



ATSC: The Broadcast Standards Association

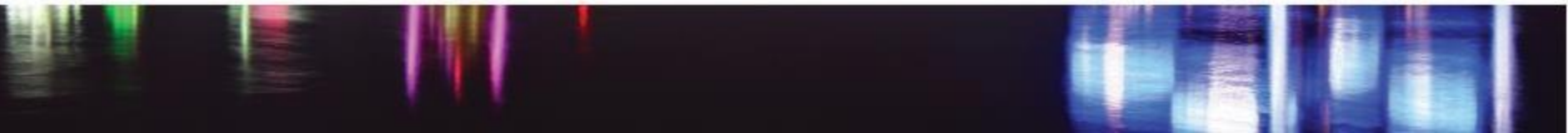
ATSC 3.0 Update for Asia Pacific Broadcasting Union

Michael McEwen, ATSC



Agenda

- Introduction to ATSC: The Broadcast Standards Association
- Introduction to ATSC 3.0
- Status of ATSC 3.0 Deployments
- New Developments in the Standard
- Discussion, Q&A



ATSC: The Broadcast Standards Association

Standards development organization for digital broadcasting

- Founded in 1983 by CTA, IEEE, NAB, NCTA, and SMPTE
- Focused on terrestrial digital broadcasting

ATSC is an open, due process organization

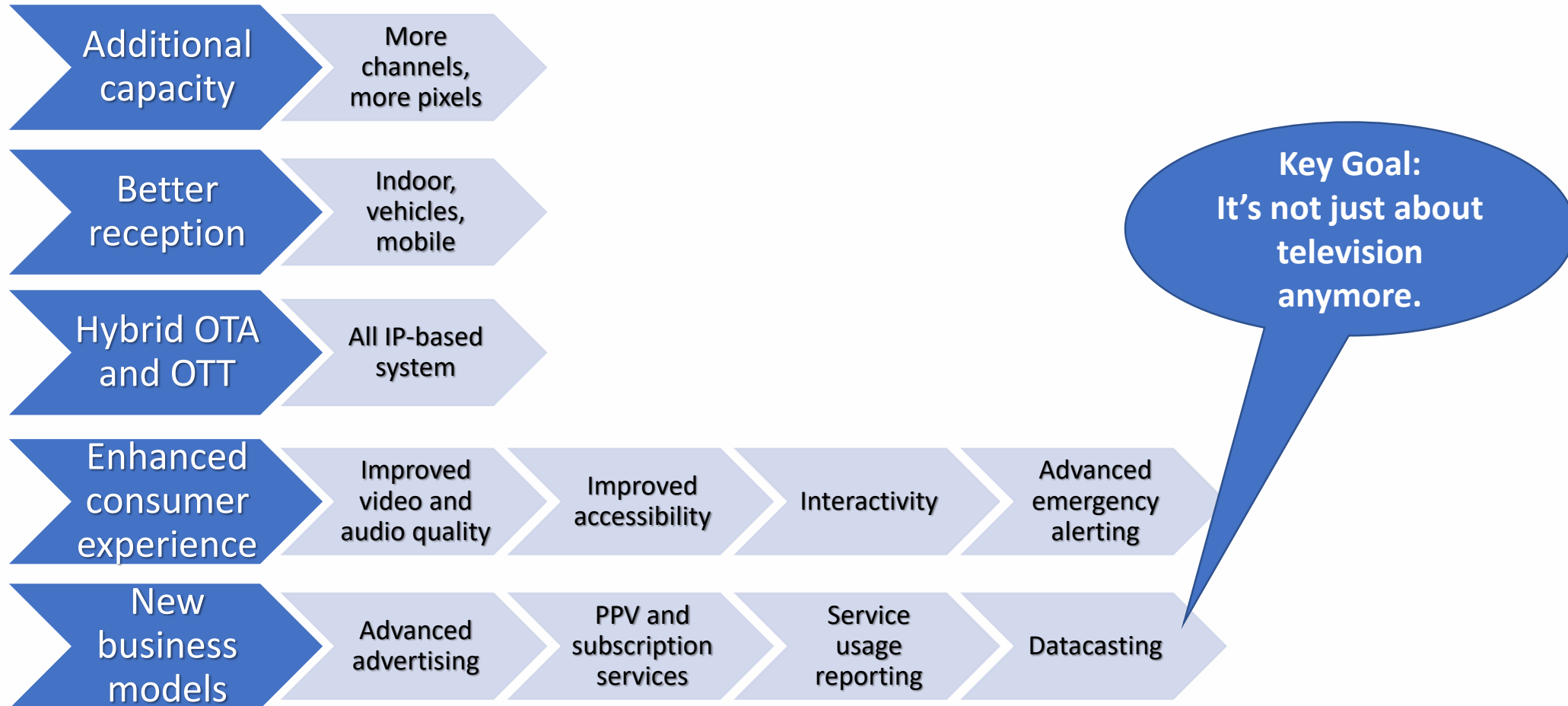
- Approximately 180 member organizations
- Broadcasters, broadcast equipment vendors, cable and satellite systems, consumer electronics and semiconductor manufacturers, universities

ATSC Mission Statement:

- To create and foster implementation of voluntary Standards and Recommended Practices to advance terrestrial digital broadcasting, and to facilitate interoperability with other media.

