

NextGen TV: Transforming the Consumer Experience

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NEXTGENTV

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ATSC 3.0

nextgentv **SUMMIT**

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



and the support of our host, WETA Television



JANUARY 16, 2020



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The Telestream logo, featuring a blue arc above the word "telestream" in a lowercase sans-serif font.

telestream

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JANUARY 16, 2020



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Peter Wharton Happy Robotz

WITHOUT THEIR VOLUNTEER EFFORTS THIS SUMMIT WOULD NOT BE POSSIBLE

Morning Program



Afternoon Program

8:00 AM - 9:00 AM	Registration and continental breakfast
8:55 AM - 9:00 AM	Welcome from SMPTE, SBE and AES Fred Willard, SBE Washington Kishore Persaud, SBE Baltimore
9:00 AM - 9:05 AM	Introduction Peter Wharton, SMPTE Membership VP Chris Lane, Chief Engineer, WETA
9:05 AM - 9:35 AM	NextGen TV: Transforming the Consumer Experience Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors Madeleine Noland, President, ATSC
9:35 AM - 10:00 AM	Creating New Opportunities with NextGen TV Joonyoung Park, VP and Fellow, DigiCAP
10:00 AM - 10:35 AM	Improved Television Reception for Consumers <i>Implementing NextGen TV Distribution Systems</i> John Lynch, ERI Jeff Andrew, Osborn Engineering
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 Content Reception Enhancements Richard Lhermitte, VP Solutions and Market Dev, ENENSYS TeamCast
11:15 AM - 11:30 AM	Morning Break
11:30 AM - 11:50 AM	Consumer Applications for Combined 5G & NextGen TV Networks Josh Arensberg, M&E Business Development, Verizon Media
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

01:25 PM - 01:45 PM	Protecting the NextGen TV Consumer <i>Advanced EAS and AWARN Capabilities</i> John McCoskey, SpectraRep
01:45 PM - 02:15 PM	Monetizing the NextGen TV Consumer <i>Addressable Advertising and Analytics</i> Rick Ducey & Mark Fratrik, BIA
02:20 PM - 03:20 PM	Personalizing the Consumer Experience <i>Interactive and Personalized Features</i> Mark Corl, Triveni Digital Greg Jarvis, Fincons So Vang, NAB Pete Van Peenan, Pearl TV
03:25 PM - 03:40 PM	Afternoon Break
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
4:10 PM - 4:35 PM	The ATSC 3.0 Roadmap Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors Madeleine Noland, President, ATSC
4:35 PM - 5:00 PM	The Consumer Technology Roadmap Brian Markwalter, SVP Research and Standards The Consumer Technology Association
5:00 PM - 6:00 PM	Station Group and Industry Deployment Plans <i>Advanced Capability Implementation Strategies</i> 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
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>

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ATSC Overview

- Advanced Television Systems Committee
 - Standards development organization for digital television
 - Founded in 1983 by CEA, IEEE, NAB, NCTA, and SMPTE
 - Focused on terrestrial digital television broadcasting
- ATSC is an open, due process organization
 - Approximately 140 member organizations
 - Broadcasters, broadcast equipment vendors, cable and satellite systems, consumer electronics and semiconductor manufacturers, universities
- ATSC Mission Statement:
 - To create and foster implementation of voluntary Standards and Recommended Practices to advance terrestrial digital television broadcasting, and to facilitate interoperability with other media.

ATSC 1.0

ATSC DTV Standard (A/53)

- First digital broadcasting standard
- High-definition video
- Multicasting capabilities
- 5.1 digital surround sound
- Electronic program guides
- Closed captioning services
- Extensibility

DTV was revolutionary in 1995!



10 Years of All-Digital Television Broadcasting

Analog TV was shut off in the U.S. on June 12, 2009



Beginning June 13, 2009 all stations were broadcasting only digital signals using ATSC 1.0

