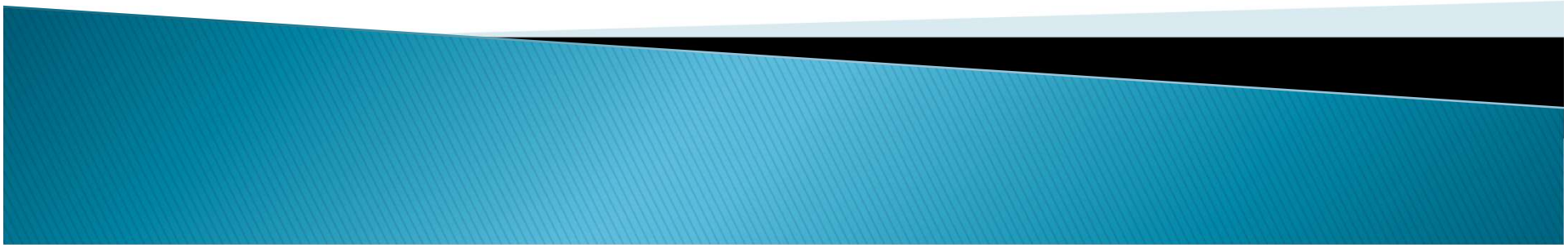
ATSC Update

W3C TPAC 2017

06 November 2017



Disclaimer

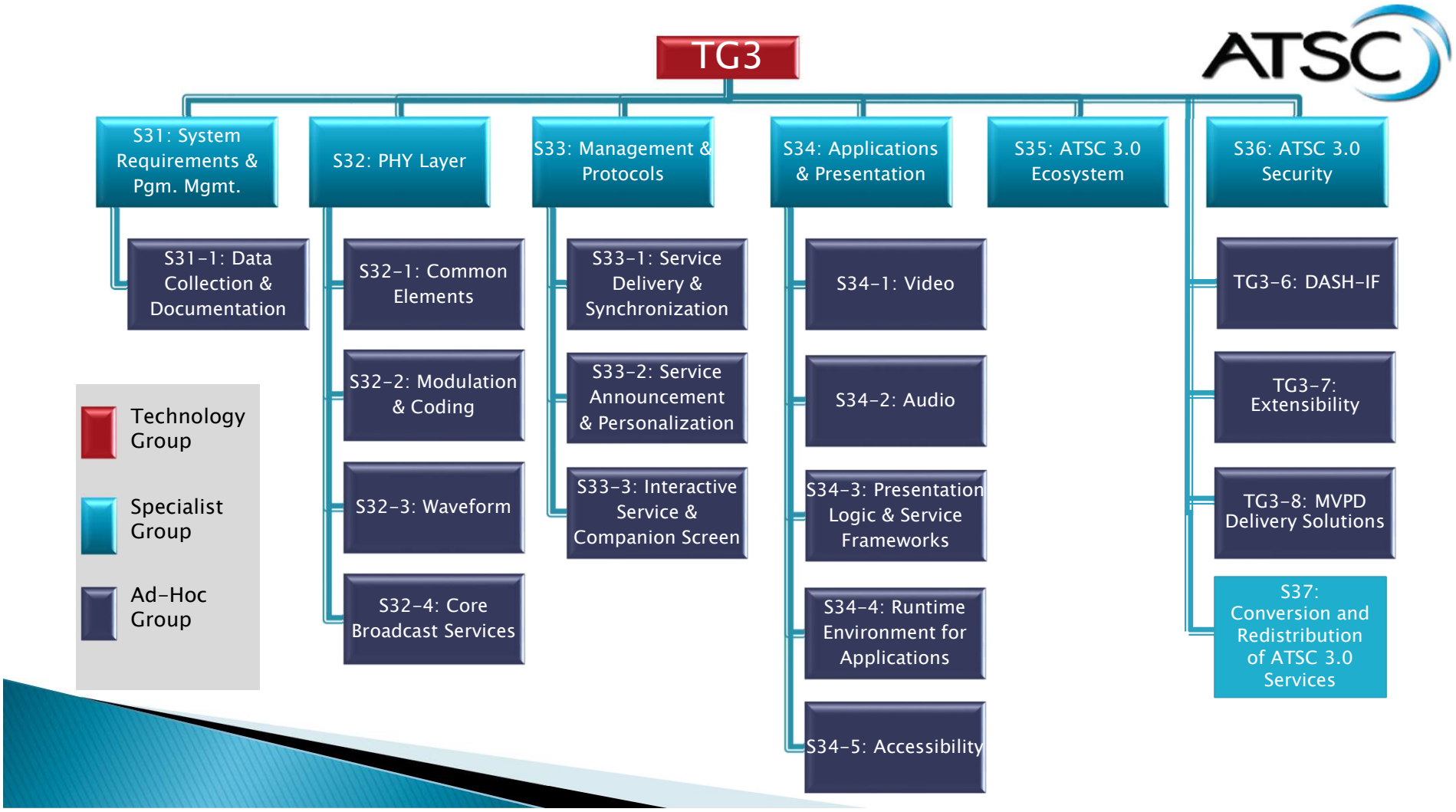
This is a report on ATSC work in process. Some of the information in this report is preliminary and subject to change before approval of TG1/TG3 and ultimately the Voting Membership in accordance with ATSC process.

