BROADTHINKING 2021
EVENT SUMMARY

23-24 March 2021

Presentations and videos:
https://tech.ebu.ch/events/broadthinking2021

Disclaimer: This report is intended as a quick overview of the event. Before quoting any of the speakers we recommend that you refer to the original presentation and check with the speakers themselves.

1. PLATFORM TRENDS – MARKET PERSPECTIVE

BR(O)ADTHINKING
AN EBU EVENT

Welcome to BroadThinking 2021

Antonio Arcidiacono (EBU)

Last year's BroadThinking was the first EBU event to move online because of the pandemic. We've learned in this past year that only by joining forces can we fight against adverse events: to overcome difficulties and jointly prepare for new growth. We had to find short-term solutions but at the same time have a medium-to-long-term vision to build our future.

Throughout the pandemic, people have turned to public media for information and entertainment. We have been successful and must learn from the lessons. Through a crisis you can overcome resistance to innovation – with our News Pilot, for example, which saw an acceleration in terms of innovation and has delivered an advantage for all the EBU Members that are participating in that project.

We need realistic and concrete targets and positive thinking – the ideas and the energy of people working together so that we can all grow together

Introduction by Chair of EBU Strategic Programme on Platforms

Anssi Komulainen (Yle)

The EBU SP on Platforms focuses on projects that target delivering the best possible experience to end users. There are five groups currently active: Connected Cars, HbbTV & DVB-I, Modular Content & Segmentation, EuroVOX (transcription and translation), and PEACH (personalization and recommendation).

All EBU Members are strongly encouraged to get involved. The approach is bottom-up: anyone with an idea can bring it to the group – as soon as there are three Members interested in the same topic they can create a working group to work on products or projects.

Connected TV Gateways: UK market dynamics and the challenge for PSBs

Mathew Horsman, Luke Boyd (Mediatique)

Presented a detailed analysis of the content distribution value chain. Content remains the primary driver of value and is where margins are the highest. But the value of the OS segment will progress as the value of prominence increases. Mediatique predicts that OS consolidation will accelerate – those still producing their own OS (e.g. Samsung, LG) will eventually concede to bigger players such as Amazon or Google and incorporate their OS into the hardware.

For PSM, the relationship with an OS provider is very uneven because of the asymmetry between the global players and local PSMs. The complex value chain introduces multiple barriers to how viewers access content: navigation, prominence, search. Who owns and has access to the user data is also critical.

The mantra for PSM: have control (of data, access, prominence, brand attribution, etc.); or if that's not possible, then at least get compensation.

OTT platform trends within and outside of the EBU Membership

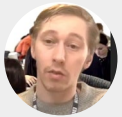
Léa Besson (EBU Media Intelligence Service)

Consumption of linear TV channels has dropped since Q1 2017 and now represents 41% of viewing time. The big winner out of this change is SVOD, where viewing time has doubled in the same period. Among 18-24s this trend is even more visible. There are big disparities between countries, e.g. 30% for SVOD in Sweden compared with 15% in France.

PSM's main asset remains their free on-demand platforms. They have managed to remain among the top three in 13 out of 18 territories studied. It's also significant that Netflix has launched a linear online channel in France, raising the question of whether SVOD can continue to expand without some kind of live or linear content.

The average monthly streaming traffic across EBU Members is 12.9 PB and 94% are using one or more CDNs. 63% support both HLS and DASH for adaptive bit-rate streaming.

2. TOWARDS FINDABILITY

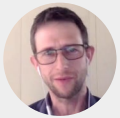
Object-based media: improving the digital currency of linear output

Miles Bernie, Ben Nuttall (BBC News Labs)

BBC News Labs has been working on ways to improve the digital value of BBC's broadcast linear output, building on BBC R&D's work on object-based media. The idea is to take the rich metadata typically found in a programme running order and use that to reanimate the digital output. Based on successful early tests they're about to test a new approach on four BBC radio shows.

