ATSC 3.0 Update

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ATSC TG3 CHAIR

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First Generation DTV Systems

ATSC etc.

- Constrained
- Maxed-Out
- Inefficient
- Fixed
- TV-Centric

What if? …*what might be possible?*

ATSC 3.0

- Configurable
- Scalable
- Efficient
- Interoperable
- Adaptable

System Layers and Specialist Groups

S37, Conversion / Redistribution	• Conversion and redistribution of ATSC 3.0 signals for MVPDs
S36, Security	• Service and content protection
S34, Applications / Presentation	• Software, pictures, and sound
S33, Management / Protocols	• Organizing bits into files, streams, and packets
S32, Physical	• Sending bits over the RF channel
S31, System Requirements	• Use Cases, Requirements, and overall program management

ATSC 3.0 Reaches “Mainstream Status” at NAB 2017

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South Korea launches Broadcast UHDTV with ATSC 3.0

Global UHD Conference

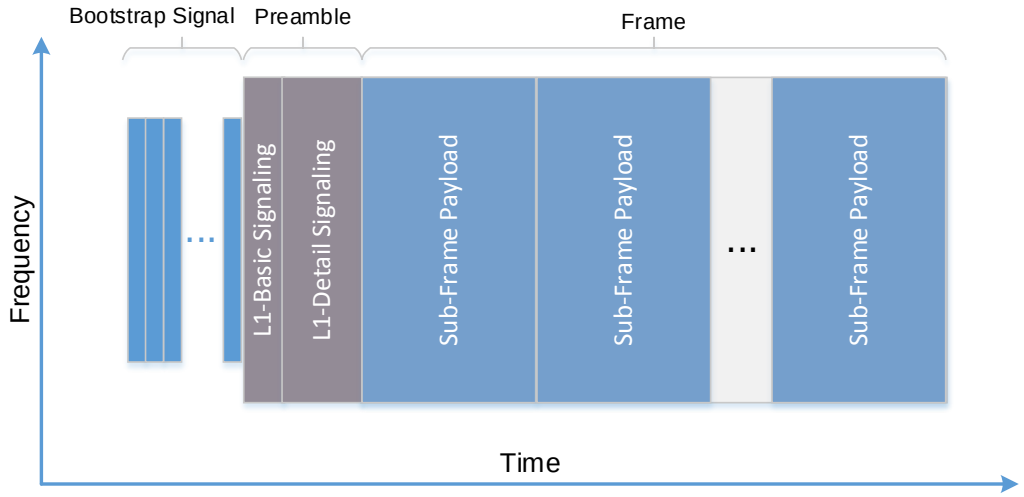
KBS

MBC

SBS

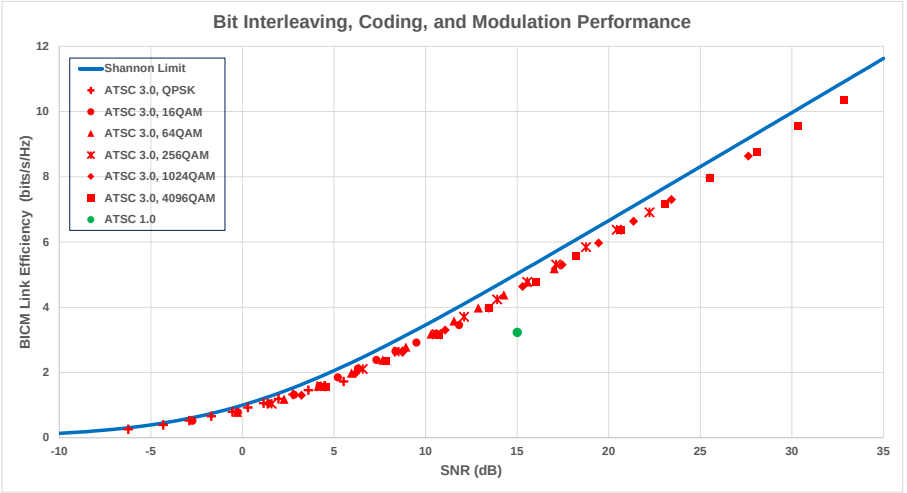
What we've achieved

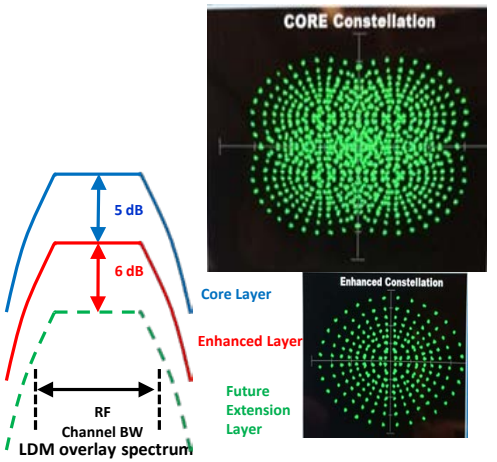
- **Extensibility / Flexibility**
  - Bootstrap (A/321) – starting point
  - Possible to evolve system/physical layer
    - Announces technology used in each frame
  - Layers signal technologies to layer above
  - Allows graceful evolution over time

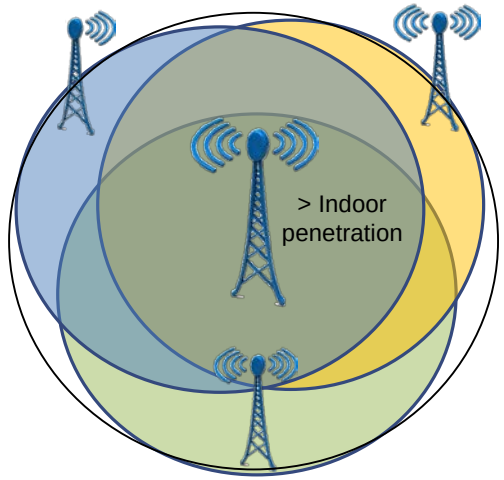


What we've achieved

- Extensibility / Flexibility
- **Physical Layer that meets broadcasters needs/plans**
  - Close to Shannon Limit
  - TDM/FDM/LDM
  - Multiple PLPs
  - SFN
  - Lots of knobs to turn

