

Benefits of a Converged Broadcast and IP Platform

Lynn Claudy Sr VP, Technology NAB



Produced by SMPTE and SBE with support from the NAB and ATSC



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JANUARY 16, 2020



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THANK YOU TO THE SMPTE DC, SBE AND NAB TEAM MEMBERS WHO PRODUCED THIS EVENT

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WITHOUT THEIR VOLUNTEER EFFORTS THIS SUMMIT WOULD NOT BE POSSIBLE

Morning Program



Afternoon Program

8:00 AM - 9:00 AN	Registration and continental breakfast		01·25 PM - 01·45 PM	Protecting the NextGen TV Consumer Advanced EAS and AWARN Capabilities John McCoskey, SpectraRep
8:55 AM - 9:00 AM	Welcome from SMPTE, SBE and AES Fred Willard, SBE Washington Kishore Persaud, SBE Baltimore		01.201 M 01.401 M	
			01:45 PM - 02:15 PM	Monetizing the NextGen TV Consumer
9:00 AM - 9:05 AM 9:05 AM - 9:35 AM	Introduction Peter Wharton, SMPTE Membership VP Chris Lane, Chief Engineer, WETA NextGen TV: Transforming the Consumer Experience Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors Madeleine Noland, President, ATSC		Rick Ducey & Mark Fratrik, BIA	
			Personalizing the Consumer Experience Interactive and Personalized Features	
			02:20 PM - 03:20 PM	Mark Corl, Triveni Digital Greg Jarvis, Fincons So Vang, NAB
9:35 AM - 10:00 AM	Creating New Opportunities with NextGen TV Joonyoung Park, VP and Fellow, DigiCAP			Pete van Peenan, Pearl I v
			03:25 PM - 03:40 PM	Afternoon Break
10:00 AM - 10:35 AM	Improved Television Reception for Consumers Implementing NextGen TV Distribution Systems John Lynch, ERI Jeff Andrew, Osborn Engineering		03:40 PM - 04:10 PM	The Consumer Out-of-Home Experience <i>Mobile & Automotive Applications and FeMBMS (5G Broadcast)</i> Thomas Janner, Product Management & R&D Director, Rhode & Schwarz
		Ļ	1.10 PM - 1.25 PM	The ATSC 3.0 Roadmap
10:35 AM - 11:15 AM	Benefits of a Converged Broadcast and IP Platform Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors		4.10 FM - 4.35 FM	Madeleine Noland, President, ATSC
	Content Reception Enhancements Richard Lhermitte, VP Solutions and Market Dev, ENENSYS TeamCast		4:35 PM - 5:00 PM	The Consumer Technology Roadmap Brian Markwalter, SVP Research and Standards The Consumer Technology Association
11:15 AM - 11:30 AM	Morning Break			Station Group and Industry Deployment Plans Advanced Capability Implementation Strategies Skip Pizzi, VP Technology Education & Outreach, NAB (Moderator) Michael Bouchard, VP Technology Strategy, ONE Media / Sinclair Stacey Decker, CTO, Public Media Group Sasha Javid, COO, The Spectrum Co
11:30 AM - 11:50 AM	Consumer Applications for Combined 5G & NextGen TV Networks Josh Arensberg, M&E Business Development, Verizon Media		5:00 PM - 6:00 PM	
11:50 AM - 12:15 PM	Case Study: Hybrid Services at "Chicago 3.0" Jean Macher, Harmonic			
12:15 PM - 01:20 PM	Buffet Lunch		6:00 PM - 8:00 PM	Cocktail Reception Busboys and Poets 4251 S. Campbell Ave., Shirlington <i>Heavy Hors d'oeuvres and open bar</i>



ATSC 3.0 Attribute: Based on Internet Protocol

IP is the key to connectivity in the connected world

ATSC 3.0 is the first broadcast standard based on Internet Protocol





ATSC 3.0 Protocol Stack

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ATSC 3.0 Hybrid Delivery

- Services and/or Components delivered via broadcast (over-the-air) and broadband (over the Internet)
 - Synchronously / Seamlessly combined in the receiver
- Use cases include:
 - Main A / V components delivered via broadcast, alternate components (e.g., alternate language) delivered via broadband
 - Main program delivered via broadcast, alternate interstitials delivered via broadband (e.g., targeted ad insertion)
 - Catch-up TV
 - Temporary "hand-off" from broadcast to broadband and back for brief fades in reception
 - Basic quality service delivered OTA; enhanced service layer delivered over broadband



Real-time and Non-real Time Delivery

- Content can be streamed in real time (i.e., linear or streaming on demand content) via both broadcast and broadband
- Content can be delivered in non-real time and cached locally via both broadcast and broadband
 - application files
 - targeted ads
 - supplemental emergency info, e.g., evacuation maps, etc.