There are three steps: 1) chapterizing the content, by overlaying the running order on the audio; 2) find ways to use individual chapters in other contexts on other platforms; 3) enable semi-automated curation of shows personalized for each audience member. This last part builds on work done by Swedish Radio and involves describing each chapter with 12 pieces of metadata (length, public service value, lifespan, etc.); then templates can be filled to create an automated bulletin.

The MOS Protocol is used for working with the running orders – EBU Members are invited to contact News Labs if interested in collaborating.



Recommendation for live streams using PEACH and EuroVOX

Sébastien Noir (EBU)

The worlds of linear content and on-demand content are still quite separate, with few contact points between them. New work from EBU T&I aims to bridge the divide by generating real-time content recommendations based on live news streams.

The system uses tools from PEACH and EuroVOX, along with content from the EBU News Pilot, now used by 15 Members and with 200k articles in the system, and ingesting 1,000 articles per day. In practice a stream processor takes a live HLS stream and extracts audio chunks to push to EuroVOX in streaming mode; words come back and are formed into complete sentences that are then processed; once there is enough content, recommendations can be created by PEACH. It tries to find things that are similar – then the clients can access and display the recommendations, e.g. Mobile apps, HbbTV, etc.

Members interested in bringing this into production are invited to get in touch.

3. CONNECTED CAR PLATFORMS

Strategic overview and car platform expectations

Roger Lanctot (Strategy Analytics)

Infotainment systems in cars are big business for automakers: they make a lot of money selling those systems and increasingly they're going to be connected. As of 2020, 50% of new cars worldwide came with embedded connectivity.

Google wants a piece of that action, while broadcasters have common cause with automakers. There are an increasing number of solutions to enable hybrid solutions that integrate broadcast radio into the Android car OS. Google seems to be "making peace" with broadcast radio. Radioline is a key option here, partnering with Panasonic.

Audioburst is another important emerging player, targeting the vehicle as a voice-driven search platform, enabling a non-linear experience. Podcast search, topical playlists, geo-located traffic alerts, etc. Adding the contextual aspect is a key differentiator.

Detail from the latest Strategy Analytics in-vehicle listening research is available in the slide deck.

Hybrid radio – the broadcaster's perspective

David Layer (NAB)

Hybrid radio is about receivers that combine over-the-air broadcast radio and broadband services. There are advantages for broadcasters, but it also increases competition. This makes it even more important for broadcasters to ensure they compare favourably.

Broadcasters need to expand what they consider content. It's not just audio – it's metadata, images, non-linear content. RadioDNS provides a standard way of providing standard metadata and NAB strongly encourages its members to set up their RadioDNS service information file. The Xperi AutoStage platform is also an important metadata provider.

Receiver manufacturers need to make sure they use broadcaster metadata if available. Tests in an Audi A4 showed that if the "online additional data" option (enabling Gracenote) is selected, broadcaster metadata was likely to be replaced with generic or incorrect logos and text.

4. INTERACTIVE SERVICES WITH HBBTV AND DVB-I

HbbTV state of the art, with a focus on the German market

Klaus Merkel (IRT)

HbbTV provides the only standardized browser profiles for use on TVs, and is the only platform offering a lot of cross-linking between linear broadcast and web services, leveraging the red button. In addition to the core spec, several extensions have been published, e.g. Operator Apps and Targeted Advertising.

In Germany, HbbTV is by far the largest smart TV app present in connected devices. All the big broadcasters have their own video portals, while from time-to-time additional livestreams are offered using HbbTV and DVB-DASH, particularly for big sporting events. ARTE and ZDF have begun providing UHD/HDR content via HbbTV. Several accessibility features are deployed, including overlaid signing and alternative audio tracks on connected devices synced with the broadcast. Commercial operators offer services like shopping channels or games. Targeted Advertising is deployed both with “switch-in”, where the main programme is surrounded by a banner, and also replacing broadcast adverts with those delivered over broadband.

Zattoo’s implementation of HbbTV on AndroidTV

Franziska Kleemann (Zattoo)

Zattoo operates Europe’s largest TV platform for more than 30 TV services, for which one of the supported platforms is the Android TV for Operator tier. The Google-certified product has all the advantages of the ATV operating system, while the TV experience runs within the custom launcher, an intermediate layer between the OS and the TV experience.