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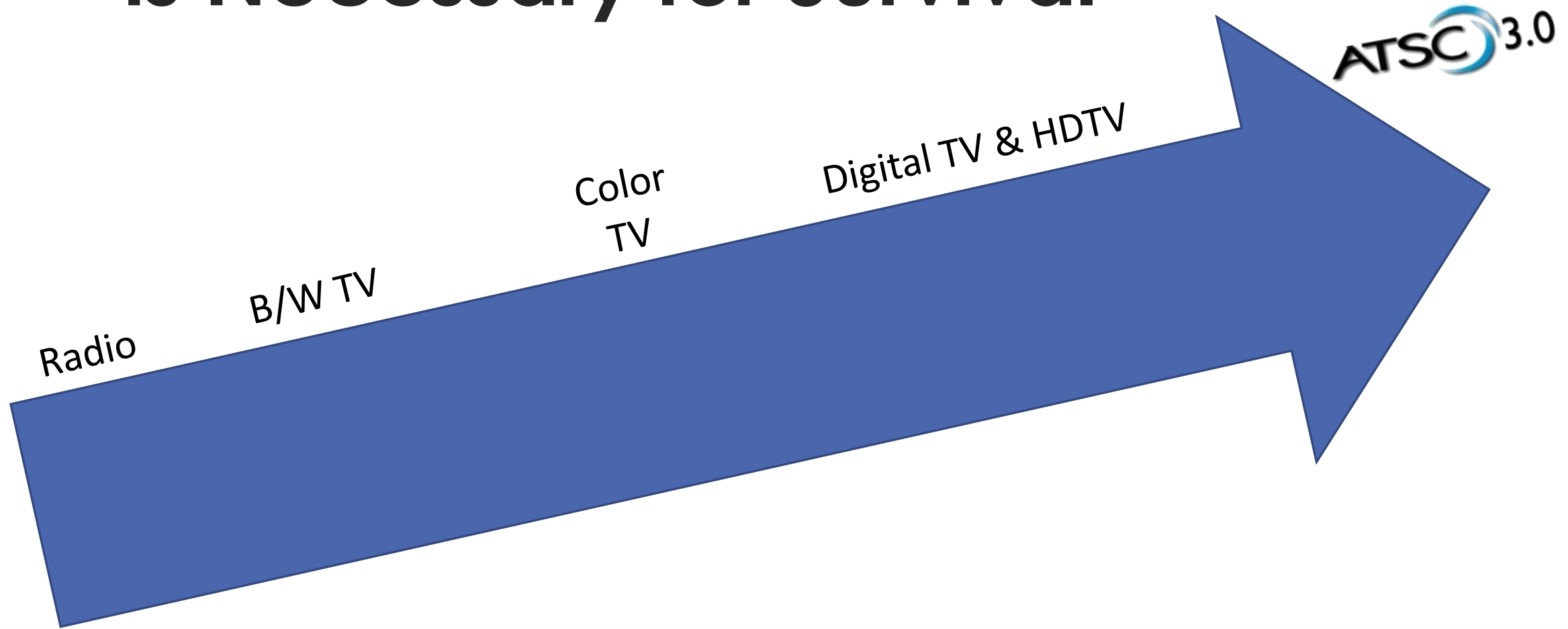
Today: Rapid Advances in Technology



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Evolution of the Broadcast Service is Necessary for Survival

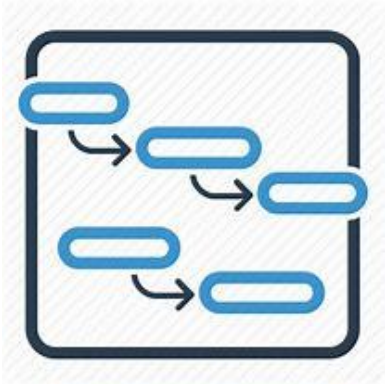


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The Path to ATSC 3.0

Planning
2010 - 2011



Requirements
2011 - 2013



Development
2012 - 2016



Completed Standards
2017 – 2018
(and beyond)



