A Reflection after IBC 2013

Author: Prayerna Raina | Published: 13 Nov 2013

**IBC 2013 in Summary**

The IBC show held in September provided, as it always does, a comprehensive demonstration of salient trends in the Digital Media industry. Across product segments, the common factors were support for multiscreen services through advanced user interfaces that provide a seamless multiscreen experience, new compression formats such as High Efficiency Video Coding (HEVC) for better efficiency in the delivery of content, and higher display resolution such as Ultra High Definition (UHD) for a more immersive video consumption experience.

Of all these trends, the most dominant one in Frost & Sullivan's view is the secure and efficient delivery of UHD multiscreen services anytime, anywhere. This insight takes a look at how the various demos and announcements at IBC support or capitalize on this trend. The insight also looks at key technology trends that are pivotal to all types of video delivery services. These technology trends include HEVC, UHD, Pay TV User Interface (UI), the cloud, and ad insertion.

Since the approval of HEVC as an International Telecommunication Union-Telecommunication Standardization Sector (ITU-T) standard in April 2013, HEVC has become a focal point for innovation in the industry. Many vendors have announced first-generation support of HEVC in their products. HEVC is expected to be essential for the delivery of UHD content; it also holds the promise of substantial improvements in bandwidth efficiency that will in turn improve quality of experience for consumers and lower costs for operators. The Moving Picture Experts Group- Dynamic Adaptive Streaming over HTTP (MPEG-DASH) continued to keep center stage as well; many early HEVC deployments are expected to occur using MPEG-DASH for transmission. Ericsson demonstrated the delivery of UH and UHD content with its end-to-end LTE Broadcast solution (the world's first) based on a combination of e-Multimedia Broadcast Multicast Services (eMBMS), HEVC and DASH technologies.

Cloud technology continued to envelope a greater number of applications. The demonstrations at IBC covered cloud-based video delivery service, cloud-based network personal video recorder (PVR), cloud-based transcoding, asset management, gaming and other applications.

Returning to multiscreen services, a number of product segments such as the consumer set-top boxes and contribution encoders witnessed much attention. IBC 2013 saw movement around the four main multiscreen service delivery architectures - from the source to multiscreen, from the pay TV headend to multiscreen, from the home set-top box (STB) to multiscreen, and from the web to multiscreen. ARRIS and Cisco Systems showcased their breadth of solution in the home networking segment for multiscreen services. In addition to the mechanics of multiscreen delivery, monetization of services to create additional revenue opportunities for operators was also clearly an important trend at IBC. Ad insertion and monetization products by Cisco, Arris, International Datacasting, Harmonic, and others were critical components of their IBC products showcase.
Multiscreen Service Delivery

"Multiscreen" video delivery services and "TV Everywhere" as industry buzzwords seem to be equally overused and pervasive as digital TV or HD were three years ago. Many solutions are being marketed as end-to-end TV Everywhere solutions. The truth, however, is that while several important component solutions are on the market today and some vendors have packaged their solutions as pre-integrated end-to-end, we are yet to see a true end-to-end solution and a practical deployment of such a solution for multiscreen services. One example of a competitive end-to-end solution is Cisco's Videoscape Express, which is an end-to-end pre-integrated solution for basic digital Pay TV service. This can be upgraded to advanced services such as video-on-demand. Therefore, there is a continued unmet need in the market for a comprehensive solution for over-the-top (OTT) multiscreen services, particularly from a monetization point of view.

In any event, it is valuable to note the different solutions currently available and which camp they belong to. Multiscreen can be delivered in one of the following four ways: From the source to multiscreen, from pay TV head-end to multiscreen, from the home set-top box to multiscreen, and from the web to multiscreen. While web to multiscreen is relatively a well-developed solution, vendor solutions for multiscreen delivery of services from the home set-top box and from the source are gaining a lot of attention.

Figure 1-0 shows a schematic representation of the four methods of multiscreen services delivery.

*From the Source to Multiscreen*

This encompasses not just multiscreen delivery; vendors are leveraging the possibility of combining hybrid and multiscreen to offer live multiscreen and broadcast encoded in a single unit. Broadcast and Digital Terrestrial Television (DTT) vendors such as Digital Rapids and Harmonic showcased solutions for integrated broadcast and multiscreen delivery of services. Digital Rapids showcased another product, StreamZ Live 8000EX, that supports integrated broadcast and multiscreen encoder and can also be customized for dedicated broadcast, cable and satellite television service providers.

*From the pay TV headend to multiscreen*

Digital Rapids introduced a new multiscreen encoder, StreamZ Live 4000EX, for the delivery of live and linear applications from IPTV and OTT headends to high-profile live streaming deployments.

