

DIGITAL



June/July 2018



The need for speed

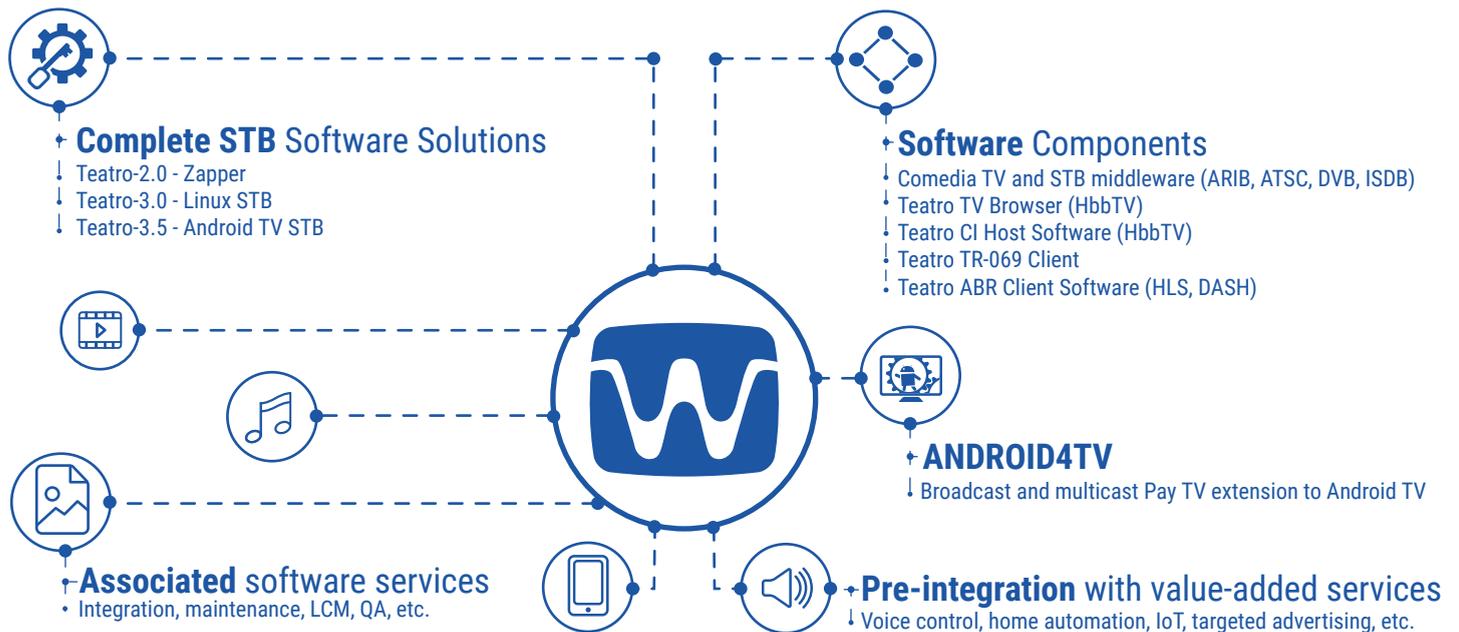
New developments in broadband cable technology



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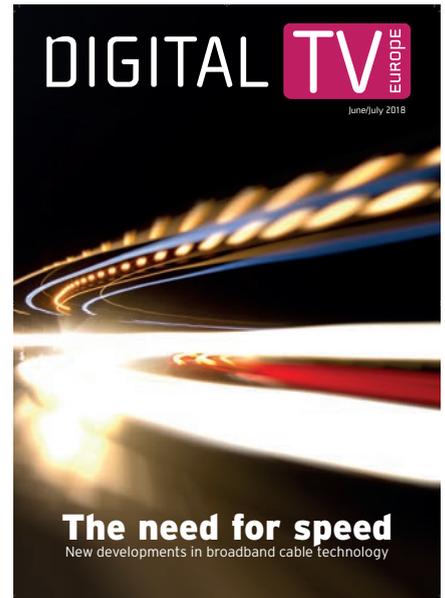
iWMedia provides software components and solutions for TV devices to service operators and consumer electronics manufacturers.



Our mission is to bring our customers the software they need to constantly adapt to the ever-changing requirements of the digital TV markets.

See us at **ANGA COM** (hall 7, booth A13)
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Fast times

June is the month of ANGA COM and it therefore only appropriate that our lead feature article this month should be on broadband cable technology.

Cable operators – in common with other fixed-line network operators – are increasingly focusing on broadband as the key weapon in their multi-play arsenal as they compete to win and retain customers. Increasingly, it seems that speed rather than content is king for multi-play service providers.

With that in mind, we take a look at the broadband network investment strategies of cable operators and the tools available to enable them to compete with fibre and other fixed-line competitors, encompassing new technologies such as Remote PHY and Full Duplex DOCSIS.

We assess how far these technologies will place cable in a better competitive position against rivals. We investigate how much interest there is among cable operators in delivering symmetrical bandwidth as well as ultra-fast downstream speeds, and weigh up the relative importance of operators' competing priorities.

Virtual reality has been the object of much hype over the last couple of years and some of the buzz around the technology has faded recently. However, industry players are still busy developing new applications.

Also in this issue of *Digital TV Europe* we compile a short hotlist of compelling entertainment-focused VR services, looking at what inspires VR creatives and assessing how the companies behind these initiatives view their prospects in this market.

The concept of the smart home has also been the object of much hype and has long been seen as a potential new market for fixed and mobile service providers.

In this issue, we take a look at the role pay TV and broadband service providers can play in this market. Are their subscribers willing to pay monthly fees for smart home services that would justify an investment in these technologies? What kind of strategy would make sense for service providers? We take a look at whether it makes sense to bundle smart home services with other services such as pay TV and broadband.

Elsewhere in this issue of *Digital TV Europe*, we take a look at some of the key technologies that will be on show at ANGA COM and provide our usual mix of news and insight into some of the key industry developments of the last month. ●



Stuart Thomson, Editor
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Q&A: Gernot Jaeger, Zattoo

Gernot Jaeger, Chief Officer, B2B TV solutions at Zattoo, talks about the disruptive TV solution Salt has introduced in Switzerland with Zattoo and Apple.

What are the cornerstones of the TV service that Zattoo implemented together with Apple for Swiss Service provider Salt?

Zattoo has been operating a leading end-to-end white label TV and OTT platform for many years. This platform has now been leveraged to implement the new service for Salt – this time in close co-operation with Apple. As a result, for the first time outside of the US, Apple TV has been made the central TV device, even with an operator login. This means that the consumer does not even have to enter complicated login credentials but can start using the service right away.

The entire service is nevertheless of course a multiscreen service, i.e. it comes with apps for mobile devices (iOS, Android) and browser-based access. The service is deeply integrated across all these devices and gives access to the full feature set in all use cases. This of course includes live TV in SD, HD and soon 4K, but also non-linear features such as live-pause, seven day catch-up or replay TV, VOD and a cloud based personal video recorder for all customers.

In this service setup, Zattoo hosts, manages and provides the entire TV service end-to-end. Salt leverages its own network, thus ensuring the quality of the customer experience with their own infrastructure and service orientation. This combined with the great product that Apple provides, we can make a cutting edge TV and entertainment experience become reality.

This service and this experience then enables Salt to market its TV offerings comprising various product bundles, thus raising ARPU, retaining existing customers and attracting new ones.

What makes the solution 'disruptive' and what makes this unique outside the US?

Zattoo is the first end-to-end platform to partner with Apple leveraging the new Apple TV 4K Box as a set-top box. What makes it disruptive is

the fact, that Salt does not deploy a classical set-top box anymore but fully relies on the Apple TV Box. Furthermore, it is the first TV service outside the US where Apple allows the automatic installation of the Salt TV application for the Apple TV 4K Box as well as for other iOS devices using operator login.

Thus, Salt customers do not have to enter any login data and can easily switch between Salt TV and Salt Video. This was implemented by Zattoo in a very short time-frame and was only possible with the strong support of Apple.

How does Salt benefit from using Zattoo's platform?

First of all, we are able to leverage a market proven, standard setting, fully (geo-) redundant platform. This is an approach that is completely different from starting from scratch by integrating various vendors and components into something that will hopefully work and perform. In other words: we are able to provide a ready-for-market product which can be heavily adapted and customised to the needs of an operator, in this case Salt. It comes with a proven track record, short time to market, operator grade availability and cost efficiency. On top of this, we guarantee ongoing further developments of the entire IPTV solution – we call this the Zattoo 'Evergreening Roadmap'.

How has the implementation been received in the Swiss market?

Besides a tremendous response in the national and international media, new and existing customers reward the new Salt IPTV offer with sales figures even better than expected. This makes us very happy. And we are of course also happy to see that there are many other operators in Europe, the US and Asia showing increased interest in the Zattoo platform and in the disruptive service we built around Apple TV.

News digest

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Canal+ loses Ligue 1 football to Mediapro in major upset

By Stuart Thomson >

In a major blow to pay TV leader Canal+, Spanish broadcaster and producer Mediapro has secured the bulk of the rights to French Ligue 1 football for the 2020-24 period.

The results of the auction of rights by French professional football league, the LFP, came as a surprise. The LFP secured a record €1.15 billion per season from the auction despite Canal+ failing to secure a single package of rights and BeIN Media securing only one package.

Mediapro, which took no fewer than three of the seven packages on offer, has committed to create a dedicated sports service for France to distribute its Ligue 1 rights. Mediapro president Jaume Roures told journalists in Paris that his goal was to build a channel to be sold at a price that could attract an audience base of around five million subscribers within two years. Roures said that he hoped current

rightsholder Canal+ will carry the channel Mediapro plans to launch for Ligue 1.

He said he planned to hold talks with all French operators and intimated that one possibility would be to come to some sort of reciprocal arrangement with Altice France/SFR, which holds the rights to Champions League football but which did not participate in the Ligue 1 auction.

Also joining the list of Ligue 1 rightsholders for the first time is Iliad Telecom/Free, which secured lot 6, comprising near-live highlights of all matches, along with magazine programme and video-on-demand rights. The company spent €50 million to secure the package.

BeIN Sport, an existing rightsholder, has held on to lot 3, comprising 21:00 Saturday evening matches and matches on Sundays at 17:00. However, with only two matches a week to offer to subscribers, it may struggle to sustain a viable business model.



Absent from the bidding was Altice France, which has invested heavily in Champions League and Europa League rights to build up its TV offering. CEO Alain Weill indicated at the end of April that the group was unlikely to participate in the auction and said that Altice's RMC Sport channel was working well without top-tier French football.

For its part, Canal+ said that it would look at the possibility of sub-licensing the rights. In a letter to employees – and ahead of Mediapro's press conference – CEO Maxime Saada said that to "overpay for sports rights in the face of all economic logic is not a viable solution" but noted that the LFP auction "authorises, for the first time, the awardees to

cede all or part of their rights, and thus opens the possibility for Canal+ to win them back indirectly".

The auction is nevertheless a major blow for the pay TV operator, which has struggled to arrest a decline in its domestic subscriber base, but has seen some improvement in the rate of loss in recent quarters.

The LFP can rest satisfied with an auction that saw its take increase by 60% – with two packages still unallocated – and attributed its success to investment by the clubs in delivering a quality experience.

The league said that the auction had enabled it to partially catch up with other European domestic leagues that have hitherto outperformed it in terms of securing TV revenues.

Lot 5, which includes the champions' trophy and a number of other matches, and lot 7, a package comprising weekly magazine shows, have not been allocated.

Germany

OTT > Sky adds live to Go

Sky Deutschland has expanded the range of services available via its Sky Go app to include a broad range of linear services including Sky Cinema HD, Sky Atlantic HD, Sky Sport and Sky Sport Bundesliga. The Sky Go service also includes a number of channels from partners such as Fox, TNT Series, National

Geographic and 13th Street, and all of the public broadcast channels of ARD, ZDF, Arte and 3Sat. Sky Go now offers over 40 live-streaming channels, with this number set to expand to over 100 by the end of June. The only linear offerings previously included were the Sky Sport channels. Live channels in HD quality can be chosen via the channel list on the app, which can also be used to programme recordings on the Sky+ and Sky Q set-tops.

OTT > RTL to up VOD

German commercial broadcaster RTL plans to increase investments in its video-on-demand services after launching three new VOD platforms in the first quarter of the year. Announcing the company's Q1 earnings, RTL Group CEO Bert Habeths said that the company's VOD investment will have a "clear focus on local, exclusive content." He also said RTL will gradually move to a hybrid model – "combining a

free, advertising-financed service with a premium pay product." The comments come after RTL launched three new VOD platforms in Hungary, Croatia and Belgium – all based on the 6play platform of Groupe M6. RTL Play launched in Croatia in January and in Belgium in March, while RTL Most! went live in Hungary in February. RTL reported stable Q1 group revenue of €1.416 billion with underlying revenue up 2.6%.



Q&A: Wongeun Jeon, Alticast

Wongeun Jeon, head of the media experience unit at Alticast, talks about the company's Dynamic UI and personalised TV

What is Alticast's Dynamic UI and what does it enable service providers to do?

Today's viewers are demanding their viewing experiences become increasingly more personalised, while allowing for the quick and easy discovery of content they want to watch.

Alticast's Dynamic UI™ gives operators the tools they need to provide this level of personalisation to their customers. An adaptive, agile and intelligent user interface, our Dynamic UI enables operators to go beyond simple content recommendations by personalising the entire viewing experience based on user behavior patterns and content preference.

Beyond content recommendations based on usage, what types of personalisation of the UI might a service provider implement?

Personalised service is usually thought of as personalised content recommendation. Alticast's Dynamic UI manages the pay TV service through the subscriber's service usage patterns and content preference. It takes into consideration viewing times, browsing patterns, purchase habits, channel searching, VOD watching, etc. It also looks at metadata of content purchased, genres normally watched, types of channels most frequently viewed and price range of purchased content. The compiled data is then used to generate individualised UI adaptations; thus, allowing operators to personalize the UX through menu configurations, content recommendations and the screen's overall look and feel. The end-user can then decide to watch either the operator default UI or their own personalised UI.

For example, consider two viewers who usually watch movies. One viewer generally makes a selection after watching a trailer while the other checks social ratings and reviews. The system will present personalized UIs and movie recommendations to each user based on their respective behavior patterns when choosing a movie.

Sports fans are given multi-view screen features as well as game stats and information (i.e. scores and player profiles) on their favourite player or sports team. Binge watchers are presented with UIs that filter search menus per genre, country the show is produced or originated in, actor(s) in the show, as well as a list of episodes per season, which will appear on one side of the screen.

Traditionally, different UI components are developed individually. Dynamic UI provides templates for operators to deploy the UI flawlessly and dynamically, reducing time-to-market. This is imperative in an industry where media trends are changing at an accelerated pace.

Dynamic UI is enhanced by Alticast's UX virtualisation solution

Apex™. Apex allows all of the intelligent, active features of the Dynamic UI to be applied to low-cost and low computational power (less than 750DMIPS) legacy devices without any technical constraints caused by CPU performance, to deliver a sophisticated and graphic-rich UI.

What are the challenges in applying user behaviour data to the creation of personalised UIs and how are these resolved?

The biggest challenge in applying user behaviour data is that it requires an advanced data analytics system to comprehensively analyse users' behaviours, tastes and preferences.

Dynamic UI is integrated with Alticast's machine learning data platform, Argus™, for accurately profiling users. Based on the analysis results, Argus segments and categorises the users into target groups to develop and transmit the proper UI sets.

How can the service provider's customers benefit from this type of personalisation of the UI?

As viewing behaviour is observed and accumulated, the UI reacts and optimises based upon the habits and usage patterns of the subscriber. The collected data generates and offers a personalised UI, as well as a default operator UI, to the end-user who can then choose the UI to which they are more attracted, further enhancing the customised experience.