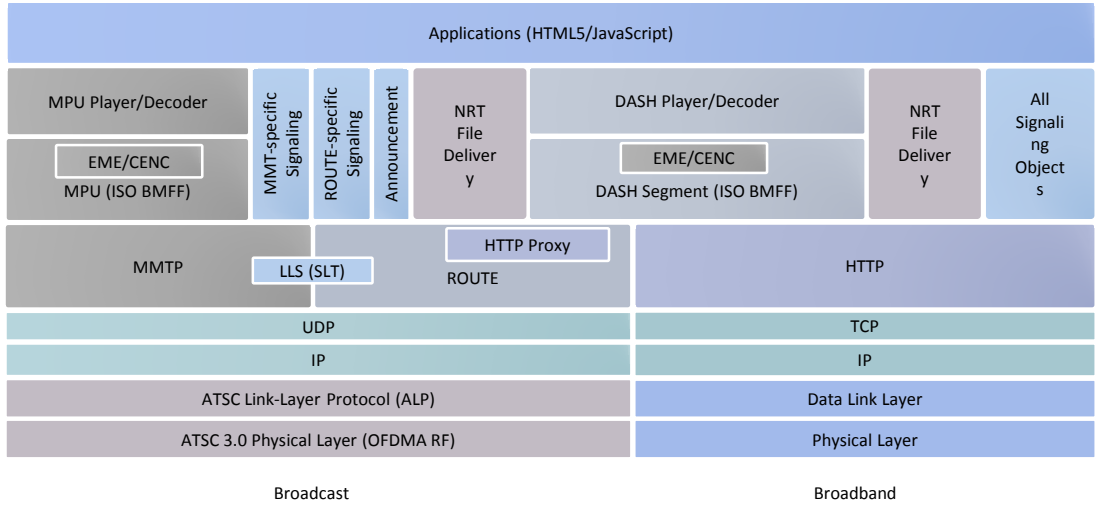


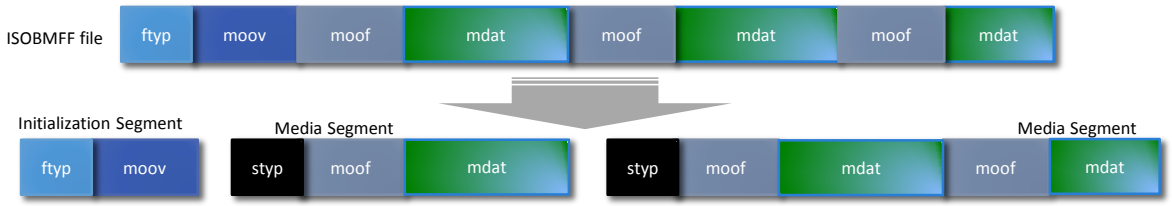


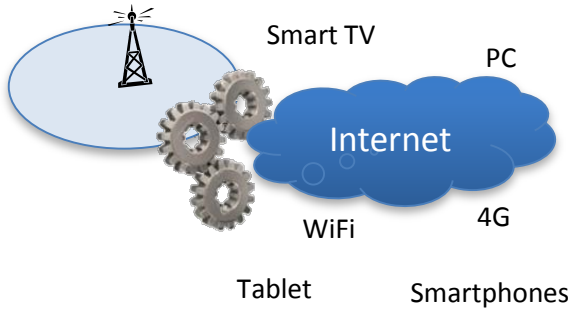


What we've achieved

- Extensibility / Flexibility
- Physical Layer that meets broadcasters needs/plans
- **Smart Media Delivery**
  - Broadcast IP Transport
  - Segmented streaming delivery
  - Hybrid – combined broadcast & broadband delivery
  - Realtime & NRT

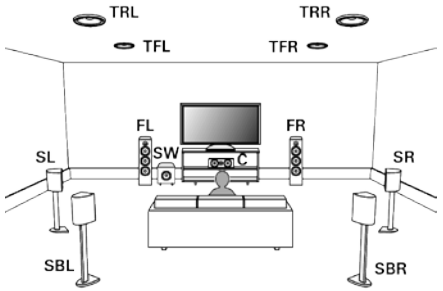


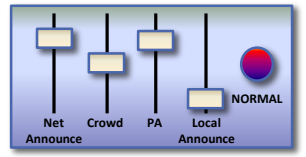




What we've achieved

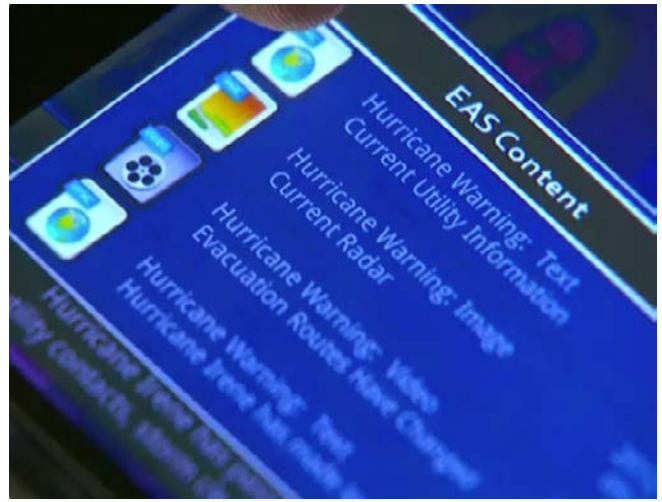
- Extensibility / Flexibility
- Physical Layer that meets broadcasters needs/plans
- Smart Media Delivery
- **Enhanced Story-Telling**
  - UHD: 4K, HDR, WCG, HFR, Scalability
  - Fully immersive Audio
  - Personalized audio
  - HTML 5 based interactivity





What we've achieved

- Extensibility / Flexibility
- Physical Layer that meets broadcasters needs/plans
- Smart Media Delivery
- Enhanced Story-Telling
- **System that meets public service needs**
  - Accessibility: Closed Captioning, Open Captioning, Descriptive Video
  - Advanced Emergency Alerting
    - Geotargetting & rich media



What we've achieved

- Extensibility / Flexibility
- Physical Layer that meets broadcasters needs/plans
- Smart Media Delivery
- Enhanced Story-Telling
- System that meets public service needs
- **Security**
  - CA & DRM
  - Secure broadband communications
  - Application signing
  - Signing of signaling

What we've achieved

- Extensibility / Flexibility
- Physical Layer that meets broadcasters needs/plans
- Smart Media Delivery
- Enhanced Story-Telling
- System that meets public service needs
- Security
- **Part of the 5G eco-system**
  - P2MP, IoT, high speed, ultra-reliable, lifeline communications…

Why Do We Need This?

Questions?

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