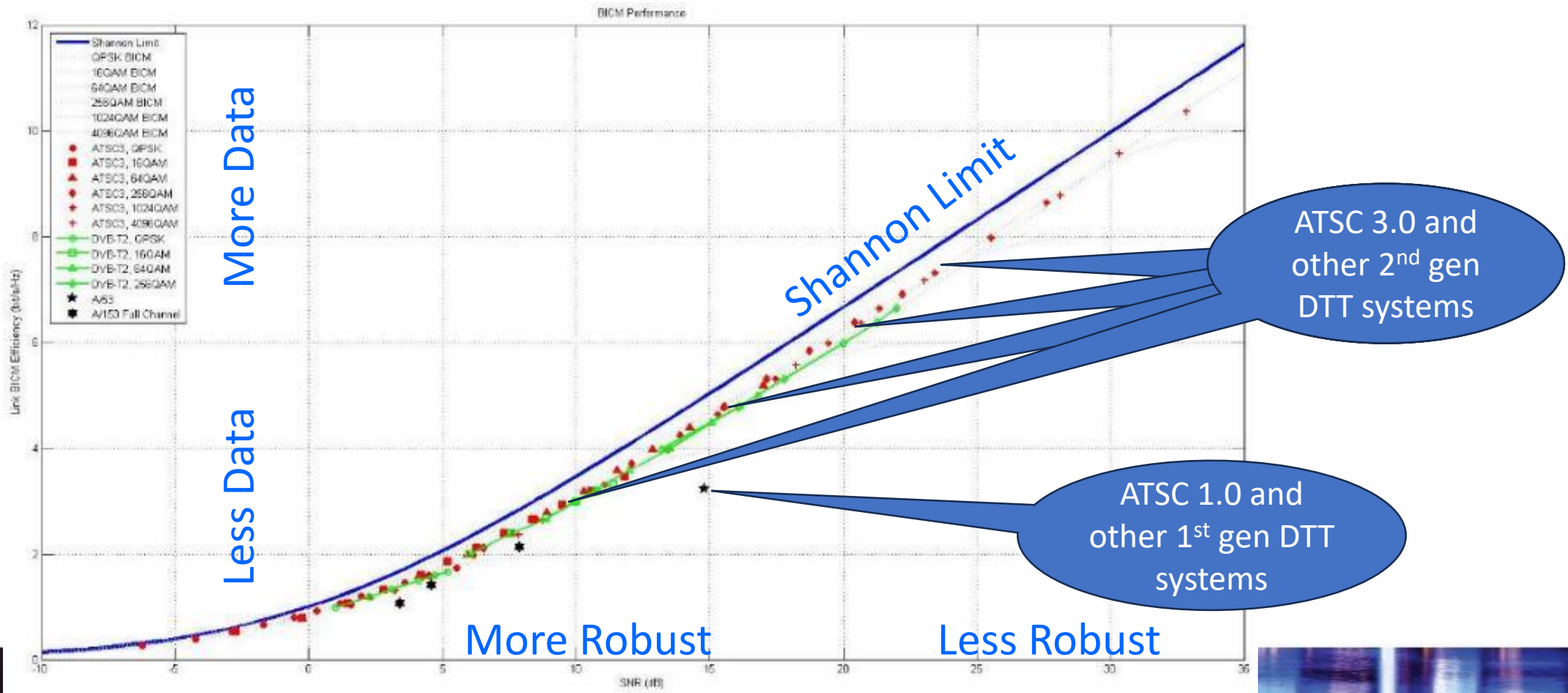


Advancements in ATSC 3.0

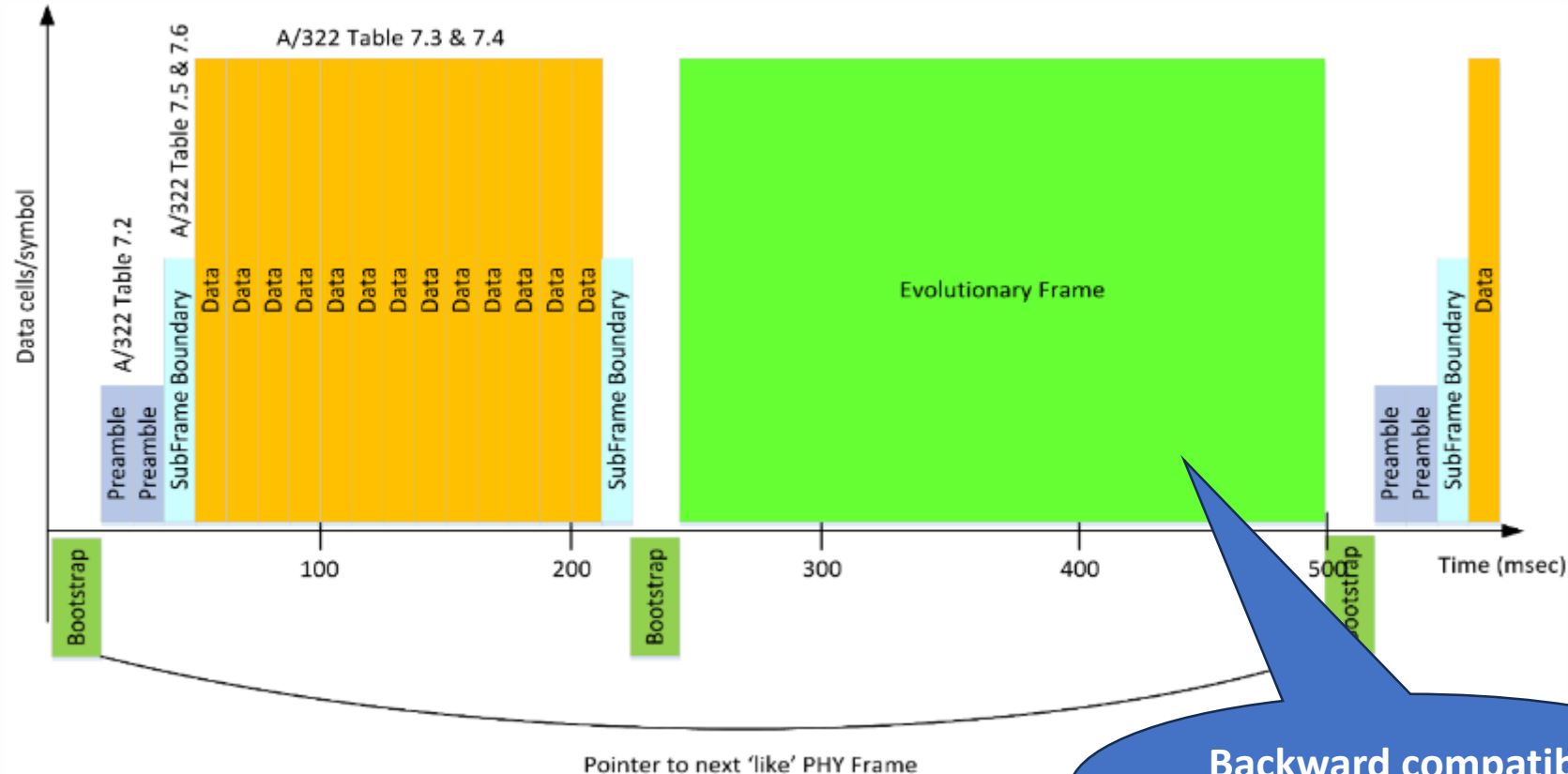


PHY – ATSC 3.0 Approaches Theoretical Maximum

- The Shannon Limit is the theoretical limit to the amount of data a spectrum band can carry relative to the robustness of the signal