Additionally, subscribers can benefit from quicker and easier content discovery and service navigation based on user habits and data recognition. This, in turn, creates increased satisfaction and loyalty towards the service they are receiving.

From the service provider's perspective, what opportunities are there for making additional revenue from this type of personalisation?

With Alticast's Dynamic UI, operators are able to take personalisation to another level by offering UI and content recommendations that are custom-made for the individual user rather than for the operator's entire subscription base. Since a UI template is automatically generated through the system, time-to-market is significantly decreased, allowing for immediate customer satisfaction.

Personalisation and compelling UIs stand to become the key differentiator between an operator's success or failure. Through the use of Alticast's Dynamic UI, operators have a way to answer their subscribers' demands for greater personalisation, less searching and more time enjoying their favourite shows. This ultimately will reduce churn and help operators stand out from the barrage of competition in today's marketplace.

The Netherlands

OTT > KPN to shut Play

KPN is to shut down its OTT TV service KPN Play on July 2 citing "insufficient demand". The company said that the subscription service, which launched in 2015, did not get sufficient traction. In June the company will make KPN Play available for free. Programmes will be unavailable after July 2. The KPN Play website will remain online until October 1.

Poland

PROG > Polsat into Eleven

Polsat has acquired a "significant stake" in Eleven Sports Poland in a deal that valued Eleven Sports Network at approximately €80

million. The agreement establishes the commercial broadcaster as a strategic partner of Eleven Sports Poland, with a new management board with two members each from Telewizja Polsat and Eleven Sports. Eleven said the transaction will allow it to consolidate its position in Poland and boost its global expansion plans. Maciej Stec, member of the management board of Telewizja Polsat and Cyfrowy Polsat, will become president of the management board of Eleven Sports Network. Current managing director, Krzysztof Swiergiel will become CEO of the company.

Portugal

PROG > Altice move rejected

Portugal's competition watchdog the Autoridade da Concorrência

(AdC) has rejected remedies proposed by Altice to secure a green light for its planned acquisition of broadcast and media group Media Capital. Media Capital is the owner of Portugal's leading broadcaster TVI as well as production outfit Plural Entertainment and a number of radio stations. Altice said that the measures it had proposed were "reasonable" and that it was not disposed to suggest new ones. It had previously committed to separating its channel distribution, content, advertising and digital-terrestrial TV activities into separate entities, ensuring that channels were distributed non-exclusively. However, the AdC ruled that Altice's commitments were not specific enough and failed adequately to address the question of potential non-compliance and distortion of the market.

Events

New Europe Market

Date: 11 - 14 June
Venue: Dubrovnik Palace Hotel, Dubrovnik, Croatia
W: neumarket.com

ANGA COM

Date: 12 - 14 June
Venue: Köln Messe, Cologne, Germany
W: angacom.de

VR & AR World

Date: 12 - 14 June
Venue: ExCeL London, UK
W: tmt.knect365.com/ar-vr-world

Broadcast Asia

Date: 26 - 28 June
Venue: Suntec, Singapore
W: broadcast-asia.com

IBC 2018

Date: 13 - 18 September
Venue: Rai, Amsterdam, The Netherlands
W: show.ibc.org

MIPCOM

Date: 15 - 18 October
Venue: Palais des Festivals, Cannes, France
W: mipcom.com

Sportel Monaco

Date: 22 - 24 October
Venue: Grimaldi Forum, Monaco
W: sportelmonaco.com

Broadband World Forum

Date: 23 - 25 October
Venue: Berlin Messe, Berlin, Germany
W: tmt.knect365.com/bbwf

Africa Video Forum

Date: 13 - 15 November
Venue: CTICC, Cape Town, South Africa
W: tmt.knect365.com/africacom/africa-video-forum

BBC to run 'first come, first served' UHD trial

By Andy McDonald >

The BBC has announced two "cutting edge" trials that will see it bring this summer's FIFA World Cup live to viewers in ultra high definition (UHD) and virtual reality (VR).

All 29 World Cup matches that the BBC is due to broadcast on BBC One will also be available in UHD and high dynamic range (HDR) on the iPlayer – but only as part of a limited trial.

"This trial will be available to tens of thousands of people to watch on a first-come, first-served basis," said the BBC.

The UHD stream will be available from the iPlayer home-screen from as soon as the programme coverage begins until trial capacity is reached for that match. The BBC said that it will use the data it gathers from the trial to help it optimise UHD delivery in the future and will help



it to prepare for a time when "delivering such large-scale events in such high quality, for larger audiences, over the open internet is normal."

The BBC will launch a dedicated BBC Sport VR – FIFA World Cup Russia 2018 app, which will be available soon on Apple, Android, Gear VR, Oculus Go and PlayStation VR. The app will let viewers watch live coverage of all 33 BBC matches from a virtual 'luxury private box' in a Russian stadium.

Viewers will look out on the pitch from a virtual BBC Sport sofa via the box's viewing window and will also be able to

change view to behind either goal so they can get up-close to the action.

The VR app will also present users with a range of live match stats, which will appear from a virtual coffee table, and when there is no live game they will be able to watch highlights on a virtual big-screen TV.

"The BBC has brought major live broadcasting breakthroughs to UK audiences throughout the history of the World Cup," said Matthew Postgate, the BBC's chief technology and product officer. "From the very first tournament on TV in 1954 and England's finest hour in 1966, to the first colour World Cup in 1970 and full HD in 2006. Now, with these trials we're giving audiences yet another taste of the future."

The UHD coverage will be available in the Hybrid Log-Gamma version of HDR.



Q&A: Roland Sars, Media Distillery

Roland Sars, CEO of Media Distillery, talks about the application of AI to improve the user experience of TV platforms

What do you see as the main ways in which AI can be used to help broadcasters and TV operators?

Nowadays, broadcasters and TV operators are faced with the change in consumer behaviour from linear television to the more extensive use of replay environments. If they want to remain relevant, they need to act on this change and focus on optimising their replay platforms and VOD platforms. We believe that AI, being much quicker than regular technology or human effort, will enable broadcasters and TV operators to optimise and continuously adapt their platforms to satisfy new-born consumer demands.

How does Media Distillery's Deep Content Understanding platform work?

Media Distillery's Deep Content Understanding platform comprises a wide combination of Machine Learning methodologies to recognise every visual and audial aspect of video. These methodologies include speech detection, logo detection, face recognition, object recognition, topic detection and OCR recognition. By using a synergistic approach of combining the different technologies, we can provide highly accurate results.

What benefits can the metadata generated by this technology in real time bring to operators?

The benefits of this are that broadcasters and TV operators will learn and know what is inside their video content: who is on screen and when, what a programme is about, or when a programme started and ended. These forms of metadata are vital for TV operators to be able to optimise their replay environment. Essentially, the metadata helps broadcasters and TV operators enhance their platforms more like Netflix and YouTube, for example.

How do consumers stand to benefit from the new services that this technology can support?

Consumers will benefit as the technology enables TV operators and broadcasters to resolve some of the most pressing consumer frustrations in relation to watching television programmes in a replay environment. These frustrations include missing out on the first couple of minutes of a programme because they were not recorded, having to sit through a few minutes of television advertisements, on top of online advertisements, before the programme finally starts because the programme started later than scheduled, or wanting to binge watch a programme but not being able to smoothly transition to the next episode. Furthermore, the technology, and the real-time metadata specifically, will help TV operators and broadcasters offer a number of new services in their replay environment for a better consumer experience. For example, they can offer personal recommendations, short clips based on a consumer's favourite topic or personalised and in-video search options.

To what extent does this type of application reflect changing viewing patterns among consumers?

Linear television is losing ground to video-on-demand: consumers increasingly watch video content when it suits them, not when the television guide tells them to. Yet the replay environments of television operators have not been optimised and are not user-friendly at all. As a result, software companies, such as Netflix and Amazon, which have a strong focus on consumer experience, are taking away consumers from the traditional television operators. By using AI applications to offer an optimal consumer experience in their replay environments, television operators will be able to compete with the software companies that are conquering the media industry.

Global Wrap

Some 24% of all media consumption across the world will be mobile this year, up from just 5% in 2011, according to **Zenith's Media Consumption Forecasts 2018**. The **Publicis Media**-owned ad agency said it expects the proportion to reach 28% by 2020 as the mobile internet takes share from almost all other media. Music streaming service **Vevo** is to phase out its owned and operated platforms in favour of focusing on **YouTube**. The streaming outfit said that would focus on distributing its catalogue of music videos and original content to reach its growing audience of YouTube and would explore ways to work other platforms to further expand its access to content. Customer satisfaction with streaming video services such as **Netflix** in the US far exceeds that for traditional pay TV services, according to the **American Customer Satisfaction Index (ACSI)**, an annual survey of consumer attitudes to services including pay TV, video streaming, ISPs and fixed and wireless phone. Customer satisfaction with pay TV services fell 3.1% year-on-year on average to land on an ACSI score of 62 out of 100, while streaming video services, included in the survey for the first time, achieved a score of 75. Hong Kong-based telco **PCCW's** entertainment arm **PCCW Media** has launched a new OTT TV platform, **Now E**, offering a mix of Asian drama series and movies and sports, that is available on a range of devices including a new Android TV box. The service includes content from partners such as **HBO, MOVIE MOVIE, Now Baogu, Viu** and others.

CAB > Eleven to launch

Eleven Sports has secured the Portuguese rights to UEFA Champions League and Spanish La Liga football ahead of a launch in the country. Both agreements run from the beginning of the 2018-19 season for three years until the end of the 2020-21 season. Eleven has struck a deal with cable operator Nowo to debut its channels in the market. The rights secured by Eleven for its Portuguese launch are currently held by Sport TV, jointly owned by Olivedesportos, pay TV operator NOS, Altice Portugal/Meo and Vodafone Portugal.

Spain

OTT > Telefónica takes Netflix

Telefónica and Netflix have announced a global partnership to

integrate Netflix's service into Telefónica's TV and video platforms in Europe and Latin America. Telefónica's first Netflix deployments in Latin America will be announced in the coming weeks, while a Spanish launch is currently planned for the end of 2018. The agreement marks the first deal between Telefónica and Netflix, which already has distribution arrangements in place with Orange and Vodafone in the Spanish market.

OTT > Broadcasters' OTT plan

Spanish public broadcaster RTVE and commercial broadcasters Mediaset España and Atresmedia have confirmed that they have teamed up to launch a new joint interactive platform based on the HbbTV hybrid TV standard, with plans for a new OTT TV service to follow. The platform, branded LOVEStv,

which will be open to other digital-terrestrial broadcasters in the country, promises to "improve the experience of consuming television, allowing interactivity, thanks to HbbTV technology". The trio said they were working together to launch the platform that will group the audiovisual content of all three with the objective of improving the diversity and quality of the free-to-air TV offering and the user experience for those accessing HbbTV services in the country. A second phase of the project will see the launch of a new OTT TV service that will distribute additional content. LOVEStv will launch on June 14 on a trial basis. The service will initially offer catch-up TV content from the previous week, along with startover functionality, and improved programming guide and content recommendations.

Comcast preparing all-cash offer for Fox

By Kaltrina Bylykbashi >

Comcast has confirmed that it is considering making an all-cash offer for the Fox assets that have been offered to Disney for US\$52 billion (€45 billion).

Comcast said it is, "considering, and is in advanced stages of preparing, an offer for the businesses that Fox has agreed to sell to Disney."

These assets include Fox's entertainment networks, movie studios, television production and international assets. They do not include the Fox News Channel, Fox Business Network and Fox Broadcasting Company, which are to be separated into what is referred to as "New Fox".

Comcast said: "Any offer for Fox would be all-cash and at a premium to the value of the current all-share offer from Disney. The structure and terms of any offer by Comcast, including

with respect to both the spin-off of 'New Fox' and the regulatory risk provisions and the related termination fee, would be at least as favourable to Fox shareholders as the Disney offer."

The news follows reports that Comcast had asked investment banks to increase a debt facility by as much as US\$60bn so it can make the offer.

Late last year Comcast made a US\$64 billion offer to Fox in competition with Disney, but this bid was ultimately rejected. Fox cited regulatory hurdles. With Comcast upping this offer, what this will mean for the Disney/Fox merger is unclear.

"Of course the main thing is it drives the price up. We expect the battle for consolidation amongst TV distributors, content and channel owners to continue because many people believe scaling up is essential to compete against the scaled



digital platforms – Facebook, Amazon, Netflix, Google," said Ed Barton, chief analyst of entertainment at Ovum.

UK hedge fund The Children's Investment Fund (TCI), which has built up a 7.4% stake in 21st Century Fox, urged the Fox board to "immediately engage" with Comcast. TCI, which is run by Sir Christopher Hohn, highlighted a potential conflict of interest related to capital gains tax that could lead the Murdoch family to prefer Disney's offer and said that this must be "an irrelevant consideration" in weighing up the merits of the Comcast offer.



Q&A: Charles Dawes, TiVo

Charles Dawes, senior director, international marketing at TiVo, talks about voice search, unmanaged devices, the rise of Android TV and machine learning.

To what extent have consumers embraced voice search as a tool for content discovery and what more needs to be done to encourage its use?

Over the past year, we have seen voice really starting to take off with consumers. In our own research⁽¹⁾, we've seen access to voice-based search rise to over 24 percent, with over 70 percent of people saying they find it easy to find the content they are looking for. We've also seen that the users of truly "conversational" products, like the TiVo Bolt Vox, which have more advanced 'Natural Language Understanding' (NLU), and can handle multi-faceted queries – such as "show me all the Bill Murray comedies from the 80's with a four-star rating" – have a 21 percent higher weekly usage than other more basic services. Key to encouraging usage is how the services are being advertised to consumers through our operator partners. Where operators have embraced voice in their advertising – as Sky has done with Sky Q – we see strong and maintained growth, as consumers realise the added simplicity it brings to their lives on a daily basis. Voice interaction is entering the mainstream as tech giants like Google, Amazon and Apple heavily promote voice-based features and drive consumer adoption. Done right, voice not only helps users get to their content faster, but also enables operators to expose users to a much greater breadth of content. The ideal offering for operators is one that combines a deeply media-focused vertical content solution with the broader voice ecosystems of Google, Alexa, Siri, etc.

How far are TV operators embracing unmanaged IP devices and apps to distribute their service offerings to subscribers? What are the advantages and what remaining concerns do they have?

We see many operators looking to take advantage of devices that consumers have purchased to consume entertainment, as it can help to lower their capital expenditure costs and deliver a service that consumers are coming to expect – namely their subscription services being available where they choose to watch them. The 'TV Everywhere' revolution was the pre-cursor to this, where operators provided service to subscribers via an app on their mobile phone or through the web, but we're now seeing this evolve to the point where we have operators – like BT in the UK – combining their own content along with the UK public broadcasters, Netflix, Amazon Prime and Sky's Now TV, into one experience. Only a few years ago, those services would have been seen as too competitive to the operator to contemplate providing them to their customer. This type of content integration is a key cornerstone of the TiVo Experience 4 product, allowing consumer access to content from many sources in one interface. In a market that is increasingly fragmented, there is a window for providers to serve as the starting point for consumers' entertainment experience, and guide them through the maze of content options.

What impact is adoption of Android TV as an operator platform having on the market and what are the advantages and disadvantages to service providers of using this technology?

Android TV used to be a major concern for the pay TV community, as questions around the experience, security and control featured high on the agenda. Google has listened to operators, and with the latest Android TV Operator Tier has ensured that these concerns are addressed. This is great, as it allows operators to choose to use a class-leading customer interface like TiVo Experience 4 and still take advantage of everything that is offered by close integration with the Google Play store.

How can machine learning enhance content discovery and how transformative is the use of this technology likely to be?