Ateme showcased support for multiscreen delivery of different pay TV scenarios IPTV, Cable, Satellite, Terrestrial, and OTT with its real-time transcoding product that features support for compressed and uncompressed video in the same chassis.

*From the home set-top box (STB) to multiscreen*
Vendors with a presence in the home premises seem to be making the most of the opportunity to reduce customer churn with multiscreen delivery features. ARRIS has made its way to the forefront in the distribution of video at home with multiple solutions that include wired and wireless devices. For multiscreen delivery ARRIS has multiple solutions as well. It announced its partnership with Sling Media to launch a multiscreen media streamer in late first quarter of 2014. ARRIS plans to offer this with its Whole Home Solution as a simple way for operators to offer multiscreen service.

Home networking also provides the opportunity to combine hybrid reception of services (OTT and broadcast) and multiscreen delivery of services for maximizing value to operators. IBC witnessed the emergence of this trend with some important announcements in this area. In ARRIS's hybrid DVB-C/IP DVX3662 STB, many key technologies such as transcoding, IP streaming, 802.11ac Wi-Fi, and Cloud converge to help operators deliver multiscreen and time-shift TV.

While the pay TV user interface is being enhanced in many ways, such as remote controls applications (apps) and HTML integrated UI, it would be apt to discuss the evolution of this trend in the context of multiscreen services, since the UI is an integral component of a seamless multiscreen experience. ARRIS addresses the need for a flexible solution to offer a uniform viewing experience across multiple screens with its cloud-based HTML5 solution DreamGallery. It delivers customized and uniform user interface seamlessly at varying Internet speed across a range of devices. Cisco's Open UX HTML5-based Snowflake UI offers the flexibility to integrate third-party applications and provide a seamless interface, customized for each multiscreen device with the integrated HTML5 feature.

**From the web to multiscreen**

While pre-integrated end-to-end solution for multiscreen delivery is yet to be seen, Ericsson launched its new media management services. The service is composed of two solutions, the Managed Media Preparation and the Managed Media Internet Delivery that together enable efficient delivery of content seamlessly to multiple screens. The media management service also offers automated real-time reporting, monitoring, and dashboards through workflow automation and business process management and enterprise desktop tools.

Multiscreen services are also driving another revenue generating opportunity for service providers, namely ad insertion and ad monetization, which was one of the key themes at IBC.

**Ad Insertion**

While no new breakthrough technology was announced at IBC in this area, the showcase of enhanced or upgraded version of existing solutions for multiscreen scenario clearly highlights the importance of this trend for vendors and operators in the multiscreen environment. Cisco showcased Advanced Advertising solutions to manage and deliver multiple advertising formats for linear and non-linear services across multiple screens.
International Datacasting (IDC) showcased its second generation television network and radio network ad insertion platforms, which features targeted local ad insertion and blackout management.

Arris demoed its AdManager product for targeted advertising across multiple screens and the Merchandiser product for increasing revenue through content marketing based on personalized promotions, bundled offerings, and recommendations.

Harmonic also demonstrated its comprehensive ProMedia software for ad insertion as well Time-Shift TV and closed captioning for multiple screens. Harmonic stepped up the ad insertion value proposition slightly with new ad slicing capabilities in its ProStream 9100 real-time stream processor that supports ad insertion directly into live-to-air MPEG-2 and H.264 AVC transport streams providing local and regional ad insertion capabilities.

Multiscreen services are likely to witness addition of products and partnerships that are essential for the delivery of these services. For example, the home devices are also pivotal for delivering secure and managed services to multiple screens so that there is a need for centralized and simplified management of device authentication and policies for services and such. ARRIS, once again, with its SecureMedia and ConnectSR products is able to address these emerging challenges. RGB Networks announced a partnership with Conax to integrate Conax's digital rights management (DRM) and conditional access system (CAS) solution in its TransAct Packager product that produces segmented output of H.264 encoded video streams in various formats such as Apple HTTP Live Streaming (HLS), Microsoft Smooth Streaming, Adobe HTTP Dynamic Streaming (HDS), MPEG-DASH and Real Time Messaging Protocol (RTMP) format for delivery to devices such as PCs, mobile devices, and set-top boxes. With this solution RGB Networks intends to offer content protection in a multiscreen services environment. Media Excel demonstrated its HERO multiscreen transcoding platform for Live and video-on-demand (VoD) workflows.

**Multiscreen services**

While the focus was clearly on the infrastructure required for the delivery of multiscreen services, there were also some important demonstrations of deployment by the vendors. Envivio displayed TV Partout by Belga Telecom and Yomvi by Prisa TV. Collaboration on multiscreen services was also announced by Alcatel-Lucent and Telecable of Spain that includes Harmonic's encoding and transcoding solution and Verimatrix's DRM and content protection solution. In addition to multiscreen services, the solution will also offer cloud-based DVR solution based on Alcatel-Lucent's content delivery network and cloud DVR solution.