HbbTV is one of the features available in Zattoo’s custom launcher. While connected devices can already offer the various media library apps, there are advantages to having HbbTV. Users can access the media libraries and other services via just one click; and it’s a smoother experience as the user doesn’t need to install and launch a separate app. Live-content-related messages and features can also be offered.

For the user there’s no visible difference between a broadcast-delivered HbbTV app and the one delivered by Zattoo in an IPTV context. Currently supported features include VOD libraries and parental control.

What DVB-I can add to HbbTV

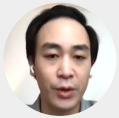
Mika Kanerva (Sofia Digital)

For digital TV, broadcast delivery began with DVB, while HbbTV added the possibility to present OTT content over the broadcast delivery. DVB-I addresses the internet delivery of linear TV. DVB-I doesn’t compete with HbbTV – they complement each other. “If HbbTV OpApp aimed to harmonize the user interface then DVB-I aims to harmonize the metadata.” It doesn’t define any user interface.

DVB-I aims to make linear TV services available over the internet connection regardless of the device. The reference application developed by Sofia Digital for the DVB Project was created both in HbbTV OpApp and in Android.

They built a PoC in Malaysia with MYTV, using their tools to take existing broadcast headend metadata and make the DVB-I service list and TV guide. They successfully fed that to the reference client and saw all the services there. In Germany, rbb has provided a service list, also including radio services, adding channel logos and preview pictures. This runs without a problem in a Panasonic OpApp-compatible TV.

5. PLATFORM ESSENTIALS



Programme-Specific Content Protection and Multi-DRM Workflow Considerations

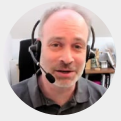
Stefan Pham (Fraunhofer FOKUS)

The DRM industry is converging towards ‘cbcs’ as a common encryption mode for both DASH and HLS. Support of cbcs is very widespread across different device classes in 2021. On the DRM side, all devices are covered with at least one of the three DRM providers (Microsoft Playready, Google Widevine and Apple Fairplay), but security levels may differ among devices.

DRM signalling via manifests and segments enables key rotation and programme-specific rotation. Manifest protection is the preferred option.

Content providers today therefore don’t need to package streams twice and store them twice: they can package once and encrypt once with cbcs, and then produce different HLS and DASH manifests that reference the same CMAF segments.

Clear Key is not a real DRM system but provides certain baseline security. It should never be used together with real DRM systems.



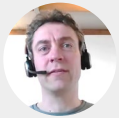
Designing an Accessible Media Player at the BBC

Tom Anderson, Nigel Megitt (BBC)

The AVKX team ensures users have a good experience when interacting with audio and video content, working horizontally across the full organization. Currently working on the user experience of the SMP, the BBC standard media player. A media player can be made accessible via ergonomics, giving feedback to the user, the correct differentiation between hover, focus and interaction states, introduction of keyboard shortcuts, full-screen reader accessibility, and the approach to subtitles.

Web playback is generally optimized for desktop and mobile users are pushed to download an app. BBC wants to cater to all users, even where they don’t have an app installed. The new player flexes and is optimized for different sizes and contexts.

One of the most important features of building an accessible media player is the approach to subtitles. Work on a subtitle safe-zone framework is helping here, for example keeping subtitles visible when a UI is showing.



Web Technologies that Need to be on the Agenda of Broadcasters

Francois Daoust (W3C)

W3C urgently needs input from the TV community to assist the development of standards for media on the web. TV tends to have a “media-first” philosophy, whereas the web community thinks app-first; the final needs are aligned but the starting points are different.

What could media on the web look like in the future? The web platform could possibly deprecate the ‘video’ tag, MSE and WebVTT captions entirely. Instead, a typical media app could use WebTransport and demux the tracks itself; it would process using WebGPU, and render in Canvas; TTML captions would be parsed in parallel. In this possible future, the web platform could lose support of the notion of videos. There may be all sorts of impacts here for broadcasters so they must get involved as this work is undertaken.