Machine learning is bringing rapid change to the realm of content discovery in a number of ways. Most importantly it is helping to make sense of the vast unstructured data sources that are available on the internet, finding information that is relevant, and helping enhance the structured data that is supplied by companies like TiVo. These content sources and formats are constantly evolving, so you can't simply just write a set of rules to process them. The system itself must take advantage of the latest Artificial Intelligence (AI) to adapt itself and continue to surface the most relevant information in real-time, at the right moment, without slowing down. With the industry fragmenting so quickly, and consumers being faced with more compelling content and ways to discover that content, machine learning will offer the speed and accuracy that is needed to keep up with consumers' needs and desires.

What are the most compelling applications for the use of machine learning technology currently being investigated?

One of the most interesting areas is how technology can be used to enhance the work of human experts. From helping find the most appropriate content aficionados to curate an ever more specific set of content options – for example, your catalogue of Spanish horror films that need a true fan to review. Machine learning can also help to bring scale at speed to the world of metadata, by comparing inputs from both machines and human editors for consistency and accuracy. It can also help to surface meaningful results and recommendations that enable contextually relevant discovery by assessing current events and connecting and presenting timely entertainment content to the customer.

⁽¹⁾ [TiVo Q4 2017 Online Video and Pay-TV Trends Report](#)

Sweden

PROG > MTG takes control

MTG has upped its stake in Zoomin.TV from 51% to 100% after agreeing to buy out the digital video network's founders Jan Riemens and Bram Bloemberg. MTG acquired the remaining 49% of Zoomin.TV from Adversa Media Groep, which is controlled by Riemens and Bloemberg, paying €6.2 million in cash and settling Adversa's €11.3 million of shareholder loans to Zoomin.TV. Riemens and Bloemberg have been serving, respectively, as CEO and chief financial officers of Zoomin.TV, but with the deal have stepped down to pursue new opportunities. MTG announced that Roger Lodewick, a former executive at TEAM Marketing who was responsible for the sale of UEFA Champions League

and Europa League Media rights, will take over as CEO. Andreas Walker, who has previously held a number of senior roles for MTG, RTL and MTG subsidiary ESL, has been appointed as Zoomin.TV's new CFO.

Switzerland

CAB > UPC takes Höfe

Liberty Global-owned UPC Switzerland has acquired the Höfe region cable network belonging to infrastructure group EW Höfe, leaving its owner to focus on building out a fibre network. The cable network currently serves around 15,000 homes in the Höfe area. UPC Switzerland has been a long-standing partner of the group. The deal means that subscribers will now pay their monthly connection fees directly to UPC.

UAE

SAT > MBC widens horizons

Dubai-headquartered broadcaster MBC Group plans to place more focus on Saudi Arabia and neighbouring markets. The media company said the move is in line with "current transformational positive changes" in Saudi Arabia - including premium content production. The decision follows a strategy meeting held in the presence of more than 100 top executives at MBC Group's headquarters at Dubai Media City, chaired by MBC Group chairman Waleed Al-Ibrahim. Al-Ibrahim used the meeting to highlight the view that expansion and in-market opportunities, especially in Saudi Arabia, will broaden MBC's horizons and create more opportunities across the entire group.

United Kingdom

IPTV > BT to offer Amazon

BT is to include Amazon Video as part of its TV offering as it pivots its fixed broadband service to become part of a "converged network division" under new consumer business CEO Marc Allera. In addition to the Amazon Video app BT said it would make Sky's Now TV available to TV customers from next year. The addition of Amazon's offering makes BT the first UK service provider to embrace the e-commerce giant's Prime Video service, allowing users to access Amazon's roster of exclusive TV series and movies. The new BT TV app will also allow customers to download and play content on the move for the first time. In addition to BT's set-tops, the app will be available on platforms including

Industry stakeholders slam copyright reform draft proposals

By Stuart Thomson >

Both public broadcaster organisation the EBU and a group representing authors of audiovisual works have expressed dissatisfaction with different aspects of the compromise position agreed by the European Council on copyright reform in the EU.

The Council's permanent representatives committee, Coreper, agreed a position on the draft directive that will serve as the body's mandate when it kicks off negotiations with the European Parliament once the latter agrees its own position.

With regard to authors rights, the draft calls for collective bargaining between rights holders and distributors to be "considered as an option" to ensure transparency and calls for a transitional period to enable organisations to adapt to new transparency requirements.



The EBU said that the agreed position had "failed to create a sensible balance between providing transparency to authors and performers on the one hand, and the workability and pragmatism required on the other". It said that it was concerned by an obligation to report automatically and individually to authors and performers on the use of their works at least once a year, arguing that such an approach places "an unprecedented burden on the creative industries at a time when they are already facing significant market disruption".

The EBU said that broadcasters manage as many as 250,000

contracts every year with individual rightsholders.

"For EBU Members this is a very disappointing conclusion. Member States had ample opportunity to ensure pragmatism and common sense but unfortunately the conclusion will result in cumbersome bureaucratic procedures for our members," said EBU head of European affairs Nicola Frank.

"We are disappointed that the call made from the EBU for a more balanced approach has not been taken on board. Whilst we support the principles of transparency and also fair remuneration, this conclusion is simply not practical and realistic in its ambition. Public service media play a unique role within our societies, investing over €16 billion in content every year. The capacity of our members to continue to invest would be seriously challenged if costly transpar-

ency requirements were to be established and implemented."

French authors copyright society SACD meanwhile said that the draft was "a missed chance" to make progress towards ensuring "a just remuneration for audiovisual and cinema authors everywhere in Europe".

SACD said that the failure to embed a general right to remuneration from digital platforms meant that the proposal may end up worsening an already out-of-date framework. "In the countries in which such a right is recognised, authors' societies can negotiate agreements, collect and distribute remuneration; in other states, when this right doesn't exist, authors are almost assured of never being remunerated," it said.

SACD said it counted on the European Parliament's judicial affairs committee adopting a more favourable position.

Samsung Smart TVs, Apple TV and Google Chromecast. EE customers will also be able to view BT Sport app features, including the ability to cast direct from their mobile to their TV with inclusive data, for the first time from the start of the forthcoming football season. EE will also offer Google Chromecast and Apple TV support, enabling customers to share content from their mobile to the big screen. EE customers will also be able to access a range of new mobile TV experiences throughout the year.

CAB > Nick Play on Virgin

Viacom International Media Networks (VIMN) has launched its Nick Play video-on-demand app via Virgin Media in the UK. The rollout marks the UK debut of VIMN's first mobile streaming app featuring long form content, with the Nick Play app available free to Virgin Media customers who subscribe to

Nickelodeon channels. Nick Play will offer both full-length TV episodes and short form content and will include titles like *The Thundermans*, *Hunter Street*, *Henry Danger*, *SpongeBob SquarePants* and *Pig, Goat, Banana, Cricket*.

SAT > Comcast Sky decision

Comcast has received a boost in its bid for Sky as UK secretary of state for culture, media and sport Matt Hancock has said he is "not minded" to intervene. While the UK Enterprise Act grants Hancock the power to intervene in media mergers on public interest ground, he said that the evidence presented so far does not seem to justify such a move. Comcast formally notified the European Commission of its intention to acquire Sky on May 7, leaving it to Hancock to decide whether or not the bid warranted the issuing of a European Intervention Notice (EIN). In assessing

Comcast's bid, Hancock took the view that the merged entity "would not have a significantly larger presence in the UK news market than that already exercised by Sky plc and Sky News, and would have no greater ability to influence the news agenda". The DCMS statement makes it more likely that Comcast will be able to proceed with its bid, giving weight to the US group's argument that it would not face the same regulatory scrutiny that has delayed 21st Century Fox's attempt to acquire the 61% of Sky that it does not already own. Fox's own bid is subject to approval by the UK competition watchdog, the Competition and Markets Authority. The organisation had until the end of May to deliver its verdict, leaving Hancock until June 13 to make a final decision. If Fox is cleared, it will have to increase its bid from the current £19 billion (€22 billion) to top Comcast's £22 billion offer.

Zimbabwe

OTT > Kwesé Iflix launch

Kwesé Iflix, the joint venture between Kwesé owner Econet Media and emerging market SVOD service Iflix, have launched a new mobile app in Zimbabwe. The Kwesé Iflix app will be available to Econet Wireless mobile subscribers and will offer live linear content - including coverage of all 64 FIFA 2018 World Cup games - alongside a line-up of on-demand and entertainment programmes. Kwesé Iflix said that the app's sport offering will also include select NBA games while the entertainment content will include thousands of programmes spanning international, regional and local programmes curated especially for an African audience. Econet Media-owned pay TV provider Kwesé has acquired a "significant stake" in Iflix Africa in February.

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Speed kills



With high-speed broadband increasingly seen as the key competitive battleground for fixed-line service providers, cable operators are constantly looking to stay ahead of their rivals by investing in new technology, but they also need to prioritise investment to match what their customers want. Stuart Thomson investigates.

Speed is the killer app. High-speed broadband is now the key competitive battleground between fixed-line service providers. While some operators have adopted a strategy of acquiring exclusive content rights to differentiate their services, for the most part telecom and cable operators alike increasingly see TV as a useful tool to sell bundled offerings rather than their central area of focus. Increasingly, the true competitive differentiator is speed.

Cable operators in particular have managed to build their broadband subscriber bases by outperforming telecom rivals on speed. Broadband revenue-generating unit net additions have offset long-term declines in legacy analogue TV subscriber numbers.

DOCSIS – the CableLabs standard for delivering broadband internet over hybrid fibre-coax cable networks that were originally designed to provide broadcast TV signals, has been the gift that keeps on giving for cable

for the last two decades. Thanks to DOCSIS technology, cable has been able to stay one step ahead of telcos, which have adopted a variety of technologies to squeeze more out of their legacy copper networks but have ultimately reached a point where the only way forward is to dig up the ground and lay fibre.

Nevertheless, the growing prevalence of fibre in some areas means that cable operators can't afford to rest on their laurels.

Over the last couple of years, cable operators



at introducing a distributed architecture, which pushes intelligence in the network closer to the home and limits what needs to be performed at a central location.

Remote PHY

The benefits of a distributed access architecture are in the first instance about saving space and power in centralised headends and hubs. Increasingly, the focus has been on Remote PHY, a technology that separates the QAM modulation and demodulation functions of the CMTS from other headend functions and locates this closer to the edge of the network. This can provide a number of advantages for cable operators.

“The first benefit is a dramatic reduction in space and power in the headends and hubs. Separating the functions of the CCAP core from the Physical layer access network interface [PHY], enables CCAP cores to be used more efficiently, enabling them to support up to four times the number of service groups, thereby dramatically reducing space and power,” says John Holobinko, director of business strategy at Cisco’s cable access business unit.

In addition to saving space and reducing the amount of power required, Holobinko says that a distributed access architecture simplifies network management by enabling cable operators to replace “cumbersome analogue combining networks” in hubs with 10Gigabit Ethernet optics and layer two and three switches. The key technology building block of a distributed architecture, Remote PHY enables operators to digitise the stretch between hub and remote node, eliminating analogue fibre optical networks that are difficult to install and maintain.

Holobinko also says that extending the IP network all the way to the node opens up the possibility of extending intelligence to the node and enabling automation of RF installation and a better remote view of the network, something Cisco has invested in.

Finally, he says, a distributed access network “lays the groundwork for network virtualisation in the future”. Operators, says Holobinko, will be able to take full advantage of this when ‘cloud native’ CCAP becomes a reality (*see sidebar*).

Hanno Narjus, senior vice-president, network products at broadband cable technology specialist Teleste, agrees with Holobinko that IP migration is a key goal and

incentive to look to Remote PHY. He says that as operators are under constant pressure to limit capital expenditure and operating expenditure while reducing churn, a distributed access architecture offers a neat solution, enabling them to stay ahead of the game without tearing up their existing infrastructure.

“The R-PHY-based distributed architecture is a tempting alternative for cable operators eager to take a quantum leap but still needing to run old legacy systems during the transformation. Continuous improvement in network reliability and visibility is critical for cable television industry in competition with other infrastructure providers,” says Narjus. “Digital fibre links offer a clear path to full IP delivery, which is welcomed by many operators who see IP as a catalyst for access network convergence. Many operators have heavily occupied regional headends running out of space and the R-PHY-based architecture enables headend space savings.”

Narjus says that operators face a choice of four different cable architectures – Remote PHY, Remote MACPHY, where both the physical layer and media access controller are located at the node, pushing on with traditional segmentation of the network into smaller service areas, and finally, laying fibre-to-the-home in the ground.

With a distributed architecture, says Narjus, operators have a choice between deploying Ethernet networks in some instances and investing in DOCSIS infrastructure. Remote PHY enables the use of existing HFC plant and therefore enables upgrades without civil works – a major cost saving for service providers. However, he adds, deploying this type of network does require interaction between TV and broadband teams in a way that operators may not be used to.

If a Remote PHY network is used for linear TV, there may be a need for software upgrades with requirements that TV engineers are unaccustomed to, while DOCSIS specialists may not be used to dealing with broadcast capacity management and PSI/SI tables required for set-top boxes.

Immediate savings

For Asaf Matatyau, vice-president, solutions and product management, cable edge business at Harmonic, in addition to bringing many practical benefits to operators, Remote PHY is

have been able to set the realistic goal of delivering Gigabit broadband speeds to the home – a useful benchmark for marketing purposes as much as something that the average consumer will use. These operators have invested in new technologies to deliver high-speed broadband services more efficiently, including high-density Converged Cable Access Platform (CCAP) headend systems and the latest iteration of the DOCSIS standard – DOCSIS 3.1 – as well as, increasingly, looking

highly cost-effective.

“Remote PHY delivers immediate savings, including dramatic opex savings with the RF portion of the CCAP solution moving from headends to the field in Remote PHY nodes,” he says.

“With RF distributed into the field, space, power and cooling savings are substantial. Capex is also reduced, with the opportunity to consolidate equipment in centralised locations or data centres when combined with a virtualised CMTS/CCAP approach. These savings more than justify the shift to Remote PHY, as well as the opportunity to enable virtualisation as part of a cable access solution.”

According to Cisco’s Holobinko, the marginally greater cost of building a remote PHY network is “slightly more than the cost of building a conventional network” but the “initial investment premium is more than offset by operational savings”.

Holobinko in fact contends that it could be more costly not to build a Remote PHY network, pointing out that the trend towards so-called N+o networks, where there are no amplifiers between the node and the home, is not really practical if operators continue to deploy conventional analogue optics and RF combining in the headend.

“In N+o networks there are more than 10

by enabling them to digitise the network from the headend to the node, pushing digital-to-analogue conversion down to the node. This delivers a better signal-to-noise ratio and provides a better performance for subscribers. It gives operators more wavelengths and allows them to simplify the core network.

Liberty Global, Europe’s largest multinational cable network operator, is pursuing Remote PHY as an access architecture for the future and sees many use cases for the technology, according to Seamus Gallagher, vice-president, access network strategy.

According to Gallagher, Remote PHY will help the operator compete even more effectively in the future.

The key advantages, says Gallagher, include the improved signal-to-noise ratio that Remote PHY delivers, with a three-to-six dB improvement both downstream and upstream over existing node split techniques. Remote PHY also delivers the same signal-to-noise improvement when upgrading the optical access network to support 1.2GHz.

The technology also allows operators to deliver a signal-to-noise improvement by replacing analogue DWDM systems. Finally, says Gallagher, it enables operators to limit increases in power consumption, space and air-conditioning in centralised facilities.

“Remote PHY delivers immediate savings, including dramatic opex savings with the RF portion of the CCAP solution moving from headends to the field in Remote PHY nodes.”

Asaf Matatyau, Harmonic



times the nodes as the network it replaces. It is a daunting challenge to implement this number of nodes and service group splits both in the field and the headend, using a conventional cable architecture,” he says.

One European operator that has already rolled out Remote PHY is Denmark’s Stofa, which is working with technology provider Arris on the deployment.

For Cornel Ciocirlan, chief technology officer, EMEA at Arris, upgrading to Remote PHY simply makes sense as operators need to upgrade their networks to be able to offer 1.2GHz for competitive reasons in any case.