TG1 - Organization

- TG1 previously streamlined its organization into a single layer to better match its workload and to operate in a more agile fashion
- Work is organized as Projects in TG1 with Ad Hoc Groups as needed

TG1 Projects

- ATSC1 - ATSC 3.0 Transition
  - In close cooperation with CTA, investigate various signaling and technologies for use in the ATSC1 transport that would help facilitate the US frequency spectrum repack and the transition to ATSC 3.0
  - Ad Hoc Group (TG1-10) formed in July to focus the work
  - Good mix of broadcast, content, CE companies exploring technical methods to ease the transition for all stake holders including consumers.
- Revision to A/52:2015 Digital Audio Compression (AC-3, E-AC-3) Standard
  - Working Draft to expand Annex H adding a citation to the new ETSI TS 103 420 now under review by TG1 members. PS Ballot expected late Summer or early Fall


TG3
S31: System Requirements & Pgm. Mgmt.
S32: PHY Layer
S33: Management & Protocols
S34: Applications & Presentation
S35: ATSC 3.0 Ecosystem
S36: ATSC 3.0 Security
S31-1: Data Collection & Documentation
S32-1: Common Elements
S32-2: Modulation & Coding
S32-3: Waveform
S32-4: Core Broadcast Services
S33-1: Service Delivery & Synchronization
S33-2: Service Announcement & Personalization
S33-3: Interactive Service & Companion Screen
S34-1: Video
S34-2: Audio
S34-3: Presentation Logic & Service Frameworks
S34-4: Runtime Environment for Applications
S34-5: Accessibility
TG3-6: DASH-IF
TG3-7: Extensibility
TG3-8: MVPD Delivery Solutions
S37: Conversion and Redistribution of ATSC 3.0 Services
Technology Group
Specialist Group
Ad-Hoc Group

TG3 Work

- **ATSC 3.0 Completed Standards publicly available:**
  - A/300: ATSC 3.0 System
  - A/321:2016 ATSC Standard: System Discovery and Signaling
  - A/322:2017 ATSC Standard: Physical Layer Protocol
  - A/330:2016 ATSC Standard: Link-Layer Protocol
  - A/332:2017 ATSC Standard: Service Announcement
  - A/333:2017 ATSC Standard: Service Usage Reporting
  - A/334:2016 ATSC Standard: Audio Watermark Emission
  - A/335:2016 ATSC Standard: Video Watermark Emission
  - A/336:2017 ATSC Standard: Content Recovery in Redistribution Scenarios
  - **A/338:2017 ATSC Standard: Companion Device**
  - A/341:2017 ATSC Standard: Video – HEVC
  - A/342:2017 ATSC Standard: Audio (Parts 1, 2 & 3)
  - A/343:2016 ATSC Standard: Captions and Subtitles

TG3 Work (continued)

- **ATSC 3.0 Proposed Standards publicly available:**
  - A/331: Signaling, Delivery, Synchronization, and Error Protection
  - A/360: Security and Service Protection
- **ATSC 3.0 Candidate Standards publicly available:**
  - A/324: Scheduler / Studio to Transmitter Link
  - A/337: Application Signaling
  - A/341 Amendment – Full Range
  - A/341 Amendment – 2094-10
  - A/341 Amendment – ICTCP
  - A/341 Amendment – SL-HDR1
  - **A/344: Interactive Content**

A/344 Enhancements since Initial Candidate Standard Release

- Digital watermarking and application interactivity
  - Broadcaster applications can query whether they have been launched due to over-the-air signaling or through the information contained in a watermark
    - Example: streaming media received via ATSC-enabled STB, but redistributed to TV that has the application runtime environment
      - Application can be retrieved and launched based on embedded watermark

A/344 Enhancements since Initial Candidate Standard Release (cont.)

- Application data ('non-real time', i.e. NRT content)
  - Broadcaster applications can manage download of app-related data from broadcast
    - Allows for receiver filtering of incoming files
  - Application data scoped to application contexts
    - Single context may cover one or more broadcast service providers
- Application package signing now mandatory
  - Using S/MIME (RFC 5751)

A/344 Enhancements since Initial Candidate Standard Release (cont.)

- Keypad management
  - Broadcaster applications can request platform to receive keypad control normally reserved for broadcast receivers
    - TV remote control key presses
- Device Info API
  - Platform/receiver specific information

A/344 Enhancements since Initial Candidate Standard Release (cont.)

- Receiver Media Player control
  - RMP – integrated media player typically found in TV sets
  - API control surface to better match HTMLMediaElement
- Receiver settings queries (slight refinements since initial release)
  - Caption and language preferences
  - Audio accessibility preferences
  - Service identifiers
  - Content advisory ratings

Extensions being Considered for A/344

- Support of EME for disconnected receivers
  - EME went to bed with support for receive-only devices unresolved
    - See https://github.com/w3c/encrypted-media/issues/132
      - Allows for in-band key rotation as part of media segments
- ATSC currently working on alternatives that still leverage existing EME MediaKeySessions

Thank You

- Any questions?