing of professional branded multimedia, but also automates publishing to any platform.
CONTACT
www.netia.com

Opera Software
STAND 14.E20

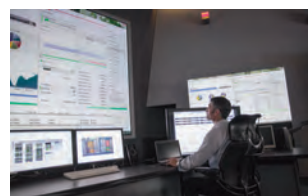**WHAT'S NEW?**
HbbTV 2.0 SDK
WHAT DOES IT DO?
Opera Software is to start shipping an HbbTV 2.0 software development kit to TV manufacturers and set-top-box OEMs, which it says will enable them to be first to market with devices that are compliant with the new spec and simplify the task of creating interactive content for TVs. HbbTV 2.0 builds on HbbTV 1.1 and 1.5, which are already deployed in Europe. Opera's HbbTV SDK, built alongside Opera's widely deployed, Chromium/Blink-based HTML5 SDK, includes video streaming, application management and all the APIs needed to create HbbTV 2.0 devices. TV manufacturers that integrate Opera's HbbTV SDK will be able to deploy HbbTV 2.0 interactive experiences in their devices by the first quarter of 2016, according to the company.
CONTACT
www.opera.com

Skyline Communications
STAND 1.A23

WHAT'S NEW?
DataMiner 9.0
WHAT DOES IT DO?
Skyline Communications will showcase version 9.0 of its DataMiner network management and OSS platform. DataMiner offers unified control, monitoring and workflow automation across devices, data centre infrastructure, cloud OS, virtualised software functions and CPE devices and is designed to provide end-to-end visibility from the content source, across the network, down to millions of CPE and in-home devices, according to the company. Skyline will also demo confidence monitoring using hardware- and software-defined monitoring probes, digital headend management for linear and OTT streaming, Master Control Room management with single-click studio configuration, and satellite earth station management.
CONTACT
www.skyline.be

Teleste
STAND 4.B61

WHAT'S NEW?
Luminato enhancement

WHAT DOES IT DO?
Teleste is to introduce a new application module to its Teleste Luminato headend platform. The module is a complete Linux computer that provides an open platform for application development and enables development of homegrown applications to the Luminato headend. As an integral part of the headend, the module makes it possible to code headend applications for various needs and application areas, including remote management, stream analysis, NVoD, CA server and more. As an example, hospitality operators could code an application to deliver internet radio and video channels to a hotel TV or develop a messaging application that allows them to deliver emergency alerts and notifications to TV screens in guest rooms and public areas. Different types of EPG applications are possible, as shown by Teleste's own EPG module that addresses the needs of easy and flexible EIT information gathering and management.
CONTACT
www.teleste.com

Viaccess-Orca
STAND 1.A51

WHAT'S NEW?

Voyage Console; Voyage Applications for Cross-Screen Engagement; Adaptive Sentinel; Connected Sentinel Player

WHAT DO THEY DO?

Viaccess-Orca will showcase its new backend management console for TV Everywhere, enabling service providers to manage multiple customers and device types; and personalised content discovery through a single unified system that supports all delivery networks. The console allows operators' marketing teams to build service offerings and engage with customers by sending messages to segmented groups. For example, all accounts registered to a certain SVoD service can be notified about a newly added series. Viaccess-Orca will show front-end applications, powered by itself and Zenterio, on a variety of devices. Leveraging the company's Voyage – TV Everywhere solution, Voyage apps enable synchronization between devices. Through the apps, end users can interact with content, switching between a second-screen device to the TV screen, in addition to viewing advertisements on second screens. During a series of live demonstrations, Viaccess-Orca will highlight Voyage deployments with Telekom Romania and Olympusat. Viaccess-Orca will also unveil its Adaptive Sentinel solution, a unified card-less CA system that combines the company's Prime Sentinel and Dynamic Sentinel solutions, offering service providers chipset and smartcard security alongside card-less security and preventive services. Viaccess-Orca will demonstrate how Italian broadcaster Mediaset, Israeli pay TV operator Yes and Norway's TV2 were able to get TV Everywhere apps up and running with the downloadable Connected Sentinel Player that protects content on Android and iOS devices.

CONTACT

www.viaccess-orca.com

Thomson highlights 4K and HDR STAND 14.A10

Highlighting its new ViBE® 4K real-time compression solution for Ultra HD (UHD) broadcasting, Thomson Video Networks will demonstrate encoding of a live UHD TV signal to distribute high-dynamic-range (HDR) content at IBC 2015. ViBE 4K enables media enterprises to leverage high-efficiency video coding (HEVC) to provide an optimal video experience to consumers through live compression of UHD sources at up to 60 frames per second and in 10-bit colour. ViBE 4K with HDR support will be commercially available in early 2016.

