

# **Current Status of ATSC 3.0**

## *The Next Generation Broadcast Television System*

**Jim Kutzner / PBS**

**Skip Pizzi / NAB**

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”



Backwards Compatible  
*Evolution*

**Mobile DTV**

**3D  
TV**

**ATSC 2.0**

**ATSC DTV**

- HDTV
- SDTV
- Multichannel Sound
- Multicasting
- Data Broadcast
- PSIP (EPG data)



*Next  
Generation*  
**ATSC 3.0**

# ATSC 3.0

## ATSC 3.0

- Configurable
- Scalable
- Efficient
- Interoperable
- Adaptable

- 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

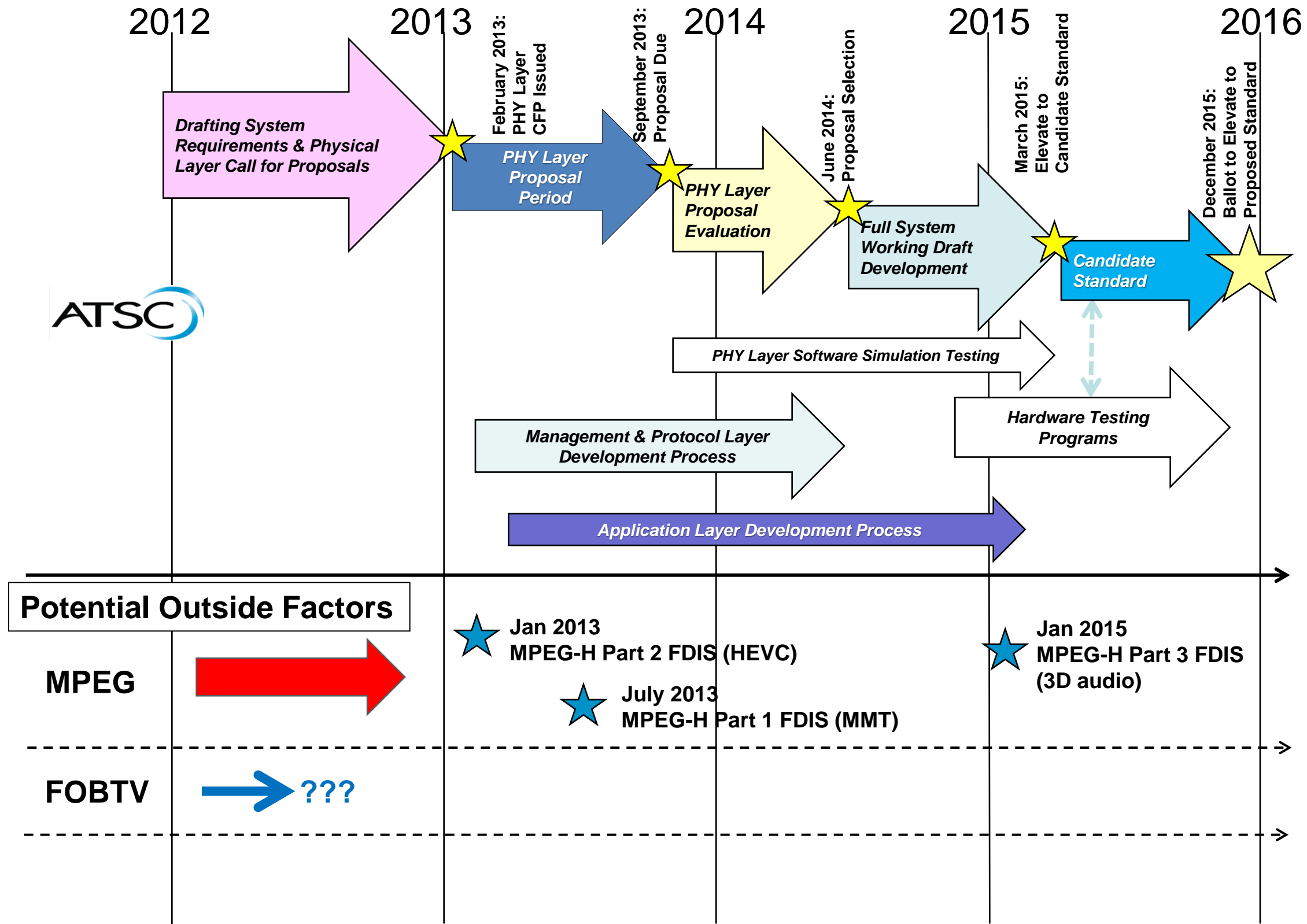
- Expect majority of TVs to be connected to Internet
- Personalization
- Targeting
- Immersive content
  - E.g., Free-viewpoint services (user-selectable views)
- Next-gen DTV should incorporate such elements to retain relevance with tomorrow's audiences

# Other Considerations

- How much better does it need to be?
- Business considerations
  - Keeping broadcasting viable
  - Maintaining/extending consumer value proposition
  - Holistic view including MVPDs, “Second Screen”
- Regulatory considerations
  - Future TV spectrum availability?



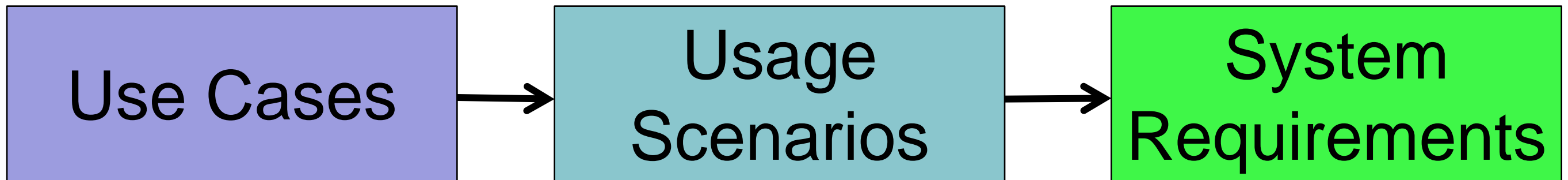
# ATSC 3.0: Proposed General Four-year Schedule



# 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 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](http://www.fobtv.org)





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