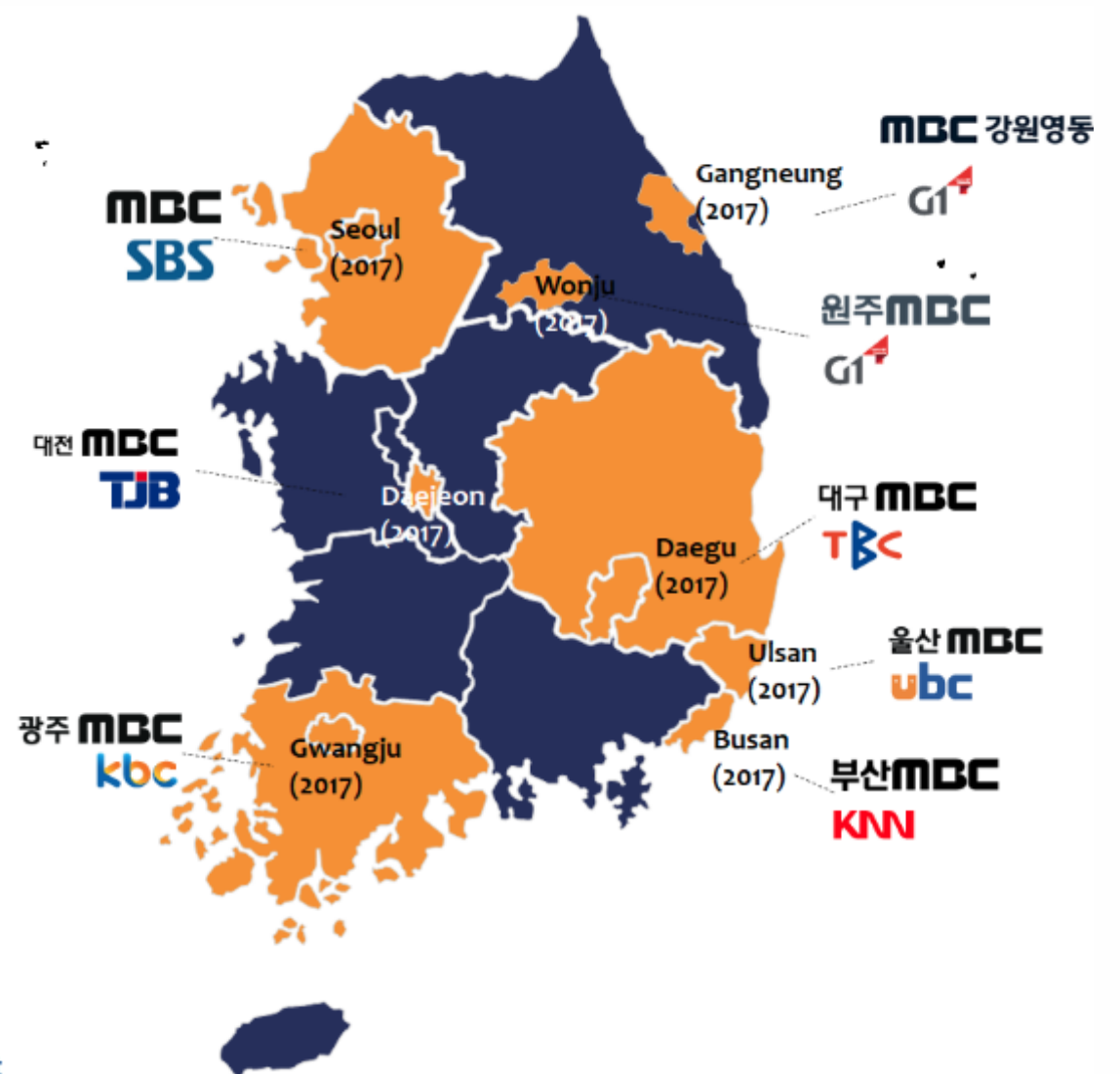