In Thomson Video Networks' HDR demonstration, ViBE 4K will take a UHD HDR signal from a SMPTE 2084-compliant broadcast feed and encode it to provide a standard UHD HEVC Main10 compressed stream with specific HDR information. The stream can then be decoded using any HEVC Main10-compliant decoder.

Separately, Thomson Video Networks has struck a new partnership with Expway, a leader in delivery of live content and multimedia files in multicast mode over wireless networks, to combine the compression performance of live HEVC video with the efficiency of LTE multicast distribution technology. At IBC, Thomson Video Networks and Expway will showcase a full LTE distribution chain consisting of live encoding by the ViBE® VS7000 HD/SD encoder and encapsulation via Expway's BMSC multicast server and eMBMS middleware devices.

Multimedia Broadcast Multicast Services (MBMS) over LTE, known as eMBMS, enables distribution of popular content in a one-to-many (multicast) configuration as opposed to the inefficient method of unicasting individually to each viewer. Thomson Video Networks and Expway have worked together to integrate an end-to-end chain for live HEVC transmission over an LTE eMBMS network for faster and more bandwidth-efficient deployments.

CONTACT

www.thomson-networks.com

Content Innovation Awards: the shortlist

Ahead of the very first Content Innovation Awards event at the Carlton Beach, Cannes on October 4, Digital TV Europe unveils the shortlist across the event's categories.

The first Content Innovation Awards is set to be the latest addition to delegates' diaries at MIPCOM in October. The event, which *Digital TV Europe* is hosting in partnership with our sister title *TBI* on the eve of the Cannes show this year, will celebrate the most impressive innovations in TV content and the technology that enables its delivery over the past year.

Channels

Key categories for TV channel providers include Best International Networks Group, Channel of the Year and Best New Channel. In the Networks category, global programming giant Discovery will battle it out with Sony Pictures Television and Trace, while Channel of the Year will see Discovery's UK & Ireland flagship channel compete for the honours with Discovery's sports service Eurosport, Trace Urban HD, Mezzo Live HD and Gusto TV.

The Best New Channel category will also see a five-way contest between AMC Global, BBC Brit, Non Stop People, Viacom's Spike and international kids channel Fix&Foxi.

Multichannel Networks (MCNs) have been a key investment area for channel groups over the last few years. BroadbandTV, Endemol Beyond and Barcroft Media will be competing for top spot in the MCN of the Year category at the inaugural Content Innovation Awards.

Producers and distributors

The Content Innovation Awards will include an award for Best Content Distributor, with a shortlist that includes Content Media, Global Agency, TCB Media Rights, Endemol Shine International and ITV Studios Global Entertainment.

The Most Influential Production Company category will see a four-way contest between Entertainment One Television, MarVista Entertainment, New Media Vision and New Pictures.

TV is nothing without the shows themselves, and the Content Innovation Awards will recognise the effort that goes into creating and marketing top series with the Best Series Launch of the Year Award, featuring a shortlist that includes season four of *Dynamo: Magician Impossible* by Discovery, *Lip Sync Battle* by Viacom International Media Networks, *Wataha* by HBO Europe and *Wolf Hall* by the BBC and BBC Worldwide.

UHD, multiscreen & social TV

With Ultra High-Definition TV now very much on the way, the Content Innovation Awards will see BT, Blue Ant Media, Sky Deutschland, Filmbox and TravelXP compete for the honour of being recognised in the 4K Initiative of the Year category.

TV Everywhere is now a must-have feature for pay TV operators and their content partners, as well as a growing number of free-to-air content providers. Competing for the Multiscreen TV Awards are Liberty Global for Horizon Go, KPN for its iTV service, Nemo TV by Nemo Telecom, *The Voice* and The Voice Global App by Talpa and Sky Online by Sky Deutschland.

Having a social strategy is now seen as key for programme makers and, increasingly, also for platform operators. The shortlist for our Social TV Innovation of the Year Award includes Keshet/Mako's Hacking App, Watch with Twitter by Orange, The Box Plus Network's Vote4Music, Tavgance Media's Second screen & TV Monetisation Platform for Kanal D and #SansLeMains by Marc Dorcel.

Our overall Pay TV Service of the Year category will meanwhile see pay TV and OTT providers battle it out in a four way battle between M7 Group, Videocon D2H, Cirkus and YipTV.

Technology

The Content Innovation Awards would not be complete without a category honouring the technology behind the innovation. We will present three TV Technology Awards on the evening, one for the Second Screen Experience (with Viaccess-Orca, Voyager Apps, Turner Latin America and Kaltura's TNTGO, EE's LTE Broadcast trial, Netgem's Telco TV Multiscreen Solution and Talpa's The Big Picture in contention), one for Content Discovery (Freesat's Showcase, Rovi's Personalised Discovery Solution, Siemens' OTT Swipe the Kids Edition, UPC Romania's TV Recommendations Application and XITE's Personalised Music Television form the shortlist) and one for Service-Enabling Technologies (with Conviva's Intelligent Control Platform, S3 Group's StormTest Warning Centre, Harmonic's Electra XVM, Screenz Cross Media's Real-Time Platform and Pace and Foxtel's iQ3 PVR).