- MPEG-2 Transport Stream provides service flexibility for multicasting
- But Broadcasting isn't part of the internet ... and its massive global investment



- Internet Protocol based enables broadcasting to become PART OF the wireless internet
- Encryption, Conditional Access / DRM enables monetization
- File delivery enables VOD and Dynamic Ad Insertion



Benefits of IP Transport

- Broadcasting no longer an independent silo
 - IP takes advantage of evolution speed of the Internet
- Broadcast and broadband as peer delivery mechanisms
 - Enables new types of hybrid services
 - Ability to seamlessly incorporate niche content
- Enable new business models
 - Localized insertion of ads or other content
 - New revenue model for broadcasters that has previously Tablet only been available to other program distributors

PC

4G

Smartphones

Smart TV

WiFi

Internet



Hybrid Example - Sports: Replay



USE CASE

Replay highlights of a game.

Especially relevant when joining late or missing key moments (and associated linear replay)



Hybrid Example - Companion Screen



USE CASE

Audio description or alternative commentary streamed to an app on the phone and listen on headphones. (Avoid annoying everyone else in the room)



Application Environment

ATSC 1.0



- Pictures, Graphics and Sound are "burned in"
- Same experience for entire audience

ATSC 3.0



- HTML5/Internet overlay graphics
- Hybrid delivery merge broadcast & internet
- Dynamic Ad Insertion
- Personalized Graphics
- Interactivity
- Synchronized second-screen applications
- Immersive Audio user control of tracks and mix
- Audience Measurement capabilities



Key Application Environment Features

- Goal is to deliver a personal and dynamic experience
 - HTML5 / Internet overlay graphics
 - Hybrid delivery merging broadcast and internet
 - Dynamic ad insertion
 - Personalized graphics
 - Interactivity capabilities
 - Synchronized second-screen applications
 - Immersive audio user control of tracks and mix
 - Audience measurement capabilities



- Content can be streamed in real time (i.e., linear or streaming on demand content) via both broadcast and broadband
- Content can be delivered in non-real time and cached locally via both broadcast and broadband
- Based on W3C technologies
 - Goal is to align with the Web as much as possible
 - Ideally, application authors will be able to easily adapt web apps for TV and vice versa



Hybrid Broadcast/Broadband **Reception Devices** They're already here and people are using them



Which of the following features does your main TV have?

TV features in the U.S. 2019



Note: United States; February 23 to March 21, 2019; 18-64 years; 1932 Respondents; respondents who have a TV in their household Further information regarding this statistic can be found on page 8. **Source(s):** Statista Global Consumer Survey; ID 997186

Smart TVs are Prevalent in the Marketplace

statista 🔽

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Most common devices to watch online video on television according to internet users in the United States in 2018 and 2019

Most common devices to watch online video on television in the U.S. 2018-2019



Smart TVs are being used for watching online video

Note: United States; August 1 to 12, 2018 and August 1 to 12, 2019; 18 years and older; 500 Respondents Further information regarding this statistic can be found on <u>page 8</u>. Source(s): Limelight Networks; ID 784394





Number of connected TV users in the U.S. 2017-2023



Note: United States; 2019; individuals of any age who use the internet through a connected TV at least once per month Further information regarding this statistic can be found on <u>page 8</u>. **Source(s):** eMarketer; Activate; <u>ID 304853</u>

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Number of households not paying for traditional TV services in the United States from 2019 to 2023 (in millions) Number of cord-cutting households in the U.S. 2019-2023



Cord **Cutting is Real and** Increasing

statista 🖊

Note: United States: 2017 and 2019 Further information regarding this statistic can be found on page 8. Source(s): eMarketer; Adweek; ID 482958









NO SVOD OVER-THE-AIR WITHOUT SVOD SERVICE **6.6 MILLION HOMES**



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PLUS SVOD OVER-THE-AIR WITH SVOD SERVICE **9.4 MILLION HOMES**

Source:

THE NIELSEN LOCAL WATCH REPORT | Q2 2018



FROM THE SMPTE WASHINGTON DC SECTION

THANK YOU