Current Status of ATSC 3.0
The Next Generation Broadcast Television System

Jim Kutzner / PBS
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February 20, 2013
ATSC

• Advanced Television Systems Committee
• Established in the early 1980s
• Developed and maintains the DTV standard in use in North America, Korea & elsewhere
• DTV developed 1987→1996 (and continues)
• Transition from Analog TV to DTV: 1997→2009
• ATSC is now at work developing the next DTV system → “ATSC 3.0”
ATSC DTV

- HDTV
- SDTV
- Multichannel Sound

3D TV

- Multicasting
- Data Broadcast
- PSIP (EPG data)

ATSC 2.0

- Backwards Compatible
- Evolution

Mobile DTV

Next Generation

ATSC 3.0
ATSC 3.0

• Next Generation Broadcast Television
  – **ATSC 3.0** must provide performance improvement and additional functionality sufficient to warrant implementation of a non-backwards compatible system
  – Contextual Factors
    • Technology
    • Business
    • Regulatory (Spectrum)
ATSC 1.0 was developed ~20 years ago
First stations on the air about 15 years ago

- Internet was in its infancy
- Processor speed in MHz!
  Storage in MB!
- Network speeds in kbps!
- Analog cell phones!
  (but getting smaller!)
- Pagers were two-way!
ATSC 3.0: Initial Direction

ATSC 3.0 Planning Team identified three areas of development to be exploited in developing the next generation of broadcast television standards:

1. Increased transmission flexibility & efficiency
2. Reconsidering the PHY layer
3. Integration with other delivery technologies
New Usage Models

• Expect majority of TVs to be connected to Internet
• Personalization
• Targeting
• Immersive content
  – E.g., Free-viewpoint services (user-selectable views)
• Next-gen DTV should incorporate such elements to retain relevance with tomorrow’s audiences
Other Considerations

• How much better does it need to be?
• Business considerations
  – Keeping broadcasting viable
  – Maintaining/extendng consumer value proposition
  – Holistic view including MVPDs, “Second Screen”
• Regulatory considerations
  – Future TV spectrum availability?
ATSC 3.0: Proposed General Four-year Schedule
Development of System Requirements

- Provides overall guidance to system design
- Critical to determination of value for a non-backward compatible system
- Constructed from highly granular use cases
- Full Draft Requirements targeted for completion by end of 1Q2013
Development of System Requirements

Use Cases → Usage Scenarios → System Requirements
Use Cases and Scenarios

- Call for Input issued July 2012 to solicit Use Cases
- Approximately 60 Use Cases were contributed and summarized
- Use Cases and Scenarios were shared bilaterally with FOBTV (Future of Broadcast Television)
- Call for Comment on Use Case Summary and resulting Scenarios was issued Nov. 2012
Scenarios Developed - 1

1. Flexible Use of Spectrum
2. Robustness
3. Mobile
4. Ultra HD
5. Hybrid Services
6. Multi-view/Multi-screen
7. 3D Content (Video)
Scenarios Developed - 2

8. Enhanced and Immersive Audio
9. Accessibility
10. Advanced Emergency Alerting
11. Personalization/Interactivity
12. Advertising/Monetization
13. Common World Standard
PHY Layer CFP

• Call for Proposals on Physical Layer coming soon
• Expect distribution in 1Q2013
• Proposals due in 3Q2013
• Proponents can submit complete or partial Physical Layer solutions
• Evaluation through mid-2014
Related FOBTV Activities

• Future of Broadcast Television
• Vision: Can we have one world-wide standard?
• Participation by over 50 organizations/5 continents
  – Networks, manufacturers, standards organizations
  – Four research labs lead the Technical Committee
  – Directorate at NERC-DTV in Shanghai
• www.fobtv.org
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