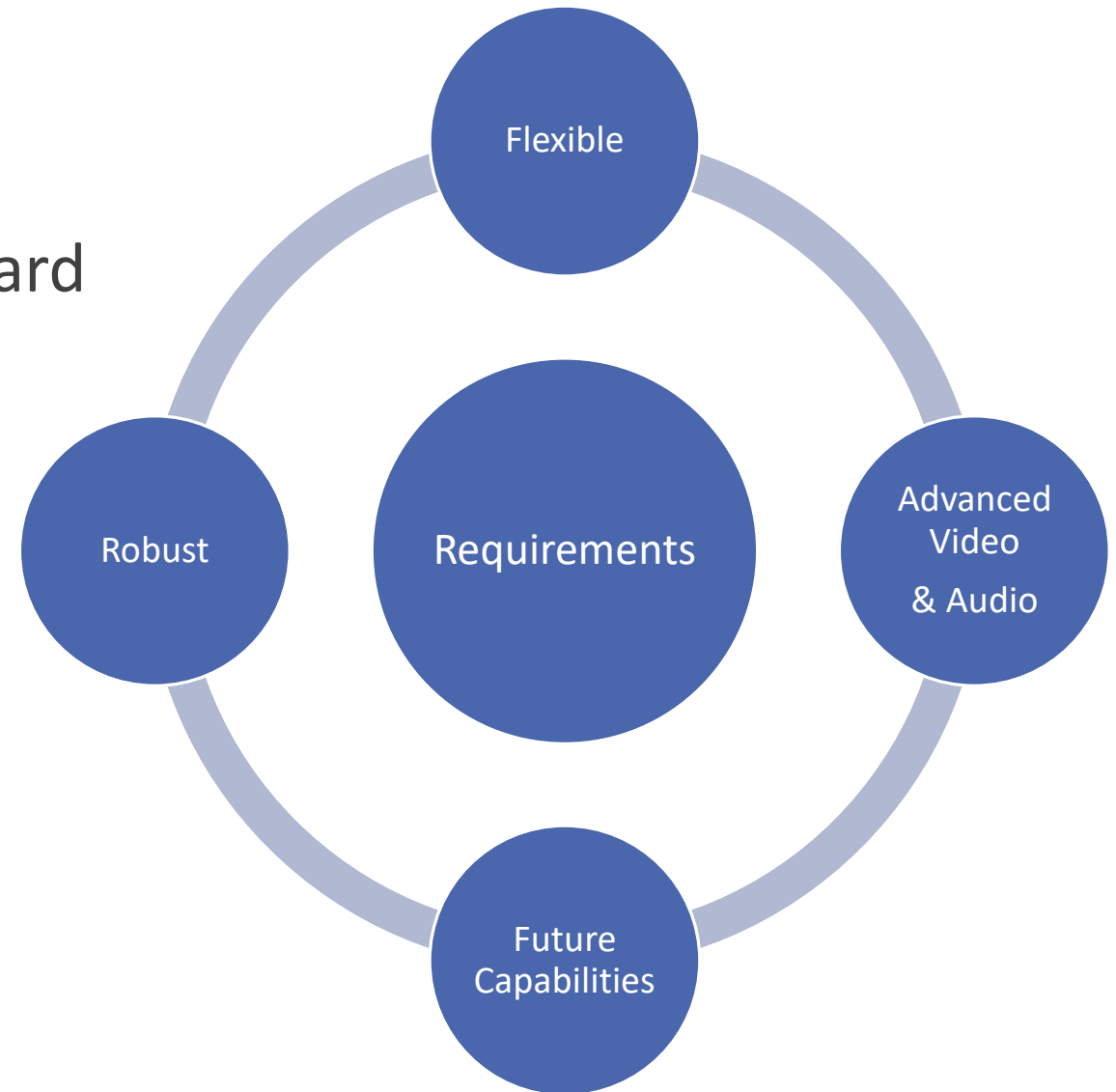
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ATSC 3.0

Next Generation Broadcast TV Standard

- Complete new system
- Non-backwards compatible
- Significant performance improvements
- New Capabilities and new services



ATSC 3.0: What is the goal?

To improve the television viewing experience

- Higher audio and video quality, more accessibility
- Personalization and Interactivity



To address changing consumer behavior and preferences

- TV content on all devices, both fixed and mobile

To add value to broadcasting's service platform

- Extending reach, adding possible new business models

ATSC 3.0: Why is this change worth doing?

Technology marches on

- ATSC 1.0 is over 20 years old

Audience expectations are growing

New competition and disruptive forces

More efficient use of spectrum

Leveraging power of Over-the-Air + Online

New revenue streams



ATSC 3.0: What's in it for broadcasters?