In terms of the practical advantages of doing so, he highlights the way it frees up operators

“Combining all of these benefits together will allow Liberty Global to execute infrastructure change quickly that significantly enhances customer stability and reliability while driving more efficient techniques and capital into the access network. Decoupling the hardware and software in traditional CMTS/CCAP which Remote PHY enables allows us to scale our network much more gracefully in the future,” says Gallagher.

Arris’s Ciocirlan says that the extent to which Remote PHY benefits an operator will depend on a number of factors related to the operator’s specific network architecture.

In some cases it is easy to split nodes and create smaller service areas using existing

technology. However, where there is a long distance between the headend and the node, Remote PHY provides an immediate benefit.

The obvious inference is that Remote PHY provides a greater benefit in geographies such as the US than it does in densely populated and cabled Europe. In the case of Stofa, it made sense to move to Remote PHY because the operator wanted to upgrade to DOCSIS 3.1. Where operators feel compelled to deliver an upgrade to deliver higher speeds in a competitive market, they may look ahead and upgrade to Remote PHY at the same time.

While there are “no major commercial imperatives” for Remote PHY, it does deliver advantages such as creating more space in the headend. Instead of upgrading their headend facility to support the growth of their network, operators might look to a distributed access architecture to avoid having to re-house their equipment. A distributed architecture, by enabling digitisation between the headend and the node, also enables the operator to put more wavelengths on existing fibre plant, creating savings.

Ciocirlan points out that investing in Remote PHY means that operators also have to invest in higher-level management platforms that enable them to manage and control the elements of the platform.

“Previously, the CMTS was the last digital part of the network,” he says. “Things are changing with Remote PHY. You are digitising to the node and there are more nodes than CMTSs. You have to manage all these new devices.”

Two-way street

One possible reason for investing in a distributed access architecture is that it is a fundamental building block towards delivering Full Duplex DOCSIS, the forthcoming iteration of the DOCSIS standard that will enable operators to deliver symmetrical bandwidth services at ultra high-speeds.

Is there likely to be demand for this type of service? The main factor that could lead cable operators to seek to deploy symmetrical bandwidth services is competition from fibre networks that are by their very nature symmetrical.

“Cable operators have high interest in delivering symmetrical bandwidth services for consumption and competitive purposes.



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Symmetrical services – over 1 Gbps – enable cable operators to compete against FTTH, where symmetrical services have been a historical differentiator. While the take rate for symmetrical services is lower than other tiers, this tier is priced higher and is a key marketing tool to win and retain subscribers,” says Matatyau.

However, Matatyau believes that operators already have the tools they need to deliver symmetrical services without waiting for Full Duplex DOCSIS. He cites Swedish operator Com Hem, which launched a symmetrical service using DOCSIS 3.1 on a trial basis using this technology in Stockholm.

According to Cisco’s Holobinko, it is possible that cable players facing fibre competition could look to deploy Full Duplex DOCSIS as “a pre-emptive move” to preserve their base under the threat of moves by fibre players in the future to offer 10Gbps symmetrical bandwidth via next-generation PON networks. Cable, the argument goes, can pre-empt this by investing in Full Duplex DOCSIS to protect their existing base, “making the business case more difficult for their competition”.

Cable, says Holobinko, could also use Full Duplex DOCSIS to offer advanced services to business customers as an alternative to deploying fibre or as a way to offer a service immediately ahead of deploying fibre in the future.

Finally, says Holobinko, operators could use Full Duplex DOCSIS to offer cellular backhaul services via their existing HFC infrastructure for 5G networks that require small cells.

Not everyone is convinced. From a European perspective, Teleste’s Narjus sees little demand for symmetrical bandwidth either from consumers or from operators.

“Fully symmetrical bandwidth is not a consumer requirement. Their requirement is the sufficient bandwidth for the services they use. There are almost no services that require fully symmetrical high bandwidth,” he says.

Narjus says that operators believe the network bottleneck is the downstream segment – and that is perhaps even more the case now than it was a few years ago. While he concedes that FTTH competition could lead some operators to look to symmetrical bandwidth, he points out that this is far from a universal situation.

Narjus also believes that “the shift to Full Duplex DOCSIS will not be painless as European networks differ across the regions”. Where there is extensive underground cabling,

Towards the virtual headend

Introducing a distributed access architecture via Remote PHY brings many advantages to cable operators and can enable them to deliver better services. Ultimately, however, a greater benefit could be that it liberates operators from hosting the central headend in a specific physical location, enabling them to scale their operations according to demand. Seamus Gallagher, vice-president, access network strategy at Liberty Global, says that the key benefit of Remote PHY ultimately will be that it opens the way to virtualisation of the cable headend. Currently operators add capacity through managing chassis, line cards, ports and licences and “because this takes so much time, we sometimes do it over 12 months before it is needed to avoid congestion”, he says.

With a combination of a data centre-located virtual CCAP headend and Remote PHY, it will be possible “to physically deploy the Remote PHY in the cabinet in the field and for all other resources to be spun up automatically once the Remote PHY device registers itself on the network for the first time”, says Gallagher.

“This would be a paradigm shift and will allow for just-in-time capacity delivery, meaning zero congestion, better customer experience, lower churn and better capital efficiency,” he says.

Cornel Ciocirlan, chief technology officer, EMEA at Arris, confirms that distributed access architecture is a staging post on the

way to virtualisation of the headend.

“Decoupling RF signals from the core means you can move towards virtualisation of the headend,” he says. While virtualisation of the headend involves technology that “still has to be proven”, he says that this shift will ultimately enable operators to scale their infrastructure in response to demand.

The virtualised headend is clearly something operators have in their sites, but there is still much work to be done to achieve that goal, says Ciocirlan.

Ciocirlan: distributed architecture is a staging post on the way to the virtualised headend.



“There is still significant work to be done compared with rolling out a distributed access infrastructure using our E6000 core for example. The standards have been designed around the traditional CMTS being connected to a Remote PHY. To evolve one step beyond that and virtualise the core introduces some complexity around processing video streams,” he says. “It is a lot easier to move to Remote PHY in the initial deployment. As things move on you could decide to separate the video processing out of that and think about virtualisation as well.”

where networks serve multiple dwelling units and where there is a lack of fibre – all factors common in Europe – making the case for Full Duplex DOCSIS is challenging.

Arris’s Ciocirlan – another technologist with a European perspective – is inclined to agree, arguing that competition from fibre is not yet a major driver in many places and making the point that consumers appreciate topline downstream speed more than symmetrical capability.

“Peer-to-peer traffic is pretty much disappearing and streaming is taking over and that is one factor. Growth in downstream capacity has held steady while demand for upstream capacity growth has fallen in the last year or two,” he says.

With this in mind, operators are increasingly focusing on bandwidth reclamation in the downstream through initiatives such as deploying MPEG-4 set-tops to replace legacy MPEG-2 devices and planning for migration to IPTV, particularly for long-tail content.

For Ciocirlan, the appetite for Full Duplex DOCSIS has mostly come from the US so far, but even here it is not widespread. He points that the technology will “take a year or two before it is mature enough from a network perspective”, with sufficient Remote PHY devices deployed. Operators will also need to invest in Full Duplex DOCSIS cable modems. “It will be two years before it becomes a viable technology – it is not something imminent,” says Ciocirlan.



A Liberty Global engineer at work: network investment remains a key priority.

services combined with a quality network. He says that when operators are planning for the long run, it is important to look at their strategy for migration to fibre and to invest with that in mind.

He says that Remote PHY is “an excellent investment to deliver IP services and it really offers a targeted upgrade to the areas and to the customers who really need the new capacity and service right now”.

Arris’s Ciocirlan points to a wider set of priorities that have to be balanced to ensure that limited resources are deployed to best advantage. Expanding reach is a significant priority for operators, but Ciocirlan also points out that cable operators still have a major advantage over telecom players that are forced to place additional fibre in the ground in order to offer ultra-fat services.

Behind expanding reach, cable operators are therefore also focused on investing in DOCSIS 3.1 to deliver more downstream capacity alongside bandwidth reclamation and expanding the spectrum available to them on their HFC plant. “In the process of addressing these, sometimes a distributed access architecture makes a lot of sense. People will adopt Remote PHY and node splits as they are needed,” he says.

For Liberty Global, expanding the reach of its network has been a priority in recent years. Gallagher says the cable giant is also expanding its range of services to encompass 1Gbps-plus services, starting with a recent launch based on DOCSIS 3.1 in Bochum in Germany, with further launches planned throughout this year across the company’s European footprint.

Gallagher says that Liberty also has plans to develop symmetrical services through a combination of DOCSIS 3.1 in the upstream, spectrum expansion and the development of new technologies involving the use of high capacity, high frequency transmission between 1GHz and 2.5GHz on its coax infrastructure.

“Our challenge is to continue to strike the balance in ensuring we allocate both capital and resource time to be successful on all these fronts supporting traditional footprint extension, product enhancements and innovative solutions to ensure success now and market competitiveness both medium and long term across residential and business segments.” ●

Symmetrical alternatives

Narjus and Ciocirlan’s view is borne out by Liberty’s Gallagher, who says his company’s focus on asymmetric services reflects the “large disparity between downstream consumption and upstream consumption of our customers” – something he quantifies as 10:1 in favour of downstream traffic.

Nevertheless, says Gallagher, symmetrical services may have a larger role to play in Liberty’s fastest growing market segment, B2B. However, even here, he believes that capacity demand will be served in the short term at least by the introduction of DOCSIS 3.1 rather than Full Duplex DOCSIS.

While Liberty is “participating in a number of CableLabs and industry initiatives” around Full Duplex DOCSIS, he adds that the N+0 architecture required for its implementation will only apply to a small proportion of the company’s footprint even by 2023.

For operators that need to provide a symmetrical service now, the alternative is to upgrade the network to deliver 200MHz upstream, which could deliver around 1.5Gbps depending on the state of the network.

For Ciocirlan, upgrading the upstream path to 200MHz would provide more than sufficient bandwidth for any application that exists today. “If a subscriber gets 500-800Mbps upstream they will be getting a significantly better service. There is no app today that requires such a humungous amount of bandwidth either up or down, so it would be more a competitive marketing exercise,” he says.

To make large amounts of upstream bandwidth actually useful would require

growth in popularity of consumption of large amounts of interactive high-resolution content in real-time, perhaps involving facial or gesture recognition, meaning there is little opportunity to compress it.

Teleste’s Narjus agrees that symmetrical high-speed broadband is not a priority for most operators. “For many operators utilising 204 MHz bandwidth per coaxial cable is already a tenfold improvement by comparison to the current situation and enough for years to come,” he says, referring to the alternative way to deliver higher upstream capacity.

For Holobinko, deploying a 200MHz high-split system has two disadvantages. It can only support peak return path bandwidth in the 1Gbps range, not enough to combat the threat posed by fibre operators, and it will cause problems for operators that use bandwidth in the 100MHz range for forward path signals to test and control set-top boxes. Retiring these devices could be costly for some operators.

Current priorities

Holobinko says that operators remain focused on digitisation of their networks, including the deployment of a distributed access solution with Remote PHY, virtualisation – meaning that cloud native applications will replace dedicated hardware – distribution, meaning deploying next-generation HFC access technologies that could include Full Duplex DOCSIS along with smart nodes, and automation of the network, meaning the use of telemetry, analytics and machine learning technologies.

For Narjus, the key priority for new customer acquisition is to deliver 1Gbps-plus

The VR hotlist

The entertainment world is increasingly adapting to the possibilities of virtual reality, experimenting with a format that stretches far beyond the realms of television. Andy McDonald speaks to some of the leading lights in this nascent but quickly evolving market.



Factory 42 collaborated with David Attenborough on *Hold the World*

Factory 42

Factory 42 is an immersive production studio and creative agency co-founded by former Sky executive John Cassy and BAFTA-winning director Dan Smith. Since its launch in 2016 the company has partnered with the likes of Sky, the Royal Academy of Arts and the English National Ballet on projects including *Hold the World* – an interactive audience with David Attenborough set in London's Natural History Museum that shines light on rare specimens from the museum's collection.

At Sky, Cassy oversaw a number of commercial projects, including the pay TV

operator's experiments with 3D television. While the TV industry's flirtation with this technology has since largely fallen by the wayside, Cassy believes that we are "still in the Stone Age of the possibilities for immersive content," with virtual, augmented and mixed reality experiences likely to become more intertwined as time goes on.

"The VR market is maturing and evolving every day. Two years ago there was over-hype – everyone was jumping on the bandwagon," says Cassy. "We always expected there to be a shake out, a flight to quality and some companies really pushing the boundaries on what is possible in terms of interactive storytelling in this medium.... The technology

is moving very quickly and the possibilities of what we'll be able to do in the very near future are incredibly exciting."

Cassy says that Factory 42's focus is on interactive VR and giving people "experiences, encounters and abilities they could never normally have in their real lives". While he is not convinced that mono 360° video will stand the test of time as a storytelling device, he describes stereo 3D 360° as a "much more powerful" format.

In terms of uptake, better hardware – specifically smaller, cheaper and better headsets – will help the traction of the consumer VR market. However, Cassy says that the content side of the business also needs to improve

and more high-quality experiences released – particularly from trusted and well-known brands. While TV companies like Sky and the BBC are currently making bets on VR, Cassidy says a lot of the investments from the television world are “relatively tentative” as broadcasters test audience responses and commercial models. In the longer term he anticipates greater investment.

“Entertainment-focused interactive immersive content will play a significant role in helping the medium move from the niche to the everyday for a mass audience. We expect the creators who marry the best of game development skills with TV and film production skills to emerge as the winners in the entertainment space. Some of the most-used experiences will involve gamification, many will involve a social aspect,” says Cassidy.

“All content makers in VR have to think hard about why a consumer would put on a VR headset, particularly when the worlds of TV and games already contain so many great choices.”

Dreamscape Immersive

Dreamscape Immersive is a location-based VR company with a firm footing in the entertainment world. Founded in January 2017, the company’s leadership team includes: chairman Walter Parkes, an Academy Award winning producer of films including *Men in Black* and *Minority Report*; co-chairman Kevin Wall who has produced some of the world’s

largest live events, including the Live 8 concert series; and CEO Bruce Vaughn, who spent almost 25 years at Walt Disney Imagineering focusing on creativity and innovation at the company’s theme parks.

“It is our belief that the way mass audiences will adopt VR is through location-based VR experiences,” Vaughn tells *Digital TV Europe*. “Location-based VR creates a uniquely social and highly repeatable experience that fosters an immediate sense of collaboration and trust – one that is shared. Users can step into each world and fully immerse themselves.”

Dreamscape offers untethered VR experiences that allow participants to explore and interact within cinematic worlds. Its technology was created by Swiss research institute Artanim as part of its work in the medical industry and Vaughn claims it is unique in how it creates a latency-free shared and social experience. “It’s this combination of group activity, unparalleled immersive tech, and vibrant storytelling that’s defining our approach.”

The company has won backing from major entertainment companies including AMC Entertainment, Nickelodeon, 21st Century Fox, and Warner Bros and closed a US\$30 million Series B round of funding in December. Since then it has hosted a sold-out pop-up at the Westfield Century City Mall in Los Angeles – an experience called Alien Zoo that transported up to six visitors at a time to a virtual space zoo where they were able to interact with endangered interplanetary creatures like ‘frogcats’ and ‘megaraffes’.



Vaughn says the narratively-driven experience was designed to include moments of awe, wonder and fear, culminating in a sense of collaboration and accomplishment. The feedback, he says, was “extremely positive” with Dreamscape now planning to open its first permanent location at the same LA mall later this year.