For more information about the Content Innovation Awards and to book tickets, visit www.contentinnovationawards.com.

The InterContinental Carlton Cannes' The Beach bar will host the awards.

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Technology in focus

Infrastructure equipment and product news for digital media distribution

Haier launches Roku line

Chinese electronics firm Haier has launched a new line of TVs powered by Roku's operating system in the US. The 4 Series Haier Roku TVs will cost between US$300 (€266) and US$750 and will come in sizes ranging from 32-inches to 55-inches. The TVs include built-in access to the Roku Channel Store, which has more than 2,000 streaming channels, and features the Roku Feed – a feature that lets viewers know when content becomes available to stream. The sets can be controlled from the Haier Roku TV remote control or with the free Roku mobile app.

Nvidia Android TV console

Games console provider Nvidia has launched an Android TV platform, Nvidia Shield, that is available via the Google Store. The console includes Android apps and Google Chromecast functionality, enabling users to 'cast' content from mobile devices to the TV using the console. The device, which includes 16GB of storage will retail for US$199.99 (€178) in the US. A 'Pro' version with 500GB storage is available for US$299.99. The Nvidia device includes access to a range of Android TV apps such as Netflix, Hulu Plus, Vevo, Crackle and Sling Television, as well as Google Movies, Google Music and YouTube. It also includes a GbE port, HDMI 2.0 and HDCP2.2 for 4K TV.

Matchstick pulls plug on Firefox OS dongle

Matchstick has pulled the plug on its Mozilla-endorsed, Firefox OS-based TV streaming dongle ahead of launch, citing problems with DRM development.

The Chromecast rival was announced last year with a Kickstarter campaign attracting more than 17,200 backers, who pledged some US$470,300 to help get the project off the ground.

However, in a post addressed to backers, Matchstick said that after 11 months of development it is "unable to continue on this journey" and that it will aim to refund all cash pledges by the end of September.

"After struggling with the DRM development based on Firefox OS for most of this year, we realise continued development of DRM, though showing early signs of promise, will be a long and difficult

Matchstick was "unable to continue" with its HDMI dongle.

road," said Matchstick in the statement.

"We have come to the conclusion that we will not be able to reliably predict the completion date of the DRM development without significantly more research, development and integration.

"We feel the only responsible thing to do now is to refund 100% of the pledge money to our backers. You have been very patient with us, and we feel announcing another major delay in the Matchstick delivery would not be fair to our backers."

Matchstick was initially due to ship in February. However, the firm announced that month that it anticipated a delayed, August 2015 launch and that it was planning to increase the HDMI dongle's CPU power from a dual core to a quad core chip and update the software to support Digital Rights Management – required by content providers like Netflix.

"We are continually in talks with all the content you will want to experience on your Matchstick. DRM is a barrier and has become our primary focus, and as we work to nail that down we continue to explore new opportunities to upgrade the entire Matchstick experience," said the Matchstick team at the time.

The device was due to retail in the US at US$25, some US$10 cheaper than Google's Chromecast device.

Set-top market set for decline, says Futuresource

Global set-top box sales fell by 2% last year to 275 million units, highlighting low growth or cutbacks in markets including Brazil, Russia, India and China, and will continue to fall gradually, highlighting the need for consolidation moves such as Technicolor's recent deal with Cisco, according to Futuresource Consulting.

The company predicts that shipments will remain in excess of 250 million units for each year until 2019, when the market will be worth about US$17 billion, down from the current US$20 billion. Futuresource said that the smaller modem and gateway business would remain promising, thanks to growing dependence of consumers on broadband, home networking and managed services. According to Futuresource, Technicolor's acquisition of the Cisco set-top business will leave Technicolor accounting for about 13% of the global set-top market, with a share of about 30% of the key North American market.

Cisco's total connected device sales are expected to total US$1.6 billion in 2015, which will double Technicolor's connected home business in a full year. Technicolor is expected to ship over 60 million devices worth about US$3.3 billion this year.

"At US$600 million, Technicolor seems to be getting a good deal – an incremental US$1.2 billion in STB sales and access to key North American cable and IPTV accounts, bringing its worldwide share up to 13% [15% of pay TV]," said Jack Wetherill, senior market analyst, home electronics, Futuresource Consulting. "It also gets Cisco's Cable Modem business to complement its own Broadband CPE unit, lifting its worldwide share up to about 15%."

Cross MediaWorks acquires BlackArrow

Media services group Cross MediaWorks has acquired pay TV advertising and data solutions specialist BlackArrow.