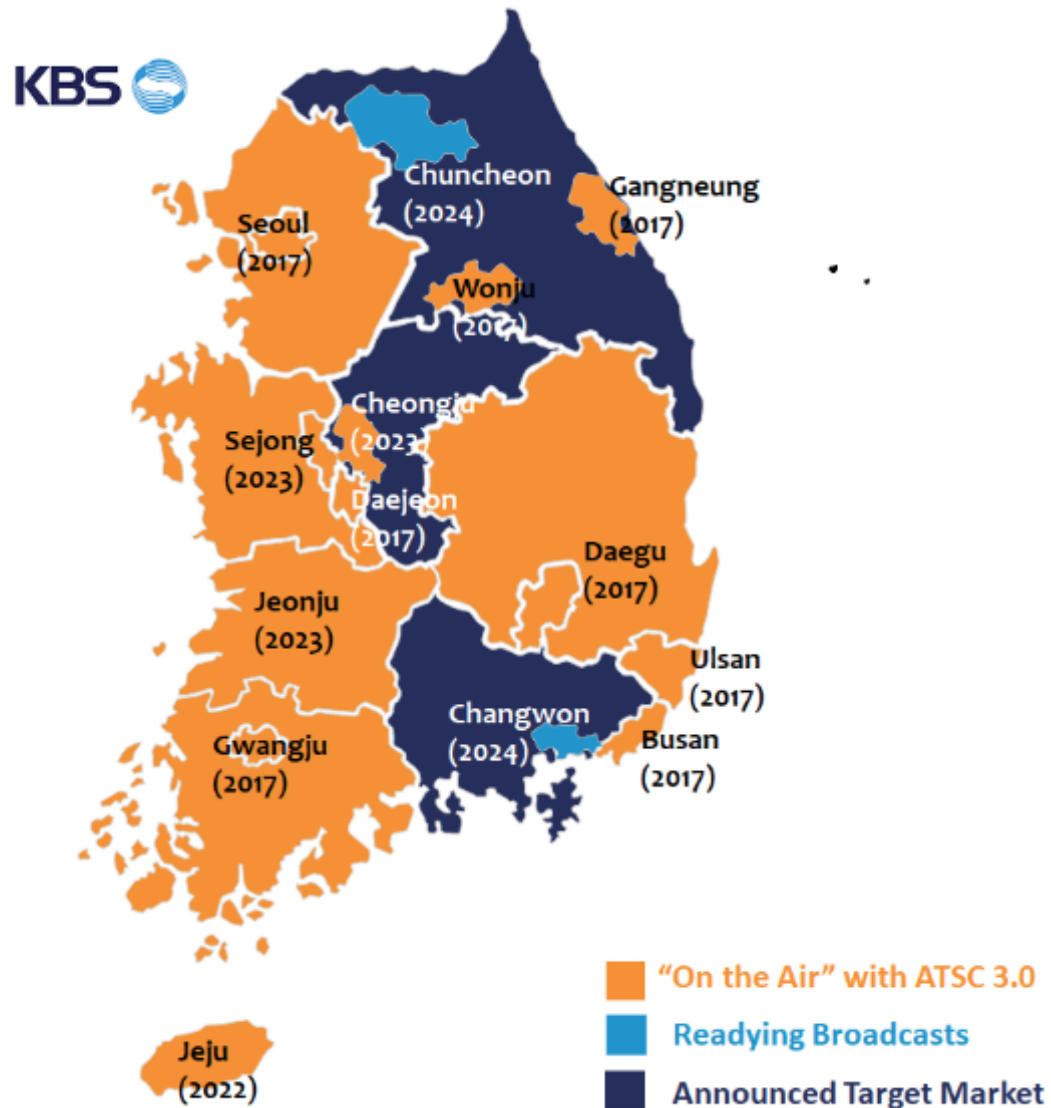