“While some companies are focused on creating VR centres aimed at early adopters, or ones that cater just to gamers, we’re focusing on an entirely new commercial art form that appeals to mass audiences,” he says. “To take VR to a larger consumer market, we need experiences that take the best of gaming, movies and theme park attractions and allows people to simultaneously be an observer and a participant. Also, the technology is what’s behind the magic; it’s not the magic. We have to focus on narrative and experience, and the tech should almost be invisible.”

For Vaughn, there is enormous public fascination with VR but the technology is “not quite ready for the home”. As he sees it, taking a location-based approach at this stage both broadens the consumer opportunity and taps into an appetite in the market for ‘destination retail’.

“In addition to entertainment experiences, the possibilities of what location-based VR can offer are endless. We see opportunities for location-based VR in categories such as training – medical, design, sports, military – education, empathy, therapy, communications, healing, travel and connecting elderly and immobile people to loved ones and the world.”

Vreal

Vreal is a service that turns virtual reality games into shared experiences, expanding on the gaming broadcast idea popularised by services like Twitch and YouTube Games and applying it to the VR gaming world. “We were inspired by the opportunity to create a better way to consume VR entertainment while you are in VR,” says company founder and CEO Todd Hooper. Vreal allows content creators to share VR titles with an audience watching from their own headsets.

“As a viewer, I’m not tied to the player’s perspective like I am when I’m watching a

Dreamscape’s Alien Zoo VR experience sold out in LA earlier this year.

YouTube video or hanging out in chat with my favourite streamer. I have full agency to move around and experience VR content from any perspective I want, while getting a richer social experience with friends who are in the VR world with me.”

Like many new services in the VR space, Vreal blurs the boundaries of what an entertainment service can offer by combining elements of gaming and social media. “We see Vreal as complementary to video platforms like YouTube, Twitch, and Mixer,” says Hooper. “What we offer is an immersive livestream/social experience for people who have VR headsets. Vreal also gives content creators the ability to make video content for their audiences watching on flat screens, so we absolutely see that as complementary for existing platforms.”

It is still early days for the company, which raised US\$11.7 million (€10.1 million) in Series A funding in February ahead of the launch of its service. The round was led by Axioma Ventures and included new investors Intel Capital and Akatsuki Entertainment Technology Fund. It also resulted in games industry veteran Chet Faliszek and Maker Studios’ former chief audience officer Chris Williams joining the board.

Hooper says the investment will primarily be used to bring Vreal to market, with an early access release on the Steam platform slated for this summer that will support HTC Vive, Oculus Rift, and Windows Mixed Reality headsets. “At first you’ll be able to party up with friends and watch recorded VR content together. Over time we’ll add features

including support for more VR games and livestreaming.”

Asked what conditions are needed for a significant consumer VR market to emerge, Hooper likens the current VR market to the early days of mobile gaming. “People expected the ‘killer app’ for mobile to come from the existing publishers. Instead it arose from newer, smaller companies like SuperCell and King, which nobody anticipated. It’s still very early in VR, and we see great new games and exciting hardware announcements every month. There’s already a passionate community of VR gamers that are looking forward to every new announcement.”

Baobab Studios

Baobab Studios was co-founded in late 2015 by CEO Maureen Fan, the former vice president of games at Zynga, and chief creative officer Eric Darnell, an animated film veteran who directed all four *Madagascar* films and *Antz!* during a long and successful spell at Dreamworks Animation.

Fan tells *Digital TV Europe* that when her engineers at Zynga, famed for its Farmville franchise, hacked a new game into a VR headset for fun she realised “it was the future of animation”. Darnell, she says, “was sold once he put on the mobile headset,” realising that VR provides the opportunity for audiences to form deeper bonds with characters than traditional media. Fan and Darnell joined forces and Baobab Studios was born.

Since then it has developed a handful of acclaimed animated VR experiences, winning its first Emmy for best interactive media for *Invasion!*, which Fan says has become “the top downloaded VR app across the entire VR ecosystem”. Baobab announced *Crow: The Legend* at the Cannes Film Festival earlier this year, an experience inspired by a Native American story that is voiced by talent including John Legend, *Ready Player One*’s Tye Sheridan and Oprah Winfrey. It also recently premiered Jack, Part 1 at the Tribeca Film Festival – an experience that combines immersive theatre with VR technology and animation.

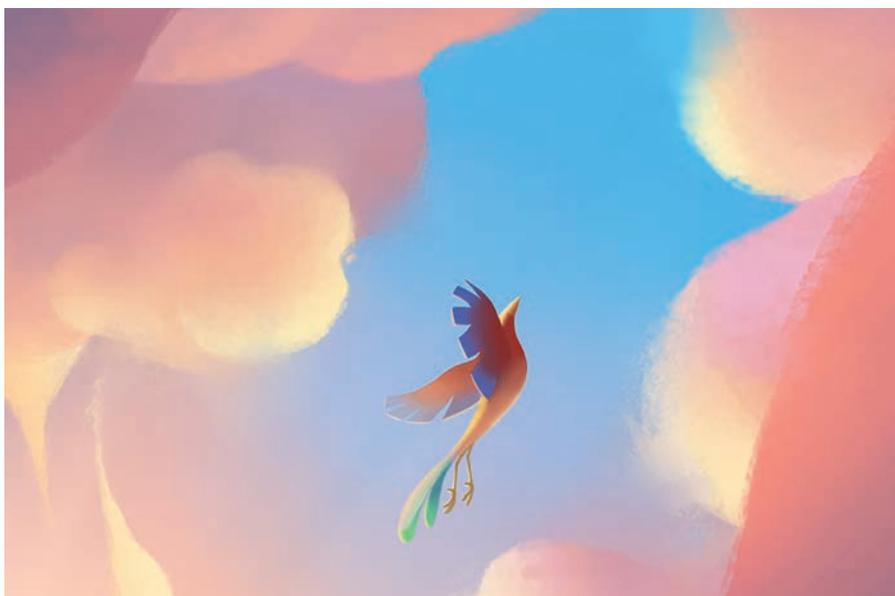
“People oftentimes ask us, ‘Is this storytelling? Is it a game? Is it a film? How do you categorise it?’ I like to say that it’s a completely different medium and we try to create new terms instead of using old ones,” says Fan. “Our creative vision for VR is that you can have the empathy of film, the agency of games, and the motivation of real life.”

VR allows for “bigger-than-life stories”. Viewers care about the characters, as they would in a film, but are also able to engage and respond, as they are in a games engine-driven experience. Unlike a videogame, the focus is not to ‘win’. “We feel this is something that’s unique to VR, and we think it has a huge, profound impact on showing humans what it means to be human.”

While it is difficult to predict a timeline for the mainstream adoption of VR, Fan says that right now the key challenges are low consumer penetration of VR headsets, friction using the hardware and, most importantly, a lack of high quality content. “The number-one thing that needs to happen is the creation of more higher-quality VR content,” she says. “People purchase consoles and platforms because they feel the content is worth it. We need more high-quality content to entice users to purchase headsets and a continuous stream of high quality content to have people continue to come back to VR/AR.”

Fan says that the VR market has changed tremendously since Baobab was founded, but in an unexpected way. She describes a natural tech cycle for new technologies that goes from hype, to disillusionment to enlightenment and admits VR is currently “in the trough of disillusionment”. However, Fan is confident

Baobab Studios’ *Crow: The Legend* debuted at the Cannes Film Festival this year.



that VR will live up to its potential.

"Technology takes much longer than people expect to disrupt. However, when it does, the disruption is much larger than expected," she says. "When we talk to the best venture capitalists, none of them question to this day if VR will become a thing. The question is *when* is it going to arrive and how do you time it correctly?"

"We believe the market for VR animated experiences and interactive VR experiences is going to be strong. The benefit of VR is about taking you to a completely different place, a different world. It's about escaping which is why I think it makes for truly great entertainment."

BBC VR Hub

In December the BBC launched a virtual reality production studio, BBC VR Hub, in a bid to explore the nascent technology. Head of commissioning for VR Hub, Zillah Watson, tells *Digital TV Europe* that the BBC's focus is to create high-quality, high-impact pieces that will interest audiences and give them a first taste of what may follow in this medium.

"The ability for VR to create moving, engaging and memorable experiences – when it's done right – seems unparalleled when compared to other traditional mediums," says Watson. "We feel we have a responsibility, as part of our remit to innovate for future audiences, to explore that potential."

To date, the BBC has produced a number of experimental 'true VR' pieces, like *We Wait*, *The Turning Forest*, and *Home - A VR spacewalk*, as well as 360° video experiences like its recent two-part virtual reality news documentary series *Damming the Nile*. Watson says the BBC is interested in exploring both true VR and 360° video, with both formats able to transport the viewer to another place. While true VR offers more immersion, 360° video is less expensive and quicker to produce, which is beneficial for content such as news.

"As technology evolves there could well be a merging of the two technologies to create hyper-realistic, interactive VR that makes the distinction less clear," says Watson. "Volumetric and light-field video are two examples helping to blur the lines."

While gaming is a natural market for virtual reality, not least because the videogames industry has been developing stunning virtual

worlds for decades, Watson points out that a number of broadcasters and TV companies have also been dipping their toes in the water over recent years. "Many recognise the potential, as well the barriers, and want to learn VR story-craft while giving audiences fantastic experiences."

Experimentation is a good thing, but Watson cautions that a "deluge of low quality experiences" could put people off this new medium and claims there is a careful balance that must be struck. Her advice for anyone looking into the VR space now is to put the audience at the heart of the experience, explore what resonates and give people a good reason to put a headset on.

"For a broadcaster, and especially for the BBC, we're looking at how VR can help us in our core mission to inform, educate and entertain. We've already seen from our projects and experiments so far that it certainly can."

"From putting people in the shoes of a migrant making a perilous journey, to taking people back in time and experiencing major historical events, and even sending people into space, the reaction from audiences has been overwhelmingly positive. We're just scratching the surface of what's possible." ●

The building blocks for an emerging consumer market

The potential of virtual reality is clear, but various building blocks need to fall into place for a significant consumer market to emerge, argues Futuresource market analyst Michael Boreham. One is a reduction in the price of PC-based VR, another is an increase in consumer awareness through rollouts of location-based VR experiences and VR uptake in the workplace and in education. Third is the development of must-have VR applications.

"Gaming and 360° aside, the use-case for VR has yet to become established," says Boreham. "The content community faces a critical challenge in trying to find those killer apps or use-cases that will make VR ubiquitous in the lives of consumers. At this stage there is a lot of experimentation being undertaken in the gaming, broadcast and feature film communities to find the key must-have applications that will push VR to the mainstream."

Boreham claims that the content community is currently caught in a 'chicken and egg' situation when it comes to VR. "Consumer

uptake may well be limited by the lack of killer apps and compelling content," he says. "However the lack of a large installed base of users makes many in the content community nervous to make significant investment in content creation until the installed base of users reaches critical mass for fear of not making good return on their investment."

The release of new all-on-one headsets – like the Oculus Go, Vive Focus and Lenovo Mirage Solo – are likely to help the overall uptake of VR as they are cheap compared to the HTC Vive or Oculus Rift, which also need to be tethered to expensive PC hardware. This new category of VR headsets also has advantages over mobile VR options – they are less likely to overheat, have a better battery life in VR mode and better screens than smartphones placed into Gear VR or Google Daydream headsets.

Parallel to this, work continues to establish the best ways for VR content to be created. Google's developments in light field technology and Microsoft and Intel's work on volumetric

capture are two examples of how VR production techniques are evolving, with Intel opening a state-of-the-art volumetric capture studio in Los Angeles in January, well placed to cater for the major Hollywood studios.

"The content community is engaged in developing new creative and production techniques. When these challenges are overcome, then the industry and consumers will have a greater understanding of the benefits of VR and there will be a clearer road map to app development," says Boreham, who claims VR is unlikely to go the same way as 3D TV because the technology stretches far beyond home entertainment and gaming.

"Entertainment VR should not be perceived as an extension of existing forms of entertainment but a form in its own right. There is a need to shift the perception of the consumers and the industry of what entertainment means beyond traditional formats of cinema and TV and what VR brings to the table, this process will take time."

Smart moves

The battle for the smart home is heating up, as service providers seek to leverage their residential footprint to control Internet of Things devices. Adrian Pennington reports.

With margins on pay TV, landlines and DVRs under pressure from over-the-top providers, multi-service operators are using their broadband connections and established relationship with residential customers as the foundation for a burgeoning smart home business. Diversifying into adjacent digital home markets can augment traditional lines of business as part of a quintuple-play, drive growth in ARPU or increase customer stickiness.

Well-positioned

According to Digital TV Research, pay TV revenues will fall by US\$12 billion (€10 billion) in North America, by US\$566 million in western Europe, and by US\$28 million in eastern Europe by 2022 as revenues are eaten by OTT multiscreen services.

With pay TV revenues declining, traditional service providers with good broadband

networks can take some comfort from the huge growth potential predicted for the smart home. ABI Research forecasts a compound annual growth rate of 24% to US\$39 billion globally for this market between 2015 and 2020. Analyst outfit ADL meanwhile estimates that smart home revenues will grow by 12% a year until 2020 in Europe. There will be 73 million smart homes in the US by 2021 and 80.6 million in Europe, according to Berg Insight, in a market valued at US\$47 billion by 2020,



according to Strategy Analytics.

There's another key statistic to think about. According to GfK Research, 64% of people aged 25 to 34 already own at least one smart home technology. It may be that service providers' best prospect for growing their customer bases could yet come from cord-cutting millennials who often resist traditional residential bundles, marketing promotions and product offers.

Broadband and pay TV service providers are "relatively well positioned" according to Ovum, to deliver smart home services as they already have a footprint in the home in terms of CPE devices such as broadband routers and set-top boxes, have a known brand, typically already have technical support engineers, and an existing billing relationship with the customer. "However, monetising the smart home is not easy," warns Michael Philpott, senior practice leader, consumer and entertainment services at Ovum. "It requires significant investment and typically delivers a long-term return on investment. Capitalising on the smart home opportunity from a revenue perspective therefore won't be for every service provider." The required investment depends on the business model pursued. Futuresource Consulting argues that there are two major options: a 'loose bundling' model requiring less investment and a 'tight bundling' model.

In the case of the former, service providers do not own infrastructure in their customers' homes but have a billing relationship with them, explains market analyst Filipe Oliveira. "This is often the case for mobile phone operators. Entering the smart home requires investment in marketing and in the devices to be bundled. Margins for new devices tend to be above average within consumer electronics and, if the goal is driving ARPU, this can be the right strategy. However, there are limitations in terms of increasing stickiness, as the relationship with the customer is loose and they will need additional incentives or high satisfaction to stay after the contract ends."

In the tight bundling scenario, service providers own CPE infrastructure and benefit from their existing billing capability. "Investment will still be required in marketing and devices, but players might also have to invest in technical support for the new devices and services being bundled," says Oliveira. "Even though this model requires higher investment, the strategy is more likely to prove effective from both an ARPU and customer stickiness perspective as leaving the provider

might mean that one or several smart home devices and services – for example security or lighting – have to be set up again with a new provider."

Smart home players

Operators are arguably in a position to become major smart home players for four main reasons. Connectivity is key since smart home services require high-speed wireless broadband inside the home and ultra-broadband connectivity to the home for the exchange of data. Owning the connectivity enables operators to partner with third party service providers as well as to offer their own services. They have an existing presence inside the home. It's believed customers would rather not add another device from a third party when

gives customers the ability to connect an ever-increasing amount of wireless devices in the home and let you simply and easily manage all of that within your home."

That's provided they subscribe to Comcast's WiFi platform xFi. "Broadband providers are the most logically placed to offer smart home and security solutions... a role that will only increase as homes become more connected," says Simon Trudelle, senior director, product marketing at technology provider Nagra. "However, with this growth comes the potential for greater exposure, and therefore a need to play a larger role in supporting consumers. Service providers can't simply sit by and wait for crises to occur."

Research conducted by Futuresource in the UK, France, Germany and US shows that the main purchase triggers for consumers are convenience and safety. The same research



"Broadband providers are the most logically placed to offer smart home and security solutions."