BlackArrow customers include US and international pay TV operators such as Time Warner Cable, Comcast, Charter Communications, Bright House Networks, Rogers Communications, Liberty Global and Virgin Media.

The addition of BlackArrow to the Cross MediaWorks family will expand the types of products and services the company can offer to pay TV operators and advertisers on a worldwide basis, according to the companies.

BlackArrow software products enable inventory owners to manage, sell, and optimise their own inventory. Coupled with Cross MediaWorks' existing media sales

via its Cadent Network subsidiary, and creative and advertising services through The Cross Agency, the company says it is now able to offer customers a full range of services from self-serve software to fully managed services across all forms of TV inventory.

Nick Troiano, who previously worked as CEO of BlackArrow, will serve as CEO of Cross MediaWorks, and Stephanie Mitchko-Beale, CTO of Cross MediaWorks will assume CTO/COO responsibilities.

Troiano will join Barry Baker and Bob Wright, senior advisors to Lee Equity Partners, on the Board of Directors of Cross MediaWorks, a Lee Equity Partners portfolio company.

"Cross MediaWorks and BlackArrow individually have deep

Troiano will serve as CEO of Cross MediaWorks .

roots in the pay-TV community," said Joan Gillman, executive vice president and chief operating officer, media services for Time Warner Cable and a member of the board of directors of BlackArrow. "The integration of BlackArrow into the Cross MediaWorks family will provide operators with the tools and services they need to maximise revenue from their TV inventory, whether that's traditional linear TV spots or addressable advertising on VoD or OTT platforms."

Turner takes over iStreamPlanet

Turner Broadcasting System has bought a majority stake in live video streaming company iStreamPlanet, a major cloud investment that will see it "develop new products and services."

Announcing the deal, Turner said that it will use iStreamPlanet's technology to deliver its OTT programming and shift the firm's "core technology infrastructure to the cloud."

It added that it will develop new products and services for existing and new businesses and that the deal marks "an important piece of Turner's ongoing technology transformation".

"We've worked with iStreamPlanet in the past during the PGA Championship and they have also delivered world-class events such as the Super Bowl and Olympics to millions of viewers," said Turner chairman and chief executive officer, John Martin.

"This partnership will expand our capabilities to offer live events within and outside of the traditional ecosystem and, by bringing iStreamPlanet's innovative technology in-house, allow us to cultivate future business opportunities on digital platforms."

Under the deal, iStreamPlanet will remain a standalone business and continue to make deals with existing and new third-party clients, while working with Turner to explore new business opportunities.

iStreamPlanet founder and CEO Mio Babic said: "We couldn't ask for a better partner to accelerate our growth and expand our portfolio of multiplatform OTT solutions to meet the changing needs of content owners and consumers."

iStreamPlanet offers large-scale, live event streaming, TV Everywhere Network simulcasts and OTT multiplatform solutions.

New set-top from GS Group

Russian technology provider GS Group, which supplies equipment for market-leading pay TV operator Tricolor TV, has launched a new twin-tuner set-top box under the General Satellite brand. Designed for the Russian market, the GS E502 includes two DVB-S/DVB-S2 tuners to allow viewers to watch TV simultaneously on two screens.

Users can view content on a mobile device if they have a valid satellite TV subscription and the relevant app. The GS E502 comes with an internal 500GB hard drive, providing recording and pause live-TV functions and the Stingray TV software developed by the group's GS Labs unit, which supports teletext, subtitles, EPG, programme reminders and games.

GS Group expects to ship over 11,000 units by the end of 2015.

ALi launches set-top and sound bar combo platform

Chipset specialist ALi has launched a new DVB-plus-sound bar combination based on its DVB-C/T2/S2 and IPTV video streaming chipset. The application supports premium-quality streaming music delivery to the set-top. According to ALi, the solution fills a gap in the market created by moves by TV manufacturers to create devices that are as slim as possible, leaving little space for speakers that require volume in order to deliver decent sound, leading to the need to connect sound bars with TVs, set-tops and other equipment. The ALi chipset removes the need for this by combining set-top with sound bar for both video and audio. The application not only enhances sound quality of audio streaming from the TV broadcast but also functions as a standalone speaker capable of playing music from local USB storage, mobile devices via Bluetooth technology, and online services such as Spotify, Qobuz, and Deezer, without having to turn on the TV, according to the company. In addition, ALi has also enabled remote control of the set-top/sound bar solution on Android smartphones.