Sustainability for Infrastructures, Software and Online services

Kemal Görgülü (Arte)

NPT (nouveau plateforme technique) is Arte’s next big infrastructure project, renewing infrastructure but doing so according to principles of ‘sustainability by design’ and Green IT. The technical specification document includes a big chapter on Green IT, which means they are explicitly discussing sustainability with integrators from the very start. Goals include increasing the efficiency of data centres, improving cooling and reducing energy consumption. They also focus on energy and materials consumption in productions.

Another project aimed to measure energy consumption for software used in online platforms, working with Marmelab’s Argos tool to measure the complete digital footprint. They found energy consumption was primarily on the device and the network, and almost not at all on the server. They’re now aiming to integrate this information into the CI (continuous integration) environment to measure and reduce the impact of future changes.

6. KEYNOTE

Introduction by Chair of EBU Strategic Programme on Distribution

Roland Beutler (SWR)

The work of the SP on Distribution is guided by a set of PSM requirements for distribution, developed across several EBU groups. These requirements concern topics such as reach, free access for users, having contact with users without intermediaries, prominence of services, access to user data without gatekeeping, control over distribution, etc.

The SP has been engaging in the standardization of 5G in 3GPP, to inject the requirements of European broadcasters into the process. The initial focus was on distribution, how to get linear TV on smartphones and tablets free-to-air, and subsequently engaging on production and contribution issues.

Two working groups: MTS (mobile technologies and standards) and 5GCP (content production). A group on broadband distribution architectures and models will be formed shortly. Upcoming workshops will focus on CDNs and Network Slicing.

Salto: how TV and SVOD can be reconciled

Danielle Attias (Salto)

Salto is a new SVOD platform owned by France TV, M6 and TF1, launched in October 2020. The shareholders saw an opportunity in the SVOD space in France, with the aim of becoming one of the “Big 5” in France, alongside Netflix, Amazon, Disney and YouTube (taking the role that broadcaster-built Hulu plays in the USA). The company focuses on content acquisition and marketing; the technology is externalized to Bedrock, a joint venture between RTL and M6.

Two big differentiators: firstly, putting TV and streaming in one place, enriching TV with long preview windows and full availability of previous seasons, and offering a much wider range of genres than typical SVOD platforms. Secondly, they take a very “French” approach with a stronger focus on local fiction, partnerships with French brands and a tone that resonates with French audiences.

Early results show that 60% of the audience is under 35 with average viewing time of 2 hours per day. Cost is from €6.99 per month a single user.

7.THE STATE OF PLAY IN PSM ONLINE SERVICES

RTVE Play: rebuilding our video service

Ignacio Gómez Hernández (RTVE)

RTVE will relaunch its online player in the coming weeks, rebranding from A La Carta to RTVE Play and transitioning from a previous focus on delayed consumption and catch-up towards a more content-focused model.

It's built on two main pillars. The first is VOD content, producing new originals, and not just for younger audiences. Broadcast-related elements are deliberately hidden, although they will still be present with channel pages and EPGs, but the main focus will be on the programmes themselves. The second element is live streaming, to create a centralized hub for all the live-streamed content produced by RTVE.

It's more than a UI/UX project, with many technical enhancements too: SSO, enhanced search, new backend solutions, a new layout editor, geoblocking tools, etc. Also, the addition of personalization features based on RTVE's own Big Data project.

RTÉ's OTT strategy

Richard Waghorn (RTÉ)

RTÉ has interests in a diverse mix of six streaming services. The RTÉ Player is the main service, with AVOD content and live streaming. Overcame some early performance issues to see a significant improvement. Much more comprehensive programming than on linear, with original content and box sets. Usage grew by 37% in 2020.

Radio is streamed on two services: the RTÉ Radio Player with all linear and on-demand audio content; and the Irish Radioplayer, joint venture with the commercial sector, offering 50+ stations. Excellent international reach. Growth of 80%, but still 94% of all minutes are on FM.