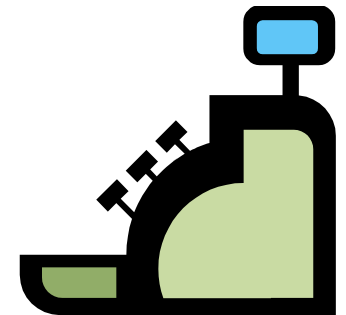
Maintaining and building audience

Putting content where viewers are

Benefiting from new technologies

Quantitative and qualitative growth

Developing new revenue streams



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Requirements-- Qualitative

Higher Quality



More Efficient



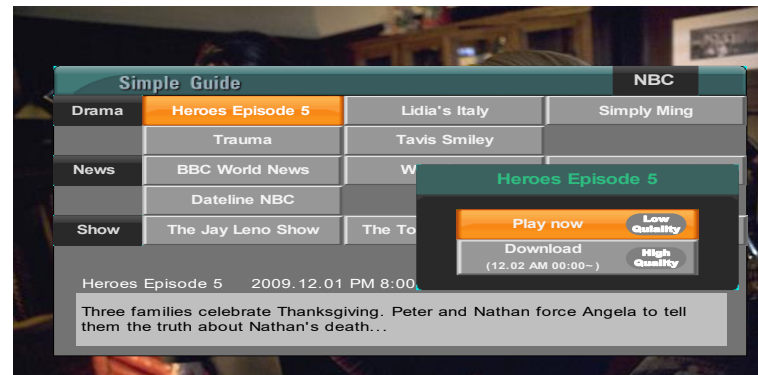
Mobile



Personalized



On Demand



Interactive



Result of Requirements: ATSC 3.0

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The ATSC 3.0 Suite of Standards was Released in January 2018

Next Gen TV Reaches Major Milestone with Release of ATSC 3.0 Standards

January 9, 2018, Las Vegas

Updated: Jan 09, 2018 07:00 PM CST

LAS VEGAS--(BUSINESS WIRE)--Jan 9, 2018--The Advanced Television Systems Committee (ATSC) today commemorated the achievement of a major milestone in TV history, with final member votes being tallied for approval of remaining standards that together comprise the ATSC 3.0 suite of next-generation TV standards.

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A graphic titled "ATSC 3.0 Standards" featuring a stylized illustration of a city skyline with a prominent tower emitting concentric circles representing a broadcast signal. Below the skyline is a road with a car, a truck, and a taxi. A large box on the right lists the standards. The ATSC logo is at the top right.

ATSC 3.0 Standards

A/300	ATSC 3.0 System
A/321	System Discovery and Signaling
A/322	Physical Layer Protocol
A/323	Dedicated Return Channel
A/324	Scheduler/Studio to Transmitter Link
A/325	Lab Performance Test Plan*
A/326	Field Test Plan*
A/327	Physical Layer Protocol Guidelines*
A/330	Link Layer Protocol
A/331	Signaling, Delivery, Sync, Error Protection
A/332	Service Announcement
A/333	Service Usage Reporting
A/334	Audio Watermark Emission
A/335	Video Watermark Emission
A/336	Content Recovery in Redistribution Scenarios
A/337	Application Signaling
A/338	Companion Device
A/339	Audio Watermark Modification/Erasure*
A/341	Video - HEVC
A/342	Audio - AC-4 and MPEG-H
A/343	Captions and Subtitles
A/344	Interactive Content
A/350	Link-Layer Protocol Guide*
A/351	Signaling, Delivery and Synchronization Techniques*
A/360	Security and Service Protection

*Recommended Practice

ATSC 3.0 Standard Status

- Full suite of ATSC 3.0 Standards completed
- Each standard continues to evolve at its own pace with new versions
- A/300: 2019 defines which versions of the individual standards are included in the 2019 standard set
- Standard set will be updated on an approximate annual basis

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A graphic titled "ATSC 3.0 Standards" featuring a stylized cityscape with a tall building and a radio tower. A list of standards is presented in a box on the right, with a note at the bottom right indicating that standards marked with an asterisk are "Recommended Practice".

Standard ID	Standard Name
A/300	ATSC 3.0 System
A/321	System Discovery and Signaling
A/322	Physical Layer Protocol
A/323	Dedicated Return Channel
A/324	Scheduler/Studio to Transmitter Link
A/325	Lab Performance Test Plan*
A/326	Field Test Plan*
A/327	Physical Layer Protocol Guidelines*
A/330	Link Layer Protocol
A/331	Signaling, Delivery, Sync, Error Protection
A/332	Service Announcement
A/333	Service Usage Reporting
A/334	Audio Watermark Emission
A/335	Video Watermark Emission
A/336	Content Recovery in Redistribution Scenarios
A/337	Application Signaling
A/338	Companion Device
A/339	Audio Watermark Modification/Erasure*
A/341	Video - HEVC
A/342	Audio - AC-4 and MPEG-H
A/343	Captions and Subtitles
A/344	Interactive Content
A/350	Link-Layer Protocol Guide*
A/351	Signaling, Delivery and Synchronization Techniques*
A/360	Security and Service Protection

*Recommended Practice

Consumer Facing Logo for ATSC 3.0 Products



Announced at CTA Fall Forum on September 26

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ATSC: First Time Exhibitor at 2020 CES



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Gordon Smith,
President & CEO, NAB

Gary Shapiro,
President & CEO, CTA

Madeleine Noland,
President, ATSC



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Thanks

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FROM THE SMPTE WASHINGTON DC SECTION

THANK YOU