Coeno, Espial to provide new UX for Tele Columbus

German TV technology specialist Coeno is advising cable operator Tele Columbus on the creation of a new user interface to accompany the launch of its new set-top box. The Munich-based design agency is working closely with US-based middleware specialist Espial to develop the user experience, with the set-top expected to launch towards the end of this year.
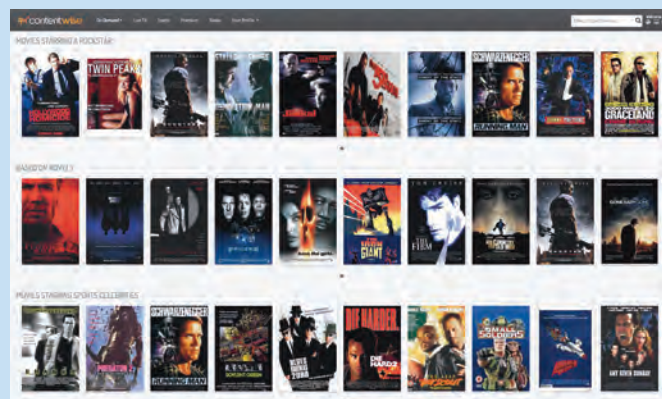
ContentWise teams with Babeleye for MEA move

ContentWise has partnered with multi-lingual video content metadata platform, Babeleye, to bring personalised TV experiences to the Middle East and Africa (MEA).

ContentWise – which specialises in personalisation, discovery and recommendations for digital TV content – will integrate Babeleye's metadata platform, allowing it to deliver search, discovery and recommendations for local content.

ContentWise is integrating Babeleye's solution into its Personalization System and Knowledge Factory metadata processing engine and will now provide advanced content search, discovery and recommendations for Arabic and other content in the MEA region.

"As one of the fastest growing pay-TV markets, the MEA region is a key market for us as we continue to expand globally. The partnership with Babeleye ensures that we are able to deliver the very best, personal TV experience to viewers across the region," said ContentWise CEO Paolo Bozzola.

Babeleye's mapping of local market metadata in the MEA region offers metadata across multiple platforms and in multiple countries, with a particular focus on the Arab region.

Babeleye sales director, Lasse Schmidt, said: "Our partnership not only benefits local viewers, but it also means TV providers across the region will be able to get the very best of Babeleye and ContentWise technologies in one, ready to use platform."

Piksel teams up with metadata firm Lingospot

Online video platform provider Piksel has teamed up with TV metadata specialist Lingospot to deliver personalisation, search, targeted advertising and content discovery. The partnership will make it possible to derive rich, scene-level metadata for each piece of content, comprising the subjects, themes, topics and concepts contained within it, and to use this compiled intelligence within Piksel's video solutions to drive content suggestions and advertising selections that are personally relevant to viewers, according to the pair.

Lingospot uses patented natural language processing, semantic search, image analysis, and machine learning technologies to analyse multiple modalities of video and extract time-coded metadata about what is happening on a scene-by-scene basis. Combining Lingospot with the capabilities of the Piksel Palette will enable services such as random access TV viewing, plot based recommendations and personalised media delivery, according to the companies.

"Meeting the demands of the online audience and creating compelling user experiences requires deep understanding of the content itself, one that can be achieved with metadata. This can be accomplished using easily accessible metadata about the video content, in combination with analysis of what occurs within the video content. Rich metadata can power increased usage and monetisation opportunities through effective content search, discovery, hyper-personalised recommendations and advertising. All of which play a key role in much-needed service differentiation. The addition of Lingospot's technology to the Piksel Palette will give our customers exclusive access to a suite of enhanced metadata services that are truly innovative in the video space and we are delighted to formalise our partnership together," said Mark Christie, chief technology officer at Piksel.

"Over the last two years, Lingospot has focused on building the technology to analyse various modalities of video content. We have become leaders in deciphering exactly what is happening inside a video stream, in real-time. This understanding goes a long way towards building revolutionary video discovery and consumption experiences. Piksel is a leader in all the technology elements we were missing to launch these services," said Nikos Iatropoulos, CEO of Lingospot.

Broadcaster OH-TV taps PlayBox to offer playout

London-based broadcaster and TV channel provider OH-TV has tapped playout technology specialist PlayBox Technology to supply 10 additional AirBox playout channels.

The move will enable OH-TV, which supplies entertainment channels focusing on the black experience worldwide, to offer playout services to other broadcasters in addition to producing and transmitting its own channels.

OH-TV transmits it own content to viewers in the UK and Europe via the Sky satellite platform and digital-terrestrial platform Freeview, and also produces OH

USA, a channel transmitted via the online UN1TY platform.

The broadcaster currently provides playout services to channels including Smash TV, Tiwa Tiwa, Hip TV Nigeria, Glitz, Views and VEATZ 24.

"We bought our first AirBox playout system in May 2008 following careful evaluation of the available systems. The service-provider we were working with at that time was itself a successful PlayBox Technology customer which certainly influenced our choice. We were impressed by the modular structure of the PlayBox Technology platform. It gave us the ability to choose the

precise combination of features we needed for our combination of live and scheduled channels. A second PlayBox Technology AirBox system was added in 2009," said OH-TV CEO Akin Salami.