Saorview Connect is the hybrid platform, with an STB featuring DTT and satellite tuners, 7-day EPG, recommendations, plus streaming services including the RTÉ Player. And finally, two sports platforms with the same business model and backend: GAA GO for Gaelic Games (launched in 2014, targeting overseas audiences, iOS, Android and Roku apps), and the web-only WATCH LOI for League of Ireland soccer (just launched in 2020).

ARD's distribution strategy to strengthen their position in the German market

Tanja Hüther (ARD)

ARD has a daily reach of 80% in the German market, including all distribution channels. But they are still convinced that digital transformation needs to be accelerated. The turning point in 2018 was when the chairs of the ARD broadcasters chose to reduce to five online platforms: video, audio, news, kids and sports, along with the ARD/ZDF funk brand for youth and the ARD Plus commercial channel on third-party platforms.

There is a need to preserve or even expand diversity on content, whereas on the product and infrastructure levels consolidation is needed: if it's not big enough, it won't be able to compete. Content fuels the system, triggering usage which in turn strengthens the infrastructure. If too much content is put on Facebook, we end up strengthening *their* infrastructure. We *do* need such platforms, but we should use them in a smarter way, to help create awareness and strength for our own brands.

NPO Start, public service and more

Marc Poppenk (NPO)

NPO chose to add a subscription service alongside its NPO Start platform. They had observed that there was an increased interest in delayed viewing; that catch-up and DVD windows had merged; that foreign VOD providers were entering the market and buying content; and that pay-TV operators were building their own VOD services. As it would be more difficult for NPO to acquire content rights for longer than 1-2 weeks, they needed to be able to fund the purchase of longer windows. Hence the launch of NPO Plus. In 3.5 years the platform reached 450k users, ahead of target.

The distribution strategy for both Start and Plus is that it's the same app on the smartphone or the TV and on the website: NPO Plus is an extended version of Start. The goal is to improve findability on smart TVs. There are standalone websites and apps, NPO Plus is available on the NLZIET joint platform with the commercial broadcasters, and it's also present in the walled gardens of pay-TV operators.

7. PANEL DISCUSSION

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Tanja Hüther (ARD):

It's crucial for our future that we manage to add scale to our technology, to our platforms, because otherwise we don't have a good chance of survival in that environment.

Turning to social media or third-party platforms to decrease distribution costs would mean selling the whole idea of PSM. If we do that, if we distribute on YouTube because it's cheaper and easier, then there won't be any PSM in ten years' time.

Richard Waghorn (RTÉ):

It makes sense to find a way of developing common architectures across the EBU so we don't need to reinvent the wheel each time. But a player is not just a player – it has a multitude of different connections to a variety of systems, and each Member has a different mix of such systems, so it's very complex.

RTÉ has managed its distribution costs down by peering with the ISPs and telcos in Ireland. They have a set of arrangements with CDN providers that come online when they are needed, such as for live sports events.

Ignacio Gómez Hernández (RTVE):

We have agreements with Netflix, Amazon, Disney…selling our content. It's a source of revenue, but they are black boxes – we lose a say in how the content is displayed or discovered and we get no data back.

In terms of distribution costs, our capex and opex budgets have been growing, but not exponentially. There have been efficiencies in CDNs, so we're delivering more video at a cheaper price. It's not unmanageable yet.

Danielle Attias (Salto):

We have to push forward as broadcasters to have direct access to the consumer. The global platforms work with the manufacturers to have global deals for the best conditions on the TV sets, dedicated buttons on the remote, etc. As broadcasters we don't have the money to do that. It's really a battle that's in front of us. By working together with the Salto offer we're stronger. I want to see many Saltos emerge in Europe. You have greater negotiating power when you are together.

The main cost to take into account is the SVOD rights – we don't own them. The programmes that broadcasters invest in only have linear and catch-up rights. So we have to re-buy the rights for SVOD.

Marc Poppenk (NPO):

The danger with the peering approach is that you could end up in a two-sided market, with consumers paying for internet access and the ISPs also asking for payment from the content providers.