Simon Trudelle, Nagra

they already have a hub or CPE from their operator. Most customers already trust their pay TV operators with personal information and billing. Finally, customer service teams and technicians are already in place for what should be fast implementation of equipment and services and troubleshooting. However, utilities and security companies also have their eye on the smart home prize. For utilities, climate control is the obvious entry point. For security companies, connected cameras and remote monitoring are the initial proposition. Pay TV providers and telcos on the other hand will tend to offer packages that include multiple services such as security and lighting.

"Subscribers are willing to pay for services that bring security to their homes and make their lives easier and more comfortable," suggests Oliveira. In the US, Comcast has begun extending its smart home offering outward from the Xfinity Home security service it launched back in 2011.

"We're introducing a new advanced wireless gateway that can get you up to 1Gig WiFi speed," says David Watson, president and CEO of Comcast Cable on a recent earnings call. "It

revealed that security companies are the most trusted to provide smart home services and mobile phone providers are the least trusted. Pay TV providers come in the middle of the research outfit's 'trust index'.

"There is work to be done by those providers to persuade consumers that they are the right smart home partners," concludes Oliveira.

For example, a certain proportion of households will be willing to pay for a professional home security service – i.e. one that sends professional security staff or emergency services to your home in case of a break-in – if there is a big enough perceived value in that type of service.

"The issue is that not all consumers are willing to pay for such services, and many smart home applications don't have a big enough value to warrant paying a monthly fee," says Philpott. "Bundling smart home services with pay TV and broadband can reduce the initial subscriber acquisition cost, which can provide the pay TV or broadband service provider with an advantage over other types of player. However, just as with pay TV and broadband bundles, not all consumers want a

bundle so service providers must be careful to get their go-to market strategy right.”

Limited take-up

There are cautionary tales for those who don't judge the market right. Telefónica-owned O2 UK shuttered its smart home offering at the end of last year barely a year after launch following limited take up.

This may speak to a wider difficulty in convincing the UK market of the economic benefits of such devices. In a Deloitte survey of last year, 48% of British consumers owned no smart home solutions. Some 170,000 Deutsche Telekom households in Germany, however, have been able to manage smart home services through their router since May 2017. The operator has added its Magenta SmartHome package to its Speedport Smart router, allowing users to manage a range of connected devices such as an alarm system for doors and windows. It launched the Qivicon smart home platform in 2013, which Magenta SmartHome is built on.

Smart home services also need to be bundled at attractive price points. According to another Futuresource survey, 55% of all consumers who have not adopted smart home technology explain that this is because such devices are “too expensive”. With this in mind, increasing stickiness might be a wiser strategy than driving ARPU, the analyst suggests.

However service providers approach the smart home, whether as providers of independent solutions or part of quintuple-play services, such solutions are likely to remain niche products that only the largest operators with established infrastructures can support, suggests Trudelle. As an alternative for small and mid-sized players, he points to the option of building smart home services on top of the infrastructures that service providers already have in place, and then partnering with third parties to help them establish and grow market share. Kudelski Group, for example, provides HomeScout, a home security solution that scans and monitors devices within a smart home to identify potential weaknesses.

While smart home security is the logical start point for which “at least some consumers are willing to pay a monthly fee”, according to Philpott, “service providers will need to be more innovative to create mass-market propositions.”

Swedish service provider Com Hem is leveraging its fairly unique, culturally specific relationship with 20,000 property owners – private or tenant owner associations – to introduce a Facebook style network for their tenants. Services include messaging that informs building tenants of a meeting, operational instructions for appliances or notifications for when the communal laundry room is free. This lo-fi start, aided by technology from German TV and broadband technology provider ABOX42, could be added to with more sophisticated applications like monitoring for water leaks, potentially saving the property owner some cash.

“We know providing some services for free opens up the market for later add-ons. That's how the TV business has worked for us –we have a collective basic TV tier and we upsell to pay TV,” says Com Hem product director Joel Westin. “We intend to use the same for the smart home. For example, we can add individual alarms or charge a fee for third parties to access the service, such as local fast food restaurant deliveries.”

A service provider might be tempted to create its own ecosystem to keep exclusive ownership of valuable usage data, among

other things. However, the R&D costs involved in building the necessary infrastructure will remain forbidding for most. One factor hindering rollout is the cost of fitting out older homes. Another obstacle is that consumers will not want to interact with a number of different interfaces. This smart home business is also highly competitive and fragmented. Amazon's Alexa and Microsoft's Cortana, along with vendors like Apple, with HomeKit & Siri, and Samsung, with SmartThings, are upping the ante with increasingly popular home hub products.

Google's Assistant, for example, will be installed on devices including Logitech Harmony remote controls, smart lights from ADT, Xiaomi, and IKEA, air conditioners and humidifiers from Hisense and as of last month the Hopper set-top box from US pay TV provider DISH.

This fragmentation could however provide an opportunity for service providers – if they can provide the user experience and single trusted interface – the grail of the gateway to the home. “Consumers will want to interact with one or two interfaces that are easy to use and facilitate interoperability among devices,” says Oliveira. ●

Choosing the right use-case

When it comes to smart home services, Nokia suggests there are four main use-cases for operators to consider. These are: home security services using devices such as door and window sensors to automatically trigger alarms or relay data and video to a monitoring service; the provision of remote and automatic control of a home for things like heating, ventilation, and air conditioning; smart metering for monitoring the energy efficiency of appliances; and digital health services such as remote consultations.

Operators can potentially partner with security companies to provide 24/7 monitoring and home automation. However, such an offering has low revenue potential as customers will expect an entry-level service comparable with the self-install kits they can buy from electronics shops and DIY stores. Nokia advises operators to bundle home automation with another service. The company believes home security has the greatest potential. Digital health will be driven by private healthcare providers and insurance companies but operators can

complement these in-home services with mobile monitoring.

Analyst group ADL segments the market a little differently. It brackets home security with energy and utility management under home automation and sees these services being centralised around a unique user interface. It forecasts a 6% annual growth for these services until 2020. The configuration, maintenance, repair and support services available for digital home devices, such as PCs, TVs, game consoles is another promising segment of the smart home market – one expected to grow at 5% CAGR until 2020. ADL also earmarks the e-health sector as an opportunity for telcos to offer “a unique cost control lever for health stakeholders by dematerialising some healthcare components.” However, since a variety of players including device makers and pharmaceutical companies are entering the market, the value sharing mechanism “is highly dependent on standardisation scenarios”, making the potential for operators uncertain.

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ANGA COM 2018: the preview

ANGA COM takes place this year at the Köln Messe from June 12-14. Digital TV Europe previews some of the technologies that will be on show.

Amino

HALL 7 STAND A51

WHAT'S NEW?

Android TV solutions

WHAT DOES IT DO?

At ANGA COM, Amino will highlight what it describes as its operator-ready Android TV solutions. The company says that its implementation of Android TV has been enhanced for pay TV services with higher levels of customisation. Demonstrations will highlight Amino's dual-mode flexibility to run Android TV or Linux without changing hardware and access to a variety of partner apps, all certified to meet the Operator Tier specifications and requirements. Amino will also highlight Operation Upcycle, its programme to support operators to deploy a common platform that upgrades existing legacy hardware. Amino says that this saves the expense of a swap-out, and delivers the essential components required for a TV transformation, including a TV UX, growth in subscriber base, reduced CAPEX and quicker time to market. Amino will also showcase cable-IP transition capabilities, illustrating how it can help operators migrate their services to IP-based service delivery via its Enable software and Move platform with demos showing implementations. Finally, the company will highlight its Engage suite of service assurance management tools.

CONTACT

www.aminocom.com

Broadpeak

HALL 7 STAND B73



WHAT'S NEW?

Multicast ABR solutions and cloud PVR

WHAT DO THEY DO?

Broadpeak will use ANGA COM to demonstrate its nanoCDN multicast ABR solution, which makes live HTTP video delivery to any device scalable by turning millions of broadband gateways, cable modems, WiFi routers, and set-tops into active components of an operator's content delivery infrastructure. As the first provider of ABR multicast technology, Broadpeak claims to be revolutionising live multiscreen video delivery. The company's solution leverages home networks, allowing operators to manage the consumption peaks of live multiscreen services for millions of simultaneous viewers using a few megabits per second from their network, according to the company. nanoCDN has been deployed by leading operators worldwide for live television delivery to any screen. Several use-cases for nanoCDN will be shown, including ultra-low latency for live video streaming and quick start, which prevents the buffering at the beginning of a live content stream to ensure quality of experience for end users. Broadpeak's Cloud PVR solution

is used by some of the largest pay TV operators globally to deliver time-shifted TV services, according to the company. It allows subscribers to launch multiple recordings on various channels simultaneously without any constraint on the available bandwidth or the number of tuners on the reception device, the company says. With Cloud PVR, service providers can deliver start-over and catch-up TV, as well as impulsive recording, using a shared copy or private copy model. The recorded content can be processed on the fly to be viewed on any device type.

CONTACT

www.broadpeak.tv

DEV Systemtechnik

HALL 8 STAND P8



WHAT'S NEW?

Modulo HFC

WHAT DOES IT DO?

DEV Systemtechnik will use ANGA COM to highlight its latest product developments for transmission and switching of RF signals. Headlining DEV's showcase will be its DOCSIS 3.1-ready Modulo HFC headend platform. Modulo HFC is a modular headend platform for HFC networks. The system can be used for passive signal distribution as well as for active amplification and redundancy

applications in cable headends. Modulo also provides optical transmission to and from fibre nodes operating in the DOCSIS 3.1 frequency spectrum. DEV will also use ANGA COM to show the first 16² L-band Matrix with up to 20 outputs. The 16² Matrix fits into a 2RU chassis and has a high degree of flexibility, according to DEV Systemtechnik. The number of input and output channels can be changed, connectors and impedances can be adjusted at any time. In addition to electrical and optical inputs, the 16 Matrix supports variable gain and tilt settings and can be controlled locally, via the DEV Web Interface or SNMP. DEV Systemtechnik will also use ANGA COM to showcase its RF-over-fibre solution Optribution product, as well as other solutions for the transmission and switching of RF signals. DEV will be exhibiting with Axing AG at ANGA COM.

CONTACT

www.dev-systemtechnik.com

Teleste

HALL 7 STAND G31



WHAT'S NEW?

Remote PHY device

WHAT DOES IT DO?

Teleste will use ANGA COM to launch a new, DOCSIS 3.1 Remote PHY device for distributed access

networks. The device, called DAN300, provides operators with a solution with which to substantially increase their data transmission capacity. According to Teleste, the DAN300, has been designed to provide operators with a smooth way to deploy distributed architecture in their networks. "The Remote PHY technology creates major opportunities for operators who wish to take a quantum leap to networks with substantially higher capacity. To support operators in benefitting from the technology's potential and to perform faster roll-outs, we have create a portfolio of carefully designed Remote PHY products, meeting the requirements of future technology transformation. At ANGA COM 2018 we will be pleased to introduce DAN300, the latest addition to our portfolio, in which high capacity, extensive interoperability with CCAP cores and flexibility towards future needs have been taken into account from scratch," says Olli Leppänen, VP of distributed access business for Teleste. DAN300 is designed and optimised for Remote PHY networks. It converts a 10 gigabit IP connection into 1.2 GHz full spectrum, coax-based data transmission and makes it possible for operators to address consumers' increasing demands for faster broadband connectivity, according to Teleste. The product provides operators with the features needed for the last mile over coax and deep digital fibre implementations and, with its compact design, it can also save space and energy in the installations, according to the company. According to Teleste, the DAN300 Remote PHY device meets CableLabs specifications, ensuring multivendor interoperability; provides support for both DOCSIS 3.1 and DOCSIS 3.0 modems; includes

full duplex-capable RF design: provides an optional RF overlay for forward path capability in order to utilize the full spectrum; supports legacy and out-of-band services and applications; and is compact and energy efficient. To ensure interoperability with CCAP cores, DAN300 is compliant with CableLabs Remote PHY specifications. It can also be upgraded for Full Duplex DOCSIS, which makes it a future-proof investment for operators who are looking for a reliable solution for network transformations, according to Teleste.

CONTACT

www.teleste.com

TiVo

HALL 7 STAND H19

WHAT'S NEW?

Cubi solutions; next-gen platform; personalised content delivery; Entertainment Metadata

WHAT DO THEY DO?

At ANGA COM TiVo will highlight Cubi Solutions, which the company says are designed to help pay TV operators get to market quickly with value-based user experiences. Cubi Solutions offer hybrid entertainment discovery and quick, effective guidance that unify listings for linear TV, VOD and OTT sources, the company says. TiVo's Next-Gen Platform is designed to provide engaging features and services for operators' managed Linux and Android TV set-tops. The Next-Gen Platform enables quick, easy access to content, and will simplify operators' transition to IPTV, according to TiVo. At ANGA COM, TiVo will also highlight Personalised Content Discovery. The company says that its platform powers personalised search, recommendations, conversation and deep insights

into viewer behavior for robust content discovery optimisation. TiVo Entertainment Metadata is designed to help operators engage their customers with deep, descriptive information coupled with high-resolution celebrity and athlete images designed to make their experiences immersive and visually appealing, or to enable them to tap into TiVo's scalable matching and enrichment services to improve operational efficiency.

CONTACT

www.tivo.com

WISI



HALL 8 STAND R11

WHAT'S NEW

Headend solutions for content providers and operators

WHAT DO THEY DO?

At ANGA COM WISI will showcase optimised headend solutions for content providers and operators of next generation networks. This includes the debut the Inca ABR Transcoder 3840 along with new features for Tangram and Chameleon. The new Inca ABR Transcoder 3840 is optimised for multiscreen & OTT applications and can transcode up to 24 HD or 48 SD channels to multi-bitrate profiles. Thanks to its high density, a large number of TV channels can be processed in a single rack unit for OTT delivery, according to WISI. In addition, the company says it has improved the flexibility and security of investment significantly for the operator. The high density is maintained even when source codecs, bit-rates or formats are changed by the content owner, which helps operators plan OTT projects with confidence - e.g. from MPEG-2 to MPEG-4, from

1080i with 30fps to 720p with 60fps or from SPTS to MPTS, according to WISI. Finally, the ABR Transcoder 3840 features low energy consumption and low operational costs, the company says. WISI has integrated its multi-headend platform, Chameleon into the globally-deployed All Seeing Eye (ASE) monitoring and troubleshooting tool. This multi-view monitoring platform features a visual mosaic of video thumbnails and gives operators greater visibility and reliability within their network, according to WISI. The faster detection and troubleshooting of errors in the transmitting of TV channels and streams allows to the operator to reduce outages significantly and increase customer satisfaction while also lowering operational costs. Additionally, WISI says it has optimized the encoding capabilities of Chameleon. Thanks to higher density, the costs for encryption per TV channel have decreased significantly, according to the company, something that is important for network operators and content providers supplying TV channels and video streams to the hospitality industry that need to protect and encode content, according to the company. Chameleon now supports the new standard for broadcasting via satellite (DVB-S2X) and offers additional features such as traffic shaping and real-time transport stream monitoring. WISI has also integrated support for the visual monitoring platform, All Seeing Eye into its high-density platform Tangram. Tangram operators now profit from more efficient channel encoding options provided by new software licenses for Pro:Idiom and Samsung Lynk, according to WISI. Finally, Tangram now supports the satellite broadcasting standard DVB-S2x.

CONTACT

www.wisi.de

Already facing a challenge from Comcast in the shape of its competitive bid for Sky, which in turn could complicate the Disney agreement, the Murdochs now must weigh up the threat of a direct bid for Fox.



Comcast saddles up for Fox hunt

Comcast's rise of subscription video-on-demand and the decline of advertising-based broadcasting is a well-established – and sometimes hotly contested – trend in the media distribution world.