"We now have a total of 12 AirBox playout automation servers working in sync with network-attached-storage, fully integrated by PlayBox Technology. All 12 servers can be operated remotely or straight from our MCR. This solution is very robust, working continuously every day of the year. Its reliability allows us to get on with our core business of making and transmitting programmes."

Roku tops US device sales

Roku still leads the streaming media device market in the US having outsold rivals like Google and Amazon in 2014, according to Parks Associates.

The research claims that Roku devices accounted for 34% of streaming devices sold in the US last year, trumping second place Google which accounted for 23% of sales with its Chromecast stick. Amazon's Fire TV products overtook Apple TV to take third place.

Combined, these four leading brands accounted for 86% of all units sold to US broadband households in 2014, according to Parks' Streaming Media Device Landscape report.

"The market consolidation around these four brands forces new entrants to develop more creative features and functionality to tap into the strong consumer demand for streaming content. Devices with additional functionality such as the Intel Compute Stick may be a sign of things to come, where streaming

is not the primary function but an extra feature to provide additional value," said Barbara Kraus, director of research, Parks Associates.

Nearly 20% of US broadband households are estimated to own at least one streaming media player – like an Amazon Fire TV, or Apple TV – while 8% own at least one streaming stick, such as a Google Chromecast or Amazon Fire TV Stick.

Parks said that Roku devices are the most used among US broadband households that own a streaming media device at 37%, followed by Google Chromecast at 19%, Apple TV at 17%, and Amazon Fire TV devices at 14%.

The research estimates that 86 million streaming media devices will be sold globally in 2019.

Launches for Eutelsat and Intelsat

New satellites from Eutelsat and Intelsat have both launched into orbit on an Ariane 5 rocket from Kourou, French Guiana.

Eutelsat 8 West B will transfer to 7/8° West where it will enter commercial service in October, after performance tests. The satellite hosts Ku-band and C-band payloads and will cover TV homes in the Middle East and North Africa, according to Eutelsat.

Intelsat 34 is due to be placed into service at the 304.5ºE orbital location and is also a C- and Ku-band satellite. It will host a Ku-band DTH television platform as well as a specialised Ku-band payload serving broadband services for the aeronautical and maritime mobility sector in the North Atlantic. The new satellite will replace Intelsat 805 and Galaxy 11 as the third in Intelsat's Latin America, pan-regional video distribution neighborhood – which includes Intelsat 11 and Intelsat 21.

In Brief

Com Hem picks Elemental

Swedish cable operator Com Hem has chosen Elemental to unify the delivery of live linear and multiscreen TV services. ComHem has chosen Elemental software-defined video processing systems to deliver linear video across cable, IPTV and OTT TV networks from a unified headend. This supports both IP and SDI inputs, with Elemental Live used to simultaneously process live H.264 DVB-C, RTP, and ABR streams for all Com Hem delivery networks. "Com Hem is committed to offering our customers the best available content and a high level of service. By consolidating our headend with Elemental we are able to meet this commitment across all of our networks and to all types of devices," said Com Hem chief technology officer Henri Caddeo. Com Hem's broadband, TV, and phone services reach approximately 1.92 million households in Sweden.

ITV extends playout contract with Ericsson

UK commercial broadcaster ITV has extended its playout contract with Ericsson for its portfolio of channels until 2024. Under the new deal, Ericsson will continue to provide playout services for ITV, ITV2, ITV3, ITV4, ITV HD, CITV and their associated regional variants, as well as providing services for ITV's most recent TV channels – ITV Encore and ITVBe. Ericsson said that as part of the contract, it has designed, built and integrated a scalable simulcast platform for ITV. It said that the modular infrastructure will give ITV the flexibility to deliver new services and easily launch existing services onto new platforms.

On the move

Altice has confirmed the appointment of Alcatel Lucent CEO **Michel Combes** as chief operating officer of the group and chairman of the board of Numericable-SFR. Combes' move was widely anticipated following Nokia's agreement to acquire Alcatel Lucent in April. Combes said his priority would be to consolidate the group's existing base, following three major acquisitions in the last 18 months.

Eutelsat has appointed the head of TDF's media services division, **Julien Seligmann**, as its regional vice-president of the UK and Nordics. Seligmann has served as head of special events at Globecast and CEO of Globecast do Brasil and later founded electronic content delivery firm SmartJog, which was acquired by TDF in 2006.

Polish broadcaster TVN Group has appointed company executive **Christian Anting** to the management board, with overall responsibility for digital and e-commerce. Anting first joined TVN Group in 2010 and has been chief strategy officer and managing director of digital and e-commerce since last year. The appointment means TVN's digital activities are now represented at board level.