The fact that people need to pay "a second time" for public service media platforms is not a concern. It's not paying again; there are three types of content: self-produced, independent, and ready-made/acquired. NPO's own content is all in the free service. There are two reasons why PSM may ask for payment: to purchase extended contracts and to pay additional (distribution) costs.

(The comments on this slide are not direct quotes.)

8. WHY IS 5G RELEVANT FOR MEDIA?

Unlocking 5G's potential for the media industry

Jordi Gimenez (5G-MAG)

The 5G Media Action Group is a cross-industry group to analyse and support media production, contribution and distribution use cases for 5G technology, trying to influence and shape the technology for the benefit of these applications. It's still unclear how 5G can help to reach audiences at scale, to contain distribution costs, to ensure universal coverage, cope with large traffic volumes, and retain control and trust in the distribution network.

The almost complete LTE-based 5G Terrestrial Broadcast standard can meet the requirements of media to distribute linear TV and radio to any device with a 5G-compliant chipset, without subscriptions, SIM cards, etc. 5G-MAG is examining deployment, availability of devices, etc.

Also working on 5G and mobile broadband, for both linear and on-demand content. Examining some of the forthcoming features such as mixed-mode multicast/broadcast and media streaming architecture. Can 5G be a toolbox for the distribution of media content, offering different standards-based techniques and functions?

5G Media Streaming architecture explained

Thorsten Lohmar (Ericsson)

5G Media Streaming (5GMS) architecture is an evolution of the classical packet-switched streaming architecture, but with new DASH-like concepts. It is focused on different collaboration models to enable more than just the OTT bit-pipe role. The architecture supports uplink and downlink streaming. The latter becomes more relevant in the context of media production. Content providers don't just want to hand over their content, so the operator could host CDN-like functionality, with ingest APIs to upload VOD or live content.

While 3GPP Rel 16 focused on unicast, Rel 17 will include multicast/broadcast. It looks into two areas: one is to use MBMS service layer functionality; the other is a more modern architecture using multicast ABR (MABR).

Work is starting up now on content production, where the key focus is more on B2B collaboration between operators and media producers. Network slicing and NPN (non-public network) support become relevant.

9. OPTIMIZE YOUR CONTENT DELIVERY NETWORKS

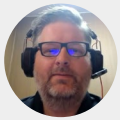

Low Latency and HESP in multi-CDN

Wilfried Dudink (Eurovision Flow), Bart Snoeks (THEO)

Eurovision Flow is a multi-CDN solution that monitors the performance of the connected CDNs in real time and switches between them. It ensures clients can use the best CDN at any given moment in any given territory or context. However, using low latency streaming is tricky in a multi-CDN environment. It has chosen to use HESP (High Efficiency Streaming Protocol) for this.

Comparing the various streaming protocols, there are some impressive latency performances available, but the zapping time is typically not very good. HESP is a new protocol that achieves ultra-low latency and ultra-low zapping time. It uses a minimal manifest with low frequency updates. It starts from two complementary streams: an initialization stream that only delivers i-frames and can thus be loaded immediately, and a continuation stream for playback only. The zapping time is 300–400msec while the latency from glass-to-glass is around 1 second.

The HESP Alliance was created by Theo Player and Synamedia to create a standard and encourage adoption.




Open caching and other caching best practices for video

Jason Thibeault (SVA), Eric Klein (Disney Streaming Services)

Open caching is a standards framework for ISPs or CDNs to improve and implement caching logic throughout a network. The aim is to build an architecture that works, is consistent and is normalized across every implementation across the world. The huge benefit is that, even where multiple different CDNs are in use by a content provider, all caches are interconnected and interoperable.

It works with an upstream and downstream CDN. The upstream CDN is the distribution endpoint, the location at which the users are going to interact. The downstream is where the content is sourced from. The upstream CDN includes a request router that routes the user to the appropriate upstream cache.

Open caching was just an idea two years ago when lab tests showed strong results. Market deployment has since shown a 30% improvement across all different metrics just by implementing the technology, performance that has driven big interest in the work. There is an open caching working group in the Streaming Video Alliance, developing specifications and guidance.