Along with Multiscreen services, hybrid services and hybrid devices are also continuing to be an important trend. Hybrid Broadcast Broadband TV (HbbTV), the open standard hybrid broadcast and broadband service in Europe, was part of several related demonstration. Httv announced the integration of its Linux and HTML5 based open middleware set-top box httvLink with Broadcom's BCM7231 chipset to offer advanced HbbTV service cost effectively. httvLink supports features such as multiscreen, non-linear TV services, web browsing, and distribution of content within the home. The integration with Broadcom chipsets can also be extended to other
chipsets such as the BCM7362 and BCM7563. Verimatrix demonstrated the application of its solution, Video Content Authority System, for cardless content security in IP-hybrid networks and multiscreen services and MultiRights Digital Rights Management (DRM) for hybrid OTT and pay TV/Free-to-air (FTA) broadcast services. The MultiRights DRM solution integrates HTTP Live Streaming (HLS), Smooth Streaming and MPEG-DASH technologies for single security authority architecture. Viaccess-Orca too demonstrated its content delivery solution for multiscreen services and a new user-interface for enhanced and easy discovery of content. The vendor also demonstrated a content security solution for the hybrid TV application based on its HbbTV platform and embedded conditional access system.

**Tightly Integrated Solutions**

While a complete end-to-end (definition) solution is yet to be deployed, IBC drove home the point that the competition across product segments and technology trends is only going to intensify further as vendors seek to address multiple opportunities with their integrated products and solutions. Cisco's Videoscape Unity or Arris's integrated whole home and head-end solutions are ideal examples, but this trend is evident almost across the entire cross-section of leading vendors. For example, RGB Network's transcoding solution, VMG Gen 2 is integrated with its ad insertion and Network Digital Video Recorder (nDVR) solutions, which provides a level of end-to-end video delivery solution. RGB Networks also offers an ad insertion solution separately for multiscreen services.

**Key Technology trends**

The three main technology trends discussed at IBC were HEVC, UHD, and Cloud-based services and solutions. The much buzz around HEVC and UHD can lead to these two technologies becoming synonymous. In fact, being a highly efficient compression format enables significant bandwidth saving, leading many operators to consider skipping H.264 completely provided HEVC solutions are available at prices comparable to H.264 solutions. While the optimal migration path to HEVC can continue to be a hot topic of discussion for some time, vendor demonstrations at IBC made it amply clear that HEVC is not just a marketing buzzword.

**New Compression Standards**

HEVC and MPEG-DASH were the new compression standards that attracted everyone's attention at IBC. Nearly all leading encoder/transcoder vendors such as Ateme, Digital Rapids, Harmonic, Haivision, and Media Excel, and others demonstrated support for HEVC. Cisco also demoed the integration of HEVC and 4K processing capability with its Snowflake UI. Allegro DVT announced support for HEVC as well as UHD content in its cluster-oriented file-based transcoder, AL3200. Allegro already offers live HEVC encoder/transcoder, AL1200/AL2200, which supports HD content for delivery via MPEG-DASH or Transport Stream. In the home network, HEVC support was also demonstrated on media servers by Technicolor.

MPEG-DASH (or just DASH) support for efficient OTT content streaming was always widely displayed by vendors such as Cisco and Wowza Media Systems. Wowza Media Systems announced support for delivery of live and on-demand content from its Wowza Media Server
using MPEG-DASH to media players built on Microsoft PlayReady software development kits (SDKs) for Android and iOS.

Httv and Intertrust partnered for the demonstration of the first HbbTV service using MPEG-DASH. Marlin digital rights management also drove home the readiness of the industry to deploy MPEG-DASH-based solutions.

Ericsson's demonstration of end-to-end LTE Broadcast solution based on a combination of e-Multimedia Broadcast Multicast Services (eMBMS), HEVC, and DASH technologies for the delivery of UH and UHD content amply highlighted the value of the new compression standards.

On the hardware side, Advantech launched its latest Digital Signal Processing (DSP)-based PCIe cards, DSPC-8681 and DSPC-8682 that supports HEVC. Broadcom announced new chipsets for set-top boxes (STB) devices for satellite, cable, and IP to facilitate the delivery of Ultra HD content using HEVC.

**Ultra High Definition**

Like HEVC, UHD support was demonstrated by several categories of product vendors including the launch of HDMI 2.0, which supports the streaming of UHD content to TV screens. UHD support on set-top boxes by Humax is an example. But Ericsson, again, stole the show with the world's first end-to-end transmission of UHD True 4K Live video over satellite, in partnership with Intelsat, Sony, Newtec, and British Telecom (BT). The unprecedented immersive experience offered by a multi-camera capture and production of an event in UHD was the talk of the show.