Liberty Global executive **Eric Tveter** has stepped down from his role as chairman of CTAM Europe. **Inge Smidts**, chief marketing officer at Liberty Global, and **Marco Frazier**, senior vice-president of distribution and business development UK and Western Europe, AMC Networks, will split the role as co-chairmen. Tveter, who is also CEO of Central Europe Group, Liberty Global, steps down from CTAM Europe after three years in the post. As part of the merger between CTAM Europe and Cable Europe, the two organisations will bring together their respective annual events, integrating EuroSummit into a "refreshed and relaunched" Cable Congress from 2016 onwards.

NBCUniversal International, aligning its distribution and networks business in Europe, the Middle East and Africa, has promoted **Satpal Brainch** (*pictured*) to the new role of MD, distribution and networks, EMEA, reporting to Belinda Menendez, president, NBCUI Distribution & Networks. **Carolyn Stalins** has been appointed senior vice-president, distribution, EMEA. In this new role, Stalins will lead NBCUI's content distribution across the region, reporting to Brainch. Brainch was previously executive vice-president and managing director, NBCU International Networks. Stalins was previously MD, southern Europe, distribution and networks with oversight of both businesses across France, Iberia and Italy.

TV search and discovery and user guide specialist Rovi has named **Michael Hawkey** as senior vice-president and general manager of its Discovery business group. Hawkey, who was previously senior vice-president and general manager for EchoStar's Sling Media, will report to John Burke, Rovi's executive vice president and chief operating officer.

Digital watermarking specialist Friend MTS has named **Rob Brown** as senior solutions architect. Brown, who has held similar positions at both Irdeto and Piksel, has designed, built and supported the OTT infrastructure for pay TV providers including Sky, Channel 4's 4oD, OSN and AT&T. He has also consulted on internet video for Disney, Univision, BBC and ITV.

Danish telco TDC has named **Pernille Erenbjerg** as its new CEO, taking over from former president and CEO **Carsten Dilling**. Erenbjerg was previously deputy CEO, having been promoted from chief financial officer in January. She has worked for TDC since 2003. Dilling, who has helmed the telco for the last three years and has left by mutual agreement with the board, according to the company, will continue to act as an advisor to Erenbjerg for the next few months. Erenbjerg will combine the CEO role with her existing chief financial officer responsibilities for the time being.

TV technology provider SeaChange has named **Paul Crann** as senior vice-president of product management and solutions architecture, and **Mitchell Chun** as senior vice-president of business development. Crann previously worked for BTI Systems, a software-driven network solutions provider for telecommunications and content service providers. Chun joined SeaChange as vice-president, business development upon the acquisition of Timeline Labs, of which he was co-founder, in February.

Georg Ramme has been promoted to global managing director of Endemol Beyond, the digital and multichannel network division of the Endemol Shine Group. Ramme started up the Endemol Beyond initiative, overseeing a German hub in 2012. He is being promoted from international managing director.

TV security specialist Conax has appointed **Oliver Bernau**, formerly an executive at Nordic IT company Evry, as executive vice-president and head of services. Bernau will lead Conax's recently-formed services division and work to grow the company's global services portfolio and launch new service offerings.

Former Turner Broadcasting System EMEA senior VP and COO **Pete Flamman** has joined Viacom International Media Networks's northern Europe operation. Flamman is taking on a newly-created role of SVP of brands for northern Europe at VIMN Northern Europe. He left Turner last year as part of a restructuring of the EMEA business that Turner international president Gerhard Zeiler initiated and Giorgio Stock subsequently oversaw.

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> "While there is plenty of evidence from the US that people want to pay less and cut the cord in favour of a 'skinny bundle' from the likes of Netflix and others including Sling TV, naysayers are also looking at how Amazon and other digital players are starting to nip at Netflix's heels."

Netflix: the troubled teen

Eighteen is a difficult age for humans and so, it seems, for at least one media company. Netflix – which came to life in 1997 as a DVD rental company by post and then in 1999 as an SVoD service, made headlines in 2010 when it became the biggest source of internet traffic in primetime in the US.

Netflix took the media business by storm. Users loved its ease of use and its inexpensive and flexible pricing and it transitioned easily through its teenage years into a major media player. It picked up programming awards for its original series like *Orange is the New Black* and *House of Cards* and launched internationally, while its stock price rose almost as fast as its subscriber numbers. Cable pioneer John Malone admitted that companies he invests in were caught out by the super-fast rise of Netflix, which fed on subscribers' disillusionment with big cable bills.

Netflix has recently tweaked its model to achieve CEO Reed Hastings' ambition of breaking even next year and achieving what he described as "material global profits" in 2017. Some investors on Wall Street even think it could become a US$100 billion (€90 billion) company by market capitalisation.