PHY – ATSC 3.0 Bootstrap Enables Evolution



- Interleave next-next gen frames with ATSC 3.0 frames
- Bandwidth is shared between the two systems
- Receivers pick up the frames they “understand” and skip those they don’t

Backward compatible
path to future upgrades



<https://www.atsc.org/nextgen-tv/deployments/>



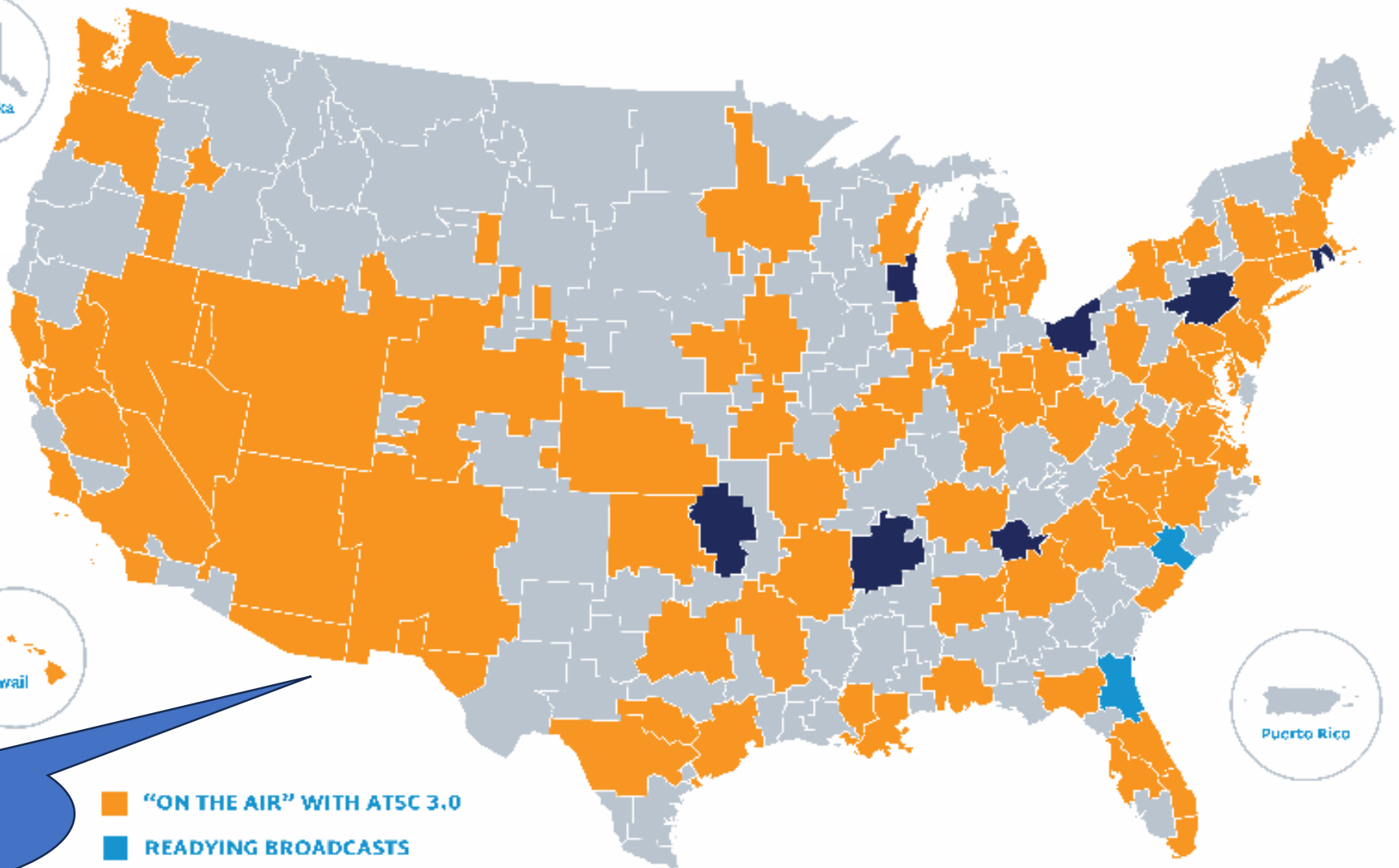
Alaska



Hawaii



Puerto Rico



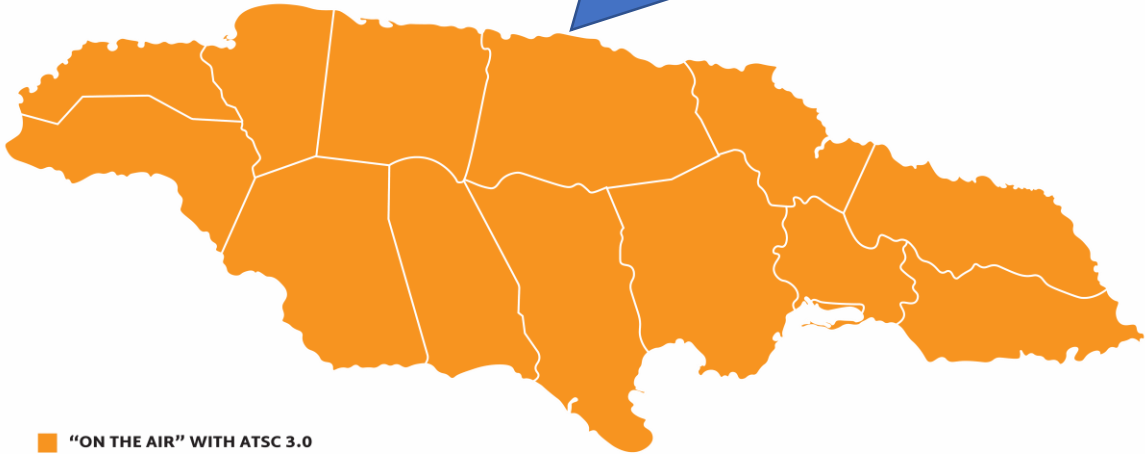
- "ON THE AIR" WITH ATSC 3.0
- READYING BROADCASTS
- ANNOUNCED TARGET MARKET

75% coverage
target met in
February 2024



Jamaica Launched ATSC 3.0 in 2022

Jamaica is the first country to have ATSC 3.0 service in all markets, currently 66% of HH. SFN will be added to reach the entire population



- "ON THE AIR" WITH ATSC 3.0
- READYING BROADCASTS
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Trinidad & Tobago Announced Adoption

TOBAGO



The Telecommunications
Authority of Trinidad
and Tobago (TTA) begins
transitioning to
ATSC 3.0 in 2025



ATSC 3.0 Technologies Selected for TV 3.0



- **ATSC 3.0 technologies selected for TV 3.0 OTA:**
 - ATSC 3.0 Physical Layer
 - ROUTE/DASH IP Transport
 - MPEG-H Audio
 - IMSC1 Captions
 - ATSC 3.0 Emergency Messaging
 - Video: VVC (ATSC now has VVC Candidate Standard)
 - Interactivity: DTV Play
- Approximately 17,000 TV stations
- 85% of HH use OTA
- Over 70% of screen time spent watching OTA
- Transition to TV 3.0 is mandatory and will begin in 2025
 - World Cup in 2026 drives the schedule
- Brazilian use cases require MIMO, SFN, LDM and Channel Bonding
 - MIMO to maximize capacity
 - SFN plus LDM to enable geo-targeting content

India: Direct-to-Mobile (DTM) – Broadcast for a Billion



ATSC 3.0 under active consideration by the Public Broadcaster Prasar Bharati for Direct to Mobile (D2M) services