Comcast's recent statement that it is in "advanced stages of preparing" an all-cash offer for the 21st Century Fox assets the latter has promised to Disney presents a fresh headache for the Murdoch clan. Already facing a challenge from Comcast in the shape of its competitive bid for Sky, which in turn could complicate the Disney agreement, the Murdochs now must weigh up the threat of a direct bid for Fox.

When Comcast made a reported US\$64 billion move on Fox last year, Fox's board rejected this in favour of Disney's lower-priced offer on the grounds that it could struggle to secure the approval of US regulators. AT&T's attempt to acquire Time Warner, the subject of a legal battle between the telecom giant and the US Department of Justice, served as a warning.

The timing of Comcast's latest statement is crucial in this respect. It comes ahead of a confluence of decisions within a few days of each other in mid-June that will likely play a significant role in determining the outcome.

First up is a judgment on the US government's case against AT&T. A favourable outcome for the telecom operators would make a Comcast bid for Fox much more likely – and more likely to secure the approval of Fox's shareholders.

Second, UK culture, media and sport secretary Matt Hancock is scheduled to take a final decision on Fox's bid to acquire the shares in Sky that it does not already own.

Third, the European Commission must make a decision on whether Comcast's rival bid for Sky can go ahead.

Comcast's decision to make its intentions known now makes it less likely that Fox shareholders will approve Disney's acquisition be-

fore the outcome of the AT&T case is known. Those shareholders have every reason to wait as, at the very least, a Comcast bid could force the price up.

In addition to the hurdle of securing regulatory clearance, it has been pointed out that Comcast's proposal for an all-cash bid would play to the disadvantage of the Murdochs because it could lead to a big capital gains tax bill.

However, while the Murdochs hold 40% of Fox's voting stock, the Disney bid will only give them a vote in line with the number of shares they own, giving other shareholders more power to accept or reject it. How attractive Comcast's offer will be to Fox's other shareholders will depend on whether it is big enough to offset any tax disadvantages to them and on how attractive they find the prospect of hard cash over the variable value of shares.

Beyond the Game of Thrones aspects of the overlapping battles for Fox and Sky, what does all of this say about the future of Comcast in particular and the media and pay TV business in general?

For Comcast, the strategic benefits of acquiring Fox's assets are that it would give the company a much bigger international play in both content and distribution – in the shape of Hulu, Sky and Star India – and would give it much more scale in content in general, marrying NBCUniversal with Fox's sports networks as well as the National Geographic and FX cable networks.

Both the content and distribution pieces are attractive, at least in theory.

In content, scale is increasingly seen as crucial for success in a world where the perception is that internet players as Facebook, Amazon, Apple, Netflix and Google (the so-called FAANG group, or FANG, depending on your view of the ultimate likely impact of Apple's stalled moves into content) are making most of the running. Consolidation among more established media players has been gathering

pace. In the case of Comcast, taking control of Fox's assets will give it access to a much-enlarged library of content as well as an expanded portfolio of network brands at home and abroad.

In distribution, a deal would join Comcast's 30% stake in Hulu to Fox's 30% stake, giving Comcast effective control of an OTT direct-to-consumer play in the US – and also in Japan – to help offset the long-term decline in its domestic pay TV base. Regulatory restrictions preventing Comcast exercising control of Hulu that were imposed at the time of its acquisition of NBCUniversal, which previously held the stake, are set to expire later this year. On the other hand, victory for Disney, which also has a 30% stake, would give it effective control of Hulu, so the stakes are quite high.

Internationally, Comcast could gain control of Sky either through its separate bid for the operator or through a combination of that and a successful bid for Fox's assets. On the other hand, if Fox acquires Sky first, Comcast could potentially acquire Sky later along with the other Fox assets that were previously promised to Disney. A successful bid for Fox's assets would also give it 100% control of Star India.

Acquisition of these companies would give Comcast an international pay TV operation with growing revenues and profitability at a time when its own pay TV operation in the US is facing unprecedented challenges.

Strategically, acquiring Fox's assets makes a lot of sense for Comcast. Whether it makes sense to the number crunchers is another matter, particularly in view of the likely debt load that will be required to finance the deal.

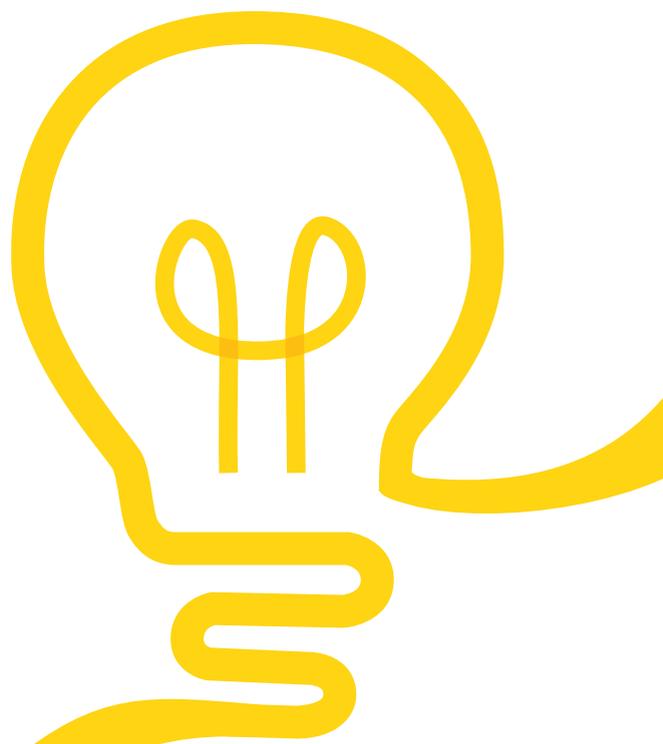
The many moving parts – from overlapping bids to regulatory hurdles – mean that the only thing that can be said with certainty about Comcast's bid is that it creates a huge amount of uncertainty. Actually, there is one other certainty – which is that it will be interesting to watch how it all plays out. ●



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Technology in focus

Infrastructure equipment and product news for digital media distribution

In Brief

MTS taps Huawei

Russian service provider MTS has teamed up with Chinese technology giant Huawei to deploy a single multimedia platform for TV services. MTS has partnered with Huawei to create what it describes as a unified multimedia platform to develop its TV products further across all distribution channels, including mobile, cable, satellite TV and IPTV. The service provider said that the transition to a new platform would accelerate the introduction of innovative new products and their integration with other products offered by the operator and its partners. MTS has committed to invest RUB2.5 billion (€35 million) in the project.

Kaltura acquires Rapt

TV technology outfit Kaltura has acquired interactive personalised video startup Rapt Media for an undisclosed amount. The acquisition follows a partnership agreement struck between the pair last year. Rapt Media customers include Mercedes, EMC Dell, Alight Solutions and eBay. The company, which was founded in 2011 and raised US\$12 million in funding, offers interactive video technology for a range of use-cases, including leading viewers through a video experience that is personalised to their choice and can be tailored for marketing or educational purposes, enabling personalised learning for students.

Sky News uses machine-learning at Royal Wedding

Sky News teamed up with AWS Elemental to use new cloud-based machine learning technology to enhance its coverage of the UK royal wedding between Prince Harry and Meghan Markle, which was held in Windsor in May.

Sky News used machine learning and media services to name guests as they entered St. George's Chapel, Windsor, and enrich the video content with facts about the attendees.

Sky News collaborated with Amazon Web Services (AWS) and two AWS technology partners, GrayMeta and UI Centric. As guests made their way into the chapel, AWS captured live video and sent it to cloud-based AWS Elemental Media Services for multiscreen viewing optimisation.

An on-demand video asset, including catch-up functionality, was also generated. In parallel, Sky combined the GrayMeta data analysis platform with the Amazon Rekognition video and image analysis



service for real-time identification of guests and tagging with related information.

Sky News used the Amazon CloudFront content delivery network to unify the content for distribution to viewers. UI Centric designed and developed the front-end application and video player to enhance the experience and user interface accessed by Sky News viewers.

The image recognition technology could have a wide range of applications including in sports, according to AWS Elemental chief marketing officer Keith Wymbms.

Wymbms said the technology could have a wide range of applications to enhance digital coverage of

events, including sports.

"While we can't speak for Sky News or their plans, it's easy to see how technology like this can be used to enrich almost any type of live video content.

Sports, news, and entertainment content can all be enhanced by machine learning-enabled video workflows," said Wymbms.

"As one example, imagine a cycling race. It takes a long time to watch, and not every viewer is going to be satisfied with a five-hour long, linear presentation of the race.

"What if users could also access certain aspects of the event that are most interesting to them? That may be big climbs, or crashes, but it could also be things like the moment their favourite racer caught a breakaway, or fell off the back of the peloton."

Wymbms said that social sharing of this enhanced content could add "yet another layer of user interaction".

ORS taps Insys for SimpliTV OTT service

Austrian public broadcaster ORS has tapped Insys Video Technologies to provide the platform for an enhanced version of its SimpliTV OTT TV service.

ORS will use the InsysPLAY platform to provide simpliTV viewers with an enhanced user experience and expanded selection of content across a broader range of consumer devices, according to Insys.

SimpliTV previously offered its customers basic live streaming of

eight channels, which were available on iOS and Android devices. The new InsysPLAY-powered service will enable them to watch over 40 live channels from multiple providers on platforms from tablets and mobile phones to TVs and web browsers with features including catch-up TV, nPVR, pause/resume across multiple devices, and content recommendations.

Insys supplied an OTT platform including back-end and front-end

application software, server hardware, Dell EMC storage systems and eight instances of the AWS Elemental Delta video delivery platform. The service includes a new floating video player, which integrates with EPG functionality to deliver a viewing experience while browsing programming.

API integration between InsysPLAY and AWS Elemental Delta enables ORS to offer services like catch-up and nPVR recording.

BBC predicts internet broadcasting evolution

The BBC's technology chief has predicted we are not far from a time when all media is delivered over the web and called on the UK industry to come together as we move into this IP era.

Speaking at the DTG Summit in London in May, the BBC's chief technology and product officer, Matthew Postgate, said that the BBC's current 11-year charter period will be "one of transition" and said that change is already underway.

While the BBC will continue to cater for both people who watch and listen to traditional linear channels and those who use the web as their premium consumption method, Postgate said that the question is "not when, but how we will make the transition to being an internet broadcaster".

**Postgate:
Question of
when not
how BBC will
become a web
broadcaster.**



"We believe that the days when all media is distributed over the internet are not too far away and there are many reasons why we are optimistic about this next phase of our industry," said Postgate.

"The impact of on-demand is already apparent. That is only the beginning. TV is going to evolve into something more immersive, more pervasive, more interactive and more personalised. We already see the beginning of this shift."

"For the BBC the question about our IP future becomes not just when, but also how. Not only about how quickly we can get there, but how best and under what conditions."

The BBC's technology chief said that for the web to be an effective distribution network it needs to not only be robust, but also universally available to everyone in the country without exception.

Postgate said that fixed and wireless networks would currently struggle with the live output the BBC's broadcast networks deliver every day - especially on a week-end of big events like the Royal Wedding and the FA Cup Final.

However, he predicted the problem of data caps and buffering will disappear over time.

Hotstar sets concurrent user streaming record

Indian streaming video service Hotstar has set a new world record for online streaming, with 8.26 million concurrent viewers, according to the company's CDN provider Akamai.

On May 22 Hotstar streamed the first qualifier match of this season's Vivo Indian Premier league cricket between Sunrisers Hyderabad and Chennai Super Kings, with 8.26 million peak concurrent viewers tuning in simultaneously. Over four hours, more than 26 million viewers tuned into Hotstar to watch the match.

According to Akamai, the previous record is believed to have been established by YouTube when Felix Baumgartner's space jump in 2012 saw a peak of just over eight million concurrent viewers tuning in to watch the event.

Last year recorded a peak concurrency of 4.8 million simultaneous viewers during the India-Paki-



stan ICC Champions' Trophy final cricket match, the highest in the APAC at that time.

The opening week of Vivo IPL 2018 broke this record with 5.5 million concurrency recorded on April 10 followed by a peak of 7.1 million on April 25.

The Vivo IPL 2018 tournament, now in its final week, ends this Sunday. This is the fifth year that Hotstar has streamed the tournament. The current edition of the tournament has included features such as Watch'NPlay, a skill-based game that tests cricket fans' knowledge as they watch, virtual reality and feeds available in eight languages.

Ajit Mohan, CEO, Hotstar said: "Four years ago, when we started

streaming IPL, eight million viewers would have been a big deal for the whole tournament. Crossing eight million simultaneous users is a testimony to the power of Vivo IPL and evidence of the abiding passion of cricket fans. It is not just about the scale, however. It is about reinventing the sports experience online and constantly raising the bar. Our objective is to create the future of social TV. And we are proud that the tech that we are building is expanding the frontiers of online video."

Parimal Pandya, vice president, media, APJ, Akamai Technologies, said: "Over the past year and a half, Hotstar has broken several online viewing records at the regional level. A contributing factor was technology from Akamai playing a role in bringing down the latency drastically so users can enjoy the live action almost as well as people watching it on their television."

In Brief

SES broadcasts 8K

Satellite operator SES broadcast an 8K television signal via its satellite system for the first time during its annual SES Industry Days event in Luxembourg. The demonstration featured an 8K signal transmitted via a single 36 MHz transponder on the Astra 3B satellite. SES said that the demo relied on the DVB-S2X standard, which enables greater efficiency, with the video encoded in HEVC and transmitted at a rate of 80 Mbps - four times higher than for a 4K signal.

Peace TV taps Vision247

Hybrid TV technology platform provider Vision247 has launched applications for smart phones and a desktop interface for Peace TV Network, an international Islamic TV channel broadcasting in multiple languages and featuring Islamic orators and scholars. The service supports live TV, video-on-demand, catch-up TV in English, Urdu, Bangla and Chinese, an EPG and VOD metadata enabling community-generated ratings and recommendations.

Swisscom taps Ateme for virtual headend project

Swisscom has tapped TV technology provider Ateme to provide its Titan virtual encoding platform for its MediaCloud project. Swisscom's MediaCloud project is designed to create an IPTV virtualised video headend system based on video transcoding to manage numerous TV input formats. Ateme said that its virtualised and containerised transcoder enables Swisscom to enhance its MediaCloud project with virtualised, cloud-based technology, delivering lower operating costs.

In Brief

Turner using Accenture

Turner is using the Accenture Video Solution platform to help manage and operate some of its online video services - including Filmstruck in the UK and Cartoon Network TV Everywhere (TVE) in Asia Pacific. The Accenture Video Solution is a cloud-based, open platform that integrates digital video management, distribution and monetisation. It is scalable and adaptable, letting Turner integrate components from the platform along with proprietary and third-party solutions.

Oregon launches SparQ

Digital TV software and services company Oregon has launched the latest version of its advanced set-top box client middleware solution, SparQ, aimed at legacy Linux set-top boxes and Android TV. Oregon said that the open standards-based offering resolves the differences between the current security and performance requirements of modern-day TV services and the hardware capabilities of STBs that were deployed up to a decade ago. SparQ is designed to let operators offer multiple over-the-top services with varied content security requirements, while allowing for remote device management, analytics and quality of service monitoring.

TiVo deal with Fnac Darty

TiVo has agreed a multi-year licence deal covering the consumer electronics brands of the Fnac Darty Group. The multi-region European intellectual property license enables Fnac Darty to deploy patented TiVo innovations in its own branded set-top box (STB) and TV products.

Sky to build new innovation centre in London

UK-based pay TV operator Sky is to build a new dedicated innovation centre on its Osterley campus in West London. The new space will house technology engineers and software developers focusing on innovation across Sky's broadcast and streaming platforms, consumer products and new areas such as virtual reality.