Ultra HD was also demonstrated by Samsung Electronics in partnership with Eutelsat Communications, which included the delivery of Ultra HD satellite channel to Samsung's Ultra HD TVs that feature embedded satellite receivers and support the Samsung Evolution Kit.

Test and measurement vendor, OmniTek, introduced its product for analysis, display, and conversion and generation of a range of signals including 4K Ultra HD and current and future 4K Digital Cinema signals.

This reflects the all-round industry effort to leverage UHD at the earliest. From UHD enabled smart TVs and set-top boxes to HEVC enabled encoders and transcoders to enable cost and bandwidth efficient delivery of UHD content, the industry intends to deliver the new resolution technology to keep consumers engaged with immersive content in the home and on their personal video screens.

**Cloud**

Cloud continues to permeate nearly every major application, as vendors and service providers continue to focus on cost-efficient and speedy delivery of services. Some of the main categories
that demonstrated cloud leverage include video service delivery, network PVR, and video transcoding.

- **Cloud-based delivery of video services** - ActiveVideo announced that Glashart Media, a Dutch IPTV service provider had completed a comprehensive system-wide upgrade with ActiveVideo CloudTV H5 software platform for the delivery of interactive services. MobiTV announced that the rollout of Deutsche Telekom's Entertain2Go streaming service using its multiscreen service, cloud-based solution had completed the first phase. The MobiTV Converged Media Platform is a cloud-based video distribution platform that integrates with a service provider's existing broadcast service delivery infrastructure.

- **Network PVR** - Cloud-based network PVR solutions drew as much attention as network PVR solutions. TiVo and Harmonic introduced their network PVR solutions, while Cisco showcased its Videoscape multiscreen cloud DVR. Cisco's cloud DVR offers not only a speedy delivery of services, but also flexible recording, policy management, cloud-based storage including third party storage as well as targeted advertising insertion.

- **Transcoding** - Harmonic clearly surpassed other vendors with HEVC added to its cloud-based video transcoding and delivery solution that is already being used by Tata Communications. Haivision also launched its Haivision Video Cloud, which in addition to cloud transcoding offers an integrated end-to-end online video management platform for live encoding of events, automated video content management and publishing on any connected device.

- **Cloud Asset Management** - PRISMAHUB announced a cloud-based asset management system abbreviated as CAM. The solution also includes video transcoding and player management, and is targeted for broadcasting, corporate TV, media archiving, media retrieving, press agencies, and other applications.

- **Cloud-based Workflows** - Akamai demonstrated cloud-based online content workflows, glasses-free 3D content delivery, and the synchronous delivery of primary screen content to multiple screens. These solutions are based on Akamai's Sola Media Solutions that include transcoding, ad insertion as well as analytics.

- **Cloud Gaming and other applications** - Advantech and CyWee demonstrated CyWee's CS-1000 Video Processing Engine, a software codec optimized for Advantech's PCIe cards for cloud-based applications such as Cloud Gaming, Video Conferencing, Remote Education and Virtual Desktop Infrastructure.

**Conclusion**

Trends evident at IBC underlie vendors' recognition and clear understanding of the operators' challenges and opportunities - cost reduction, revenue growth, customer churn management, and new revenue generating services and opportunities. Multiscreen services are fast becoming potent enough to address most, if not all of those concerns, and accordingly the majority of demonstrations at IBC were tied into the multiscreen trend. From devices and solutions that are integral for the delivery of multiscreen services to related opportunities such as ad insertion, Multiscreen can be seen as driving a broad section of the industry including home networking. In addition to Multiscreen, cloud remains the other all-encompassing trend with applications in cloud-based network PVR, video-based delivery services as well as cloud-based transcoding. Most of these trends have been present in the industry for some years now; but what became
amply evident at IBC is the vendors' intention to showcase, if not an end-to-end solution, tightly integrated solutions that address these technology trends.

The penetration of the consumers' home network and multiple devices continue to remain critical for traditional pay TV services as well as for hybrid and multiscreen services. Media servers that are the next step in the evolution of the set-top boxes received less than anticipated attention with only a handful of announcements and no major customer announcement as such. While there is immense value in a central, operator-managed device, its cost and deployment challenges arising from scenarios such as multi-tenant housing units in emerging countries in combination with competition from low cost alternatives such as media streaming sticks is leading to a slow adoption of these devices. Along with Media servers, there were only a handful of 3D demonstrations. Akamai did demonstrate glasses-free 3D content delivery as did Sisvel Technology with its 3DZ Tile Format, an enabler of glasses-free 3DTV developed in partnership with Triaxes. But, these demonstrations lacked the hype of 3DTV in the previous IBC shows.