Integration of Satellite Systems in Content Distribution Networks

Jean-Pierre Choffray (SES)

Satellite remains ideal for content distribution: a single satellite can cover Europe at once and a single transponder can broadcast ten typical HD channels in H.264. Translated into key metrics, for the 19.2E position there will be 120 active transponders providing 895 TV channels, which equates to 132K households served per channel. An added benefit is that there's also zero CO_2 in orbit.

Today satellite still uses MPEG Transport Stream, but there is now a move towards IP from end to end. This will allow the support of all devices and all reception contexts through the same signal. Typical use cases that can benefit include: direct-to-home (DTH) using multicast over satellite; serving 5G edge servers, again using multicast; and hotspots for airplanes or on ships. And MEO satellites can be used where lower latency is critical.

The goal is to form a global converged network that is capable of carrying content in IP everywhere. Today video and data are considered differently, but in future they will be considered the same.

10. PUSHING THE QUALITY BOUNDARY

Optimised distribution chain for UHD delivery

Thierry Fautier (Harmonic)

The aim in France is to have widespread UHD delivery in time for the 2024 Paris Olympics. There are different definitions of UHD, but the holy grail is 4K HDR 2160p, P50/60 with BT.2100 colour space. Considering unified reception using a DVB-I hybrid receiver, a consumer could seamlessly switch between broadcast and OTT channels. So, if there's no capacity on the DTT channel, why not use the OTT channel and let the receiver decide whether the quality needs to be reduced depending on conditions.

Full UHD delivery over OTT is possible and will become more viable in the long term. Analysis shows that using public CDNs is the most expensive option. Use of private decentralized CDNs is 100 times cheaper and also compares well to the cost of national DTT carriage. Open caching enables decentralized CDNs. MABR could be an interesting option but requires true collaboration between broadcasters and ISPs.

Audio and video codec developments for online distribution

Jason Power (Dolby)

With video codecs, new technologies have arrived ten years apart for the last few generations, but now several new codecs are arriving in the market at one time. There are many drivers for improvements: broadly the need for higher efficiency to improve today's businesses by reducing distribution costs, and to enable new business opportunities. They will accelerate things that are technically possibly but have been slower to roll out than expected, e.g 8K or HFR, as well as enabling more immersive or personalized experiences. The other key overall trend is the need to reach a greater diversity of devices, including TV sets for broadcast and broadband, plus all other connected devices.

The five codecs that have most recently arrived are AV1 (from the online world), AVS3 (from China), MPEG-I VVC (highest performance claims), MPEG5 EVC (backers from the mobile world), and MPEG5 LCEVC (a codec 'enhancer' rather than an actual codec). DVB has almost completed defining commercial requirements for new video codecs and work on the technical specs is about to start.

Next Generation Audio codecs have already been specified in DVB's toolbox, enabling greater immersion, accessibility and personalization.

DVB-I: the new spec for broadcasters' online services

Peter Lanigan (TPV)

While IP services typically use dedicated apps, broadcast services are presented in a single user interface with the most popular channels given prominence. There's a single integrated channel list, easy ways to reach a service and find what's available. DVB-I aims to enable all of these things for IP services.

It can be used both as an alternative to DVB-T/S/C and also in combination with existing broadcast networks. The core specification is for Service Discovery and Programme Metadata, but DVB-I also builds on DVB-DASH for content delivery, DVB's audio and video codecs toolbox and the new multicast ABR solution, DVB-MABR.

Use cases might include: a green field broadcaster delivering all services over IP; extending a broadcast platform with extra channels that will be integrated in the EPG or alternative versions of existing channels; or to reach additional users. The reference application makes it easy for broadcasters to start experimenting.

SEE YOU IN 2022!

Presentations and videos:
https://tech.ebu.ch/events/broadthinking2021

Disclaimer: This report is intended as a quick overview of the event. Before quoting any of the speakers we recommend that you refer to the original presentation and check with the speakers themselves.