The innovation centre will cover about 6,500 square metres in area. According to the pay TV outfit, it will further strengthen Sky's tech expertise, adding to its existing sites in Leeds and Milan. With three dedicated technology hubs, the group says it will be in a stronger position to extend its leadership in delivering customers a high-quality viewing and user experience. As part of Sky's commitment to attracting and developing more women in technology

roles and to address the shortage of female talent in the industry, the new centre will become the home of new Get into Tech for Young Women scheme.

Based on the success of Sky's Get into Tech course, which the company claims has already helped over 100 women train to be coders, the new programme will provide girls of school leaving age the chance to train for free as a coder, with further opportunities at the Sky Software Academy when they have completed the course. The re-development of Sky's campus has included the construction of five new buildings designed to promote the free flow of people and ideas, enabling talent to collaborate and deliver the best outcomes for customers.

"Sky customers have always enjoyed cutting edge technology



and the best products available - from satellite to streaming Sky has led the way. The launch of this dedicated innovation centre will enable us to push the boundaries even further," said Sky CEO Jeremy Darroch. "The development of the west London campus reflects Sky's journey over the past 29 years. Just as we have moved from porta-cabins to a world-class working environment we have also grown from a satellite business to Europe's leading direct to consumer media company with content, consumer technology and innovation at its core."

Canal+ to use Apple TV 4K as its set-top box

Canal+ has struck a partnership with Apple to enable its subscribers to rent the Apple TV 4K box for €6 a month and use it as their primary TV box to receive the pay TV operator's services.

In a move described by Canal+ CEO Maxime Saada as a "philosophical revolution" in its distribution strategy, Canal+ will offer the Apple TV box, described by Saada as "the best decoder on the market", instead of providing its own IPTV box.

Canal+ subscribers who use Apple TV will have access to content in 4K and HDR, the Apple App Store, Apple Music, Siri and other features.

Canal+ is also offering an enhanced sports offering with Multi-Live functionality - meaning that several live streams can be viewed simultaneously on the same screen, and Mode Expert, provid-



ing an overlay of live statistics.

Canal+ has already made its MyCanal app available via the Apple TV box. However, the commercial alliance goes a step beyond that by offering Apple TV as a decoder for Canal+ subscribers.

The move is targeted primarily at younger consumers who are willing and able to change their existing TV box for Apple TV, and for those who subscribe to Canal+'s OTT TV service.

Canal+ will continue to provide a dedicated satellite box for those taking its DTH offering - currently about two in five of its overall base in metropolitan France - and Canal+ will continue to be avail-

able via the IPTV boxes of Orange, Free and Bouygues, with which Canal+ has distribution agreements.

The pay TV outfit recently launched a new version of its satellite box. The 4K Ultra HD-capable G9 was launched in January, providing satellite and OTT services to multiple devices.

Canal+ subscriptions via Apple TV will begin from €19.99. However, Apple will likely be hoping that users of the box are more likely than the average consumer to subscribe to additional higher-tier services. Canal+ has not divulged the terms of its agreement with Apple, including how much it is investing in acquiring Apple TV devices to rent to its customers.

"We are proud to offer Apple TV 4K and our unique selection of programming to our millions of subscribers in France.

Netgem's UK SoundBox HD-Amazon Prime offer

TV technology outfit Netgem has launched an all-in-one smart soundbar and TV box in the UK market in partnership with Amazon.

Netgem has struck a deal with Amazon to offer its SoundBox HD direct to consumers via the Amazon website along with a year's subscription to Amazon Prime for a price of £249.

Netgem has also developed an Alexa video skill, which the company said is "working well" on the existing version of the box and can be used by owners of the Echo Dot device.

Netgem plans to integrate Alexa directly into the SoundBox, meaning that an Echo Dot will not be needed to make it work, a feature that will be released in a month or so, according to Emma Alazard, head of communications



at Netgem, speaking to *DTVE* at the recent TV Connect event in London.

Alazard said there was "clear demand for a high-quality soundbar to complement the new range of thinner TVs" that lack high-end speakers.

As well as Freeview TV, the device includes access to an on-demand kids hub featuring services such as Hopster, a music hub and SVOD services such as Hayu from NBCUniversal.

Alazard said that selling the box direct to consumers via Amazon would be followed up by further direct-to-consumer distribution agreements and by deals with service providers.

Alazard said that the service provider target market for the device would typically be utility companies and smaller broadband providers that want to deploy a ready-to-go service quickly.

Alazard said that Netgem's main aim with these devices was to attract small to medium sized service providers, competing with the likes of Roku and other streaming devices.

Beyond the UK, Netgem also plans to launch the device in France and Germany, and possibly in other markets, said Alazard.

Microsoft: web standards 're-imagining TV'

New web media standards constitute an inflection point that will allow the broadcast industry to "reimagine television," according to Microsoft media platform architect, John Simmons.

Speaking at the recent DTG Summit in London, Simmons said that the industry is seeing a comparable inflection point to the internet in 1993 when HTTP, HTML and the Mosaic browser created a new web experience.

Simmons drew a parallel between 1993 and 2018 when the emerge of the Common Media Application Format (CMAF), Dynamic Adaptive Streaming over HTTP (DASH), HTML media extensions and progressive web apps are creating a mobility of web media experience. "What had happened was Tim Berners-Lee had not just invented HTML and HTTP, he had reimaged the internet," said

Simmons. "The same thing is happening here with media. The same standards are creating a mobility of web media experience, so we're in a position where we need to re-imagine media consumption or re-imagine television."

Discussing this re-imagined media consumption, Simmons described three tiers of commercial web media: tier one is bandwidth-constrained linear content from cable, satellite or telco providers; tier two is direct-to-consumer offerings such as Netflix; and tier three is long-tail or niche content that he argued is being made practical by global internet standards for commercial media.

"I'm talking about every sports franchise having their own channel," said Simmons, describing his 'tier-three' of content. "I'm talking about every magazine you see in the magazine stand potentially



becoming a channel."

"This is what is made possible by that standardisation, where it takes away the friction that would prevent say all the work that Netflix had to do to get on every device that you have in the home. Once you have these standards, getting a channel distributed broadly becomes a relatively easy thing, opening up this third tier."

"All of these changes in the internet, all of these web standards, constitute an inflection point and an opportunity for you in the broadcast world to reimagine TV."

In Brief

T-2 taps Amino for 4K

Slovenian service provider T-2 has tapped UK-based outfit Amino to provide technology to support the operator's launch of the country's first 4K UHD TV service. Amino said it is deploying technology that will underpin a major service upgrade, which will expand T-2's service to include 4K UHD content and value-added Video on Demand and Subscription VOD services.

Edge stake in Airbeam

Creative industries investment outfit Edge Investments has invested in a "significant" minority stake in OTT TV distribution platform provider Airbeam. Airbeam's software-as-a-service platform is designed to enable content owners to publish and make money from video content delivered direct to consumers across multiple devices.

Starz Play deal with Intigral

Starz Play has agreed a three-year deal with Intigral, a provider of IP video products and billing services in the MENA region. The agreement will make Starz Play's content library available through Intigral's Jawwy TV box and application, allowing subscribers to access 10,000 hours of on-demand content across devices.

Euskaltel Netflix button

Spanish cable operator Euskaltel has introduced direct access via a dedicated remote control button to Netflix on its 4K set-top boxes across its own Basque Country network and for subscribers to Galicia network R. The operators said that the functionality would be extended to Telecable.

On the move



Modern Times Group chief strategy officer **Gabriel Catrina** (pictured) is set to become chief financial officer

of Nordic Entertainment Group as MTG prepares to divide its business in two. Catrina will combine the group CFO role with his previously announced position as EVP, chief strategy officer and head of M&A for Nordic Entertainment Group, effective July 1. Meanwhile **Peter Nørrelund**, who is currently executive vice-president and CEO of MTG Sport, will become EVP, head of product development and incubation from July 1. He also becomes co-CEO of MTG's eSports business DreamHack with immediate effect, working alongside current president and CEO **Marcus Lindmark**. MTG's current head of legal - M&A and corporate legal affairs, **Johan Levinsson**, will become MTG Group general counsel from July 1.

Chip Canter, formerly general manager of Verizon's Go90 video service, has joined OTT technology outfit Massive Interactive. Canter, who left Verizon in 2017, has joined as global chief revenue officer.

Media intelligence firm Kantar Media has appointed the CEO of its Millward Brown UK research agency, **Louise Ainsworth**, as CEO of its EMEA business. Ainsworth will take up her new role on June 25 and will sit on the Kantar Media executive committee, reporting to CEO and chairman Andy Brown.

Dutch telco KPN has named **Wouter Stammeijer** as executive vice-president of strategy. Stammeijer, who is currently head

of investor relations for KPN, replaces **Jan Wildeboer**. He takes his post on June 1. Stammeijer worked in the telecom sector team for ING Wholesale Banking before joining KPN in 2010. **Reinout Van Ierschoot**, currently senior investor relations officer, will take over day-to-day management of the investor relations team.

TV industry veteran **Vernon Sanders** has been drafted in as co-head of television at Amazon Studios. Working alongside Albert Cheng, he will oversee creative and production units for Amazon Prime Video. While at NBC, Sanders worked on hit series including *30 Rock*, *The Office*, *Friday Night Lights*, *This is Us*, *The Blacklist* and the recent revival of *Will and Grace*. He left NBC last year and signed a production deal with Universal TV.



Vodafone CEO **Vittorio Colao** is to step down in October after 10 years in charge. Colao will be replaced by group chief financial officer **Nick Read** on October 1. Prior to this, at the company's annual general meeting on July 27, Read will become group chief executive-designate and deputy CFO **Margherita Della Valle** will take over as group chief financial officer and will join the board.

Iliad Telecom/Free has named Thomas Reynaud as its new CEO, replacing **Maxime Lombardini**, who is stepping aside to take over as president of the group's administrative board - in effect, chairman. Lombardini replaces **Cyril Poidatz**, who becomes secretary-general.

Reynaud's appointment has been accompanied by a revamp of the management team. **Nicolas Jaeger**, previously treasurer and head of investor relations, has been named as director of finance, while **Camille Perrin** has been appointed as director of marketing. Other appointments include **Shahzad Sharvan** as deputy secretary general, and **Aude Mercier** as director of human resources.

Danish telco TDC's CEO **Pernille Erenbjerg** (pictured) is to leave after a transition period, with



Mike Parton named as temporary chairman. Parton is currently chairman of Tele2, where he led the merger of the Swedish mobile group with cable operator Com Hem. Parton is also chairman of UK transmission outfit Arqiva, which is 25% owned by TDC's new owner Macquarie Group.

OTT TV technology outfit Pikel named former EBU director of technology and innovation



Simon Fell to its board. Fell led the team spearheading developments in media technologies and innovation at the EBU. Previously he served as CTO at Heathrow Airport and worked on the launch of Freeview HD in the UK. He has also served as director of future technologies at UK commercial broadcaster ITV, has chaired the Technical Council at the UK's Digital Television Group, and was chairman of the HD Forum.

Sports media outfit Perform Group, which operates the DAZN sports OTT TV service, has named former ESPN president **John Skipper** as executive chairman. Skipper, based in New York, will oversee all of Perform Group's operations and strategy and report to the Board. **Simon Denyer**, Perform Group's founder, will continue as CEO based in London.

OTT distribution platform Airbeam has named former Ericsson exec **Thorsten Sauer** as executive chairman. Sauer was previously president of Ericsson Broadcast and Media Services, now known as Red Bee Media.



German cable operator Tele Columbus is making a series of changes to its senior executive team. Chief marketing officer **Tobias Schmidt** is leaving the company on June 15. All marketing and sales activities for residential business will now be combined and merged under the newly created role of chief commercial officer. Tele Columbus has named **Stefan Riedel** as CCO. Riedel, who took up his new post on June 1, comes from Switzerland's second-largest online ticket sales outfit Starticket, where he has been CEO since 2016. Tele Columbus has also named **Roland Schleicher** as chief operating officer, effective as of July 1. The former McKinsey consultant will oversee the expansion of operational functions and digital transformation. ●

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“The content arms race – driven by the FAANGs’ deep pockets and big ambitions – has changed the way the legacy media companies are doing business.”

FAANGs bite in Europe

The rise of Netflix as a global and premium drama content commissioner has been a huge wake-up call to the television business. This proverbial flea in the fabric of the TV ecosystem continues to rock a lot of business models as broadcasters, producers and platforms have all scrambled to figure out how to deal with this new, deep-pocketed beast.

Netflix is still making waves – its latest coup is signing up the Obamas to produce films and series for the streaming platform – but other big tech platforms are also gaining traction as they dive into the video business. Ominously known by the collective moniker of FAANG (Facebook, Amazon, Apple, Netflix and Google) these players are continuing to shake-up the business, from writing big cheques for original commissions to signing exclusive talent deals with showrunners and writers, to getting into live programming, including sports. Indeed, everything seems to be in their collective cross hairs.

The content arms race – driven by the FAANGs’ deep pockets and big ambitions – has changed the way the legacy media companies are doing business, both driving big M&A events as they try to scale up as well as causing a re-think in how to leverage talent relationships, do co-productions and create new bundling strategies. A big part of the current fight back by broadcasters, content producers and pay TV operators is around video-on-demand, box sets and direct-to-consumer offers. Creating competing on-demand and streaming services and working on a better understanding of what customers want has become a mantra. How to re-align and re-imagine content offerings and services in a landscape where there is so much choice for

consumers is no mean feat, especially when the announcements keep coming.

Google announced this month that YouTube will re-brand its premium video subscription service to YouTube Premium and will send it to Europe, with planned launches in a number of European countries, including Denmark, Finland, France, Germany, Ireland, Italy, Norway, Russia, Spain, Sweden and the UK. However, even before YouTube Premium’s announcement, it has been very clear that Europe is a key target territory for the FAANGs.

Against this backdrop, the latest European broadcaster to increase its focus on VOD is RTL, whose new CEO Bert Habets is concentrating on a hybrid digital approach that combines free, advertising-financed services with a premium pay product across a number of its territories. Some are calling RTL’s approach a ‘German Hulu’. RTL launched a new free channel in Germany based on acquired US content. Called Now US, it will be exclusively available to the VOD platform before broadcast and then for 30 days after the linear broadcast as well. RTL is also working on better collaboration on how to scale up its digital businesses.

This comes at a time when Amazon and Netflix are both doing strong business in Germany. In 2017, Amazon’s VoD service outpaced all others in the market including Netflix, according to research by Enders Analysis. It estimated Amazon’s subscriber count to be 3.7 million and Netflix’s to be 2.7 million in the country, with both services still growing.

Maxdome, ProSiebenSat1’s OTT service, is limping along in terms of monthly views, well behind the top four VOD competitors – Amazon, Netflix, ARD and RTL. One expla-

nation for this may be that ProSiebenSat1 has too many VOD platforms; it operates four, including an advertising VOD service with Discovery. Meanwhile, Sky Ticket, the German equivalent of Now TV in the UK, has been through a repositioning but is still not a heavily marketed service.

Netflix’s strategy is particularly successful as it benefits from distribution partnerships such as the ones it has with Deutsche Telekom and Vodafone. Amazon has just done a bundling deal with BT in the UK and is soon likely to find some German partners too.

On-demand viewing, both ad-supported and subscription VOD, is now an expectation among viewers who have bought into the idea of binge watching ever since Netflix broke the linear viewing mould. But, while no European TV expert expects linear TV viewing to go away any time soon, the VOD battleground is still in the testing phase about how best to find and keep viewers’ attention.

It’s ironic that the regulators are partly to blame for the current situation. Both in Germany (in 2011) and in the UK (in 2009), plans for an online joint venture among traditional broadcasters were stopped because of a fear that it would threaten competition in the broadcasting marketplace. Now, the whole idea of partnerships among PSBs and non-FAANGs has returned with a vengeance.

No battle is lost until the final blow is struck, but the FAANGs have the upper hand and it will take major efforts across Europe to carve out a viable VOD business that works both for broadcasters and their audiences. ●

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