But there are problems afoot. The root of concerns over Netflix in 2015 remains its business model: how can it justify a soaring stock price and a market valuation of nearly US$45 billion – over 255 times earnings – when for the past four quarters Netflix's cash flow has been negative?

Netflix recently dropped large chunks of its library to focus on acquiring original programming. It has also been signing up both cable and telco distribution partners, increasing its footprint as it moves towards its stated goal of being in 60 countries by 2016. It has continued to beat the odds with its growth plan, adding a better than expected 3.28 million new subscribers in the most recent quarter. In October it will launch in Spain in partnership with Vodafone and it aims to add another 10 countries by the end of next year, including China and India. Subscriber numbers stand at a healthy 65 million.

Netflix's stock has recently plunged – falling by 21% over three days in August – partly on the back of China's problems and their potential impact on global economic growth, but also because media analysts had already begun questioning a model based on continued growth.

While there is plenty of evidence from the US that people want to pay less and cut the cord in favour of a 'skinny bundle' from the likes of Netflix and others including Sling TV, naysayers are also looking at how Amazon and other digital players are starting to nip at Netflix's heels. For example, in Japan Netflix recently announced a partnership with Softbank to distribute its service but Amazon also has a Japanese business and is hungry to compete, including moving into the funding of original programming, emulating the Netflix model. Meanwhile, Netflix has plans to launch in China, but local player Alibaba recently announced that it will launch a similar service there.

At the same time, Netflix has said it will not be renewing its licensing deal with Epix, so a major part of its library (including the likes of *The Hunger Games* and the *Transformers* series) will move to its competitor Hulu. Original material from stars including Ricky Gervais, Idris Elba and Adam Sandler is great but, as anyone in the TV business knows, not all the new projects with big name talent actually work. Will Ricky Gervais really create more subscribers than *Hunger Games* star Jennifer Lawrence?

Nor is Amazon standing still. Origination is now on the top of its agenda, most recently with the acquisition of the former *Top Gear* team Jeremy Clarkson and his chums. Together they will make a new motoring show that could help make Amazon a brand name for middle aged men all over the world.

But even more interestingly, Amazon has recently announced a download service – something that even Netflix has shied away from. The multi-layered Amazon is still a long way from challenging Netflix in terms of subscribers (the UK figures alone show this – 4.4 million subscribers for Netflix against 1.2 million for Amazon, according to Ofcom), but Amazon CEO Jeff Bezos is not usually the kind of man to play the underdog role for too long.

On top of Amazon, Netflix also now has to keep Spotify, Snapchat, Facebook, Twitter and loads of other high profile web brands in its sights because they are turning more towards video content to attract eyeballs. YouTube is also set to add SVoD channels to its platform, bringing another potentially bruising source of competition to the body of Netflix.

All in all, by the time Netflix lights the candles on its 21st birthday cake in three years time, things might look considerably different than it did as a teenager. Nothing stays the same for very long in the media business. Even for Netflix. ●

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EXHIBITORS
FROM 34 COUNTRIES

2005–2015: + 56 %

9TH ANNUAL **over the top**

OTTtv

#OTTTV15

World Summit

9th - 12th November 2015
Millennium Gloucester Hotel, London, UK

Co located with
4K IN FOCUS

The Leading Global Event
in the OTTtv Market

KEY TOPICS FOR 2015 INCLUDE:

BRAND NEW CONFERENCE:
4k in Focus

Pay TV OTT business model evolution

Ad Supported OTT — the Holy Grail?

MCNs & Millennials: Monetising the Next Generation

Content as a differentiator: Opening up new markets with niche OTT offerings

Managing & maximising your OTT rights

Personalising the UI with dynamic metadata & real time analysis

Expanding the OTT ecosystem: Sports, Mobile Video, 4k & Short Form Video

HEAR FROM OVER 80+ LEADING VISIONARY SPEAKERS INCLUDING:

Mark Melling
Director AOL Video – Europe
AOL

Jamie Hindhaugh
Chief Operating Officer
BT Sport & BT TV

Brian Curtis
Senior Director, Product Management, **Comcast**

Jen Louis
Global Creative Strategy EMEA Entertainment
Facebook & Instagram

Chris Aylott
Head of Marketing, Entertainment and News Channels, **Sky**

Matt Ring
TV & Broadband EMEA
Facebook

Graeme Hutcheson
Head of Sky AdSmart
Sky Media

Bjarne Andre Myklebust
Head of IP Distribution, Norwegian Broadcasting Corporation, **NRK**

Christophe Rufin
Cloud, TV and Entertainment Ecosystems Director, **Orange**

Maaz Sheikh
President/CEO
STARZ Play Arabia

Dr Sebastian Weil
CEO
Studio71

Simon Brown
Executive Director of Strategy & Research, **UKTV**

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