TSDSI, India's Telecom SDO, adopted ATSC 3.0 as a TSDSI standard

TSDSI submitted its adopted 3.0 standards for consideration of an Indian National Standard

ATSC 3.0 HPHT plus 6-site SFN field trial is on air in Delhi

“Govt to use Prasar Bharti infra to pilot D2M tech in 19 cities”

January 16, 2024

Apurva Chandra, secretary, ministry of information & broadcasting

<https://telecom.economictimes.indiatimes.com/news/policy/d2m-broadcasting-technology-likely-to-be-launched-next-year-govt-official/106892526>



Major Ongoing ATSC Projects

- VVC
 - Next generation of MPEG video codecs; ~40-50% efficiency gain over HEVC
- Broadcast Core Network (BCN)
 - Allows broadcasters to efficiently work together to sell spectrum “inventory” to enterprise customers
- Inter-Tower Communications Network
 - Developing methods for delivering data between and among towers as a possible alternative to microwave or fiber networks
- ITU-R Progress
 - ATSC Expert Group on ITU working closely with Korean and US Delegations to ensure ATSC 3.0 representation in ITU-R documents
- ATSC 3.0 / 5G Harmonization
 - Documenting potential technical architectures for ATSC 3.0 and 5G interoperation
 - Organizing ATSC members that have interest in ATSC 3.0 3GPP projects, e.g. BCN



Promising Business Cases Drive Innovation

Datacasting as a Service (DaaS)

Broadcasters can offer data delivery services on a local, regional or national basis

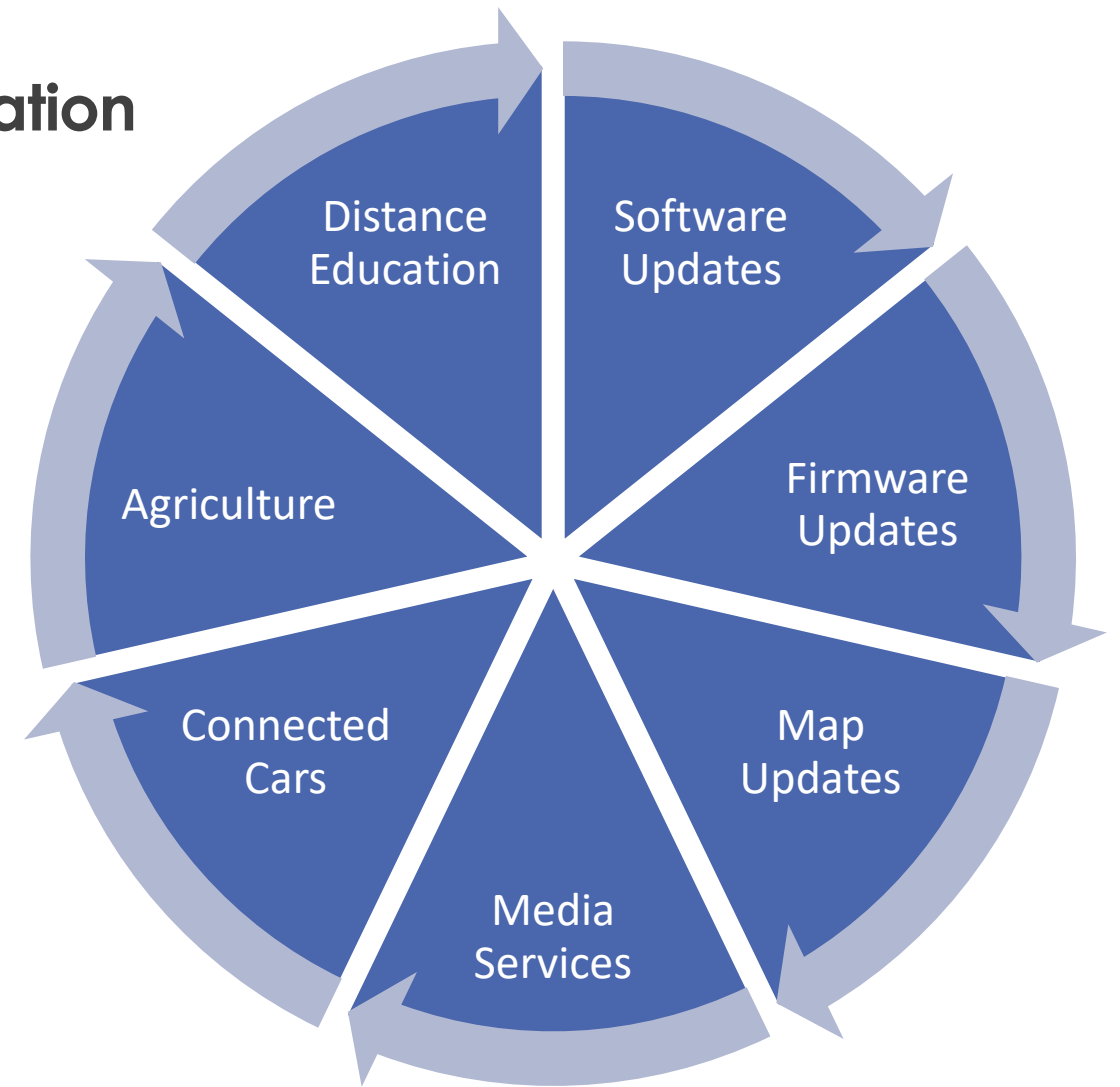
US broadcasters are experimenting with a wide variety of use cases and revenue models

