ATSC 3.0 Update

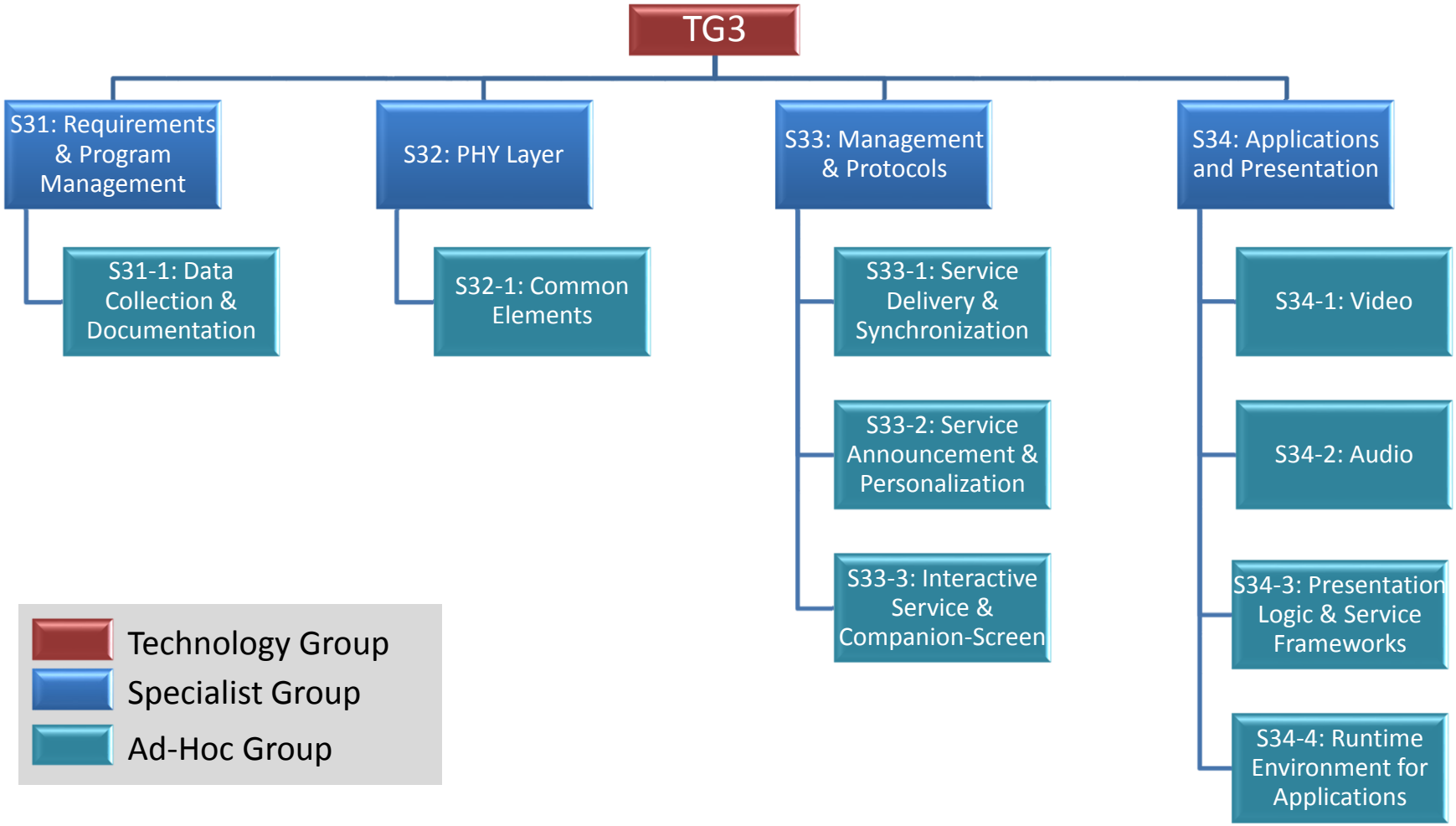
Introduction

- ATSC approved work on the next gen of digital broadcast technology at end of 2011
  - “ATSC 3.0”
- Backwards-compatibility was not a requirement
  - Clean break from ATSC 1.0 possible

Introduction (cont.)

- Some critical areas being considered
  - Increasing peak throughput, robustness and spectral efficiency at Physical Layer
  - Leveraging audio/video codec evolution
    - HEVC/UHD
    - New, immersive audio codecs
  - New transport layer
    - Alternatives to MPEG2-TS
  - New runtime environment
    - Moving beyond the DAE (Declarative App. Environment)
  - Hybrid services
    - Leveraging combined broadcast and broadband connections

ATSC 3.0 Organization



ATSC 3.0 Process Flow

- Started with list of system requirements (148 total)
- Subsets of requirements parceled down to specialist and ad-hoc groups
- Some groups have put out open CFP’s and are considering proposals from member companies

Relevant topics to the W3C: Transport Layer

- It was decided early in the process to support IP for broadcast transport
- Two proposals have essentially resulted from the discussion
  - ROUTE/DASH, using a FLUTE derivative
  - MMT/DASH, using an MPEG standard

Relevant topics to the W3C: Transport Layer (cont.)

- Both proposals will leverage ISO BMFF file container
  - Compatible (in theory) with W3C Media Source Extensions
- Both proposals leverage hybrid delivery
  - Use of UTC for synchronization
  - Looks like DASH will be delivery mechanism for broadband
    - Both sets of proposal proponents have promised that OS libraries like DASH.js should work with either proposal

Relevant topics to the W3C: Transport Layer (cont.)

- Hybrid delivery critical
  - Broadband delivery over HTTP looks to be reaching consensus
  - Hybrid delivery allows for supplemental content, repair data, early retrieval of content (e.g. for faster channel change) among other benefits

Relevant topics to the W3C: Runtime Environment

- Initial decision to adopt portions of HbbTV 2.0 as ATSC 3.0 runtime
  - Constraints/extensions as needed
  - Based on OIPF DAE, but with additional HTML5 technologies also addressed
- Open call for extensions to HbbTV 2.0 recently concluded
  - MSE/EME, Service Workers have been proposed
  - Web & TV IG's recent liaison response also being considered

Other Areas Related to W3C

- Program announcement and Service Guide
  - Group has reached agreement to leverage OMA BCAST 1.0
- Content watermarking
  - Open CFP with several respondents
  - Most proposals require embedded watermarking client
    - How will web-based runtime environments be extended has not yet been decided
- Emergency Alerts
  - Rich emergency alerting and how runtime environment is affected is yet to be addressed
  - M-EAS (A/153 Part 10) to provide model for functionality