Two commercial Broadcast Network Operators have formed:

- **OTA Wireless**, a joint venture of Scripps and Nexstar (November 2023)
- **Broadspan**, launched by Sinclair Broadcast Group (April 2024)

Brazilian broadcasters have expressed interest in this potential business opportunity

Broadcast Core Network is a critical component



Broadcast Core Network “The Air BnB of Spectrum”

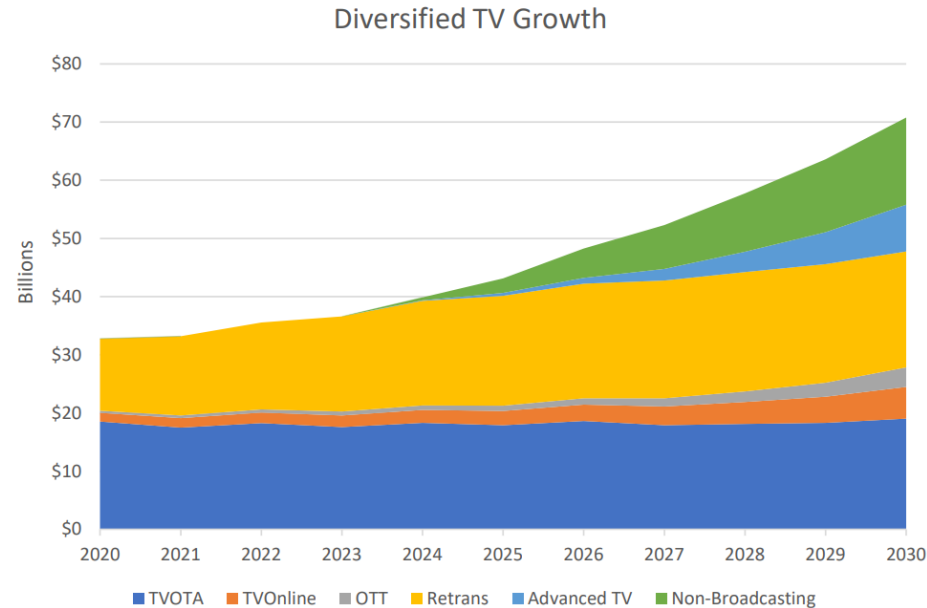
- Broadcast Core Network (BCN) is like “Air BnB for broadcasters”
- Each broadcaster may have some available spectrum capacity some of the time
- Broadcasters can make this capacity available to renters through the BCN
 - Set price, capacity, availability, etc.
- Customers use the BCN to “book” capacity for a fee
 - Each “Booking” can involve spectrum capacity from many broadcasters
- BCN tracks fulfillment, billing, etc.
- Candidate Standard anticipated this year



NextGen TV has 8.0% CAGR Revenue Growth Scenario, versus 3.8% CAGR baseline

“ BIA Observation

Even with a slow down in OTA revenue growth, the future for television stations and groups is bright, especially for those that pursue multiple revenue streams.



Potential Growth Rates

Existing TV CAGR: 3.8%

With
Advanced TV^{1/}: 5.5%

With
Non-Broadcasting^{2/}: 8.0%

3GPP Harmonization

- Two major projects underway in ATSC for 3GPP harmonization
- ATSC 3.0 and 5G Broadcast
- ATSC 3.0 for India as B2X solution
- Plus
 - Broadcast Core Network can interface with the 5G Core
 - New ATSC Expert Group on 3GPP to facilitate cooperation among ATSC members for moving an agenda in 3GPP

For More Information...

- The current state of ATSC 3.0 deployment can be found on the ATSC web site: <https://www.atsc.org/nextgen-tv/deployments/>
- The ATSC monthly newsletter, *The Standard*, is available online at <http://atsc.org/newsletter/>
 - The newsletter is available via email (sign-up using the above link)
- Get involved! <https://atsc.org/become-a-member/>

Discussion, Q&A

