



Our Goals & Beliefs

- The Continued Success of Free Over-The-Air Television Which Is Vital For The Nation
 - Community Television (including LPTV) Is a Key Component of The Broadcast Industry
- Today's Over-The-Air Television Infrastructure Can Provide New Products, Services and Choices for the Public



Membership

- Community Broadcasters
 - Minority Broadcasters
- Foreign Language Broadcasters
 - Religious Broadcasters
 - Television Networks
 - Production Companies
- Television Equipment Manufacturers
 - Concerned Citizens

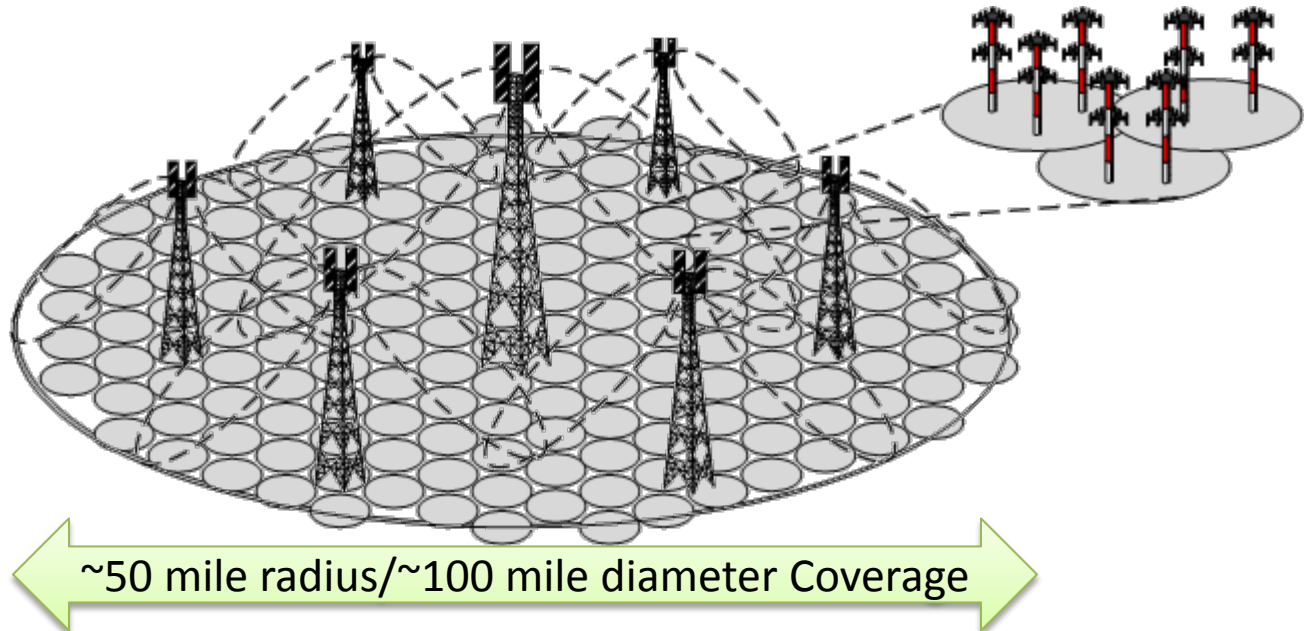


“The Broadcast Plan”

- Enable broadcasters, by removing the technical and regulatory limitations, to provide enhanced ancillary services supporting broadcast (point-to-multipoint) video, voice and data applications that result in:
 - Lower Consumer Cost (*better value*)
 - Improved service quality (*fixed, nomadic, mobile*)
 - Continuance of free-to-air service (*for ALL television Broadcasters*)
 - Addressing long-term spectrum requirements (*auctions are just a band-aid that results in a revolving door for even more spectrum*)
 - Avoidance of another “transition” cost (*self funded by Broadcasters*)
 - Higher contribution to the Treasury than the expected auction proceeds in terms of the Present Value (*and a continuing annuity*)

“Broadcast Overlay” Television Future

- Broadcast television can work to provide complimentary ‘shared’ broadband services and infrastructure



Next Generation Broadcast Platform: *Business Opportunities Enabled by Better Technology*

Mark A. Aitken

Vice President of Advanced Technology



METAMORPHOSIS
The Changing Face of MEDIA & ENTERTAINMENT

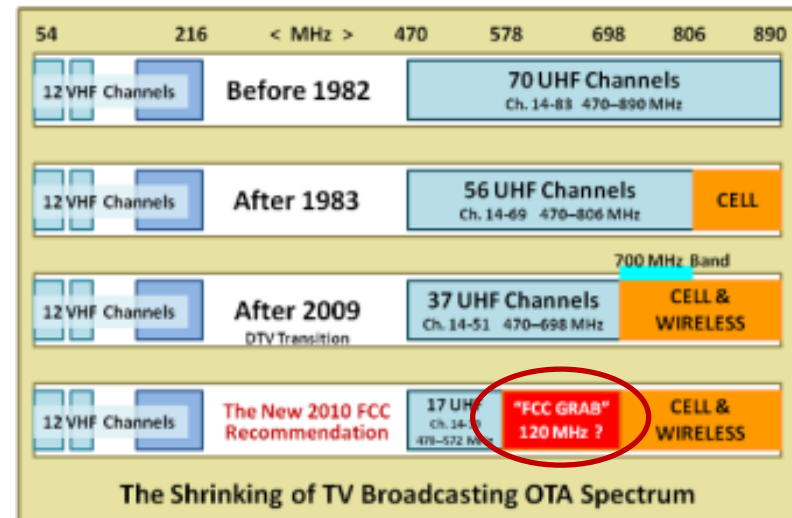


Television Broadcasting... Why are Broadcasters finally talking about a 'Next Gen' Platform?

“We Are at War”

- 3 years ago the industry was advised - *the wireless phone companies will ride the mobile video tsunami to their success – we must now act!!!*
- The TV broadcast industry is under attack
 - Carriers march towards dominance of airwaves
 - Carriers view us as in the way and expendable
- Wireless carriers are taking
 - Our viewers
 - Our spectrum
 - Our advertisers

(on Cable and wireless)



The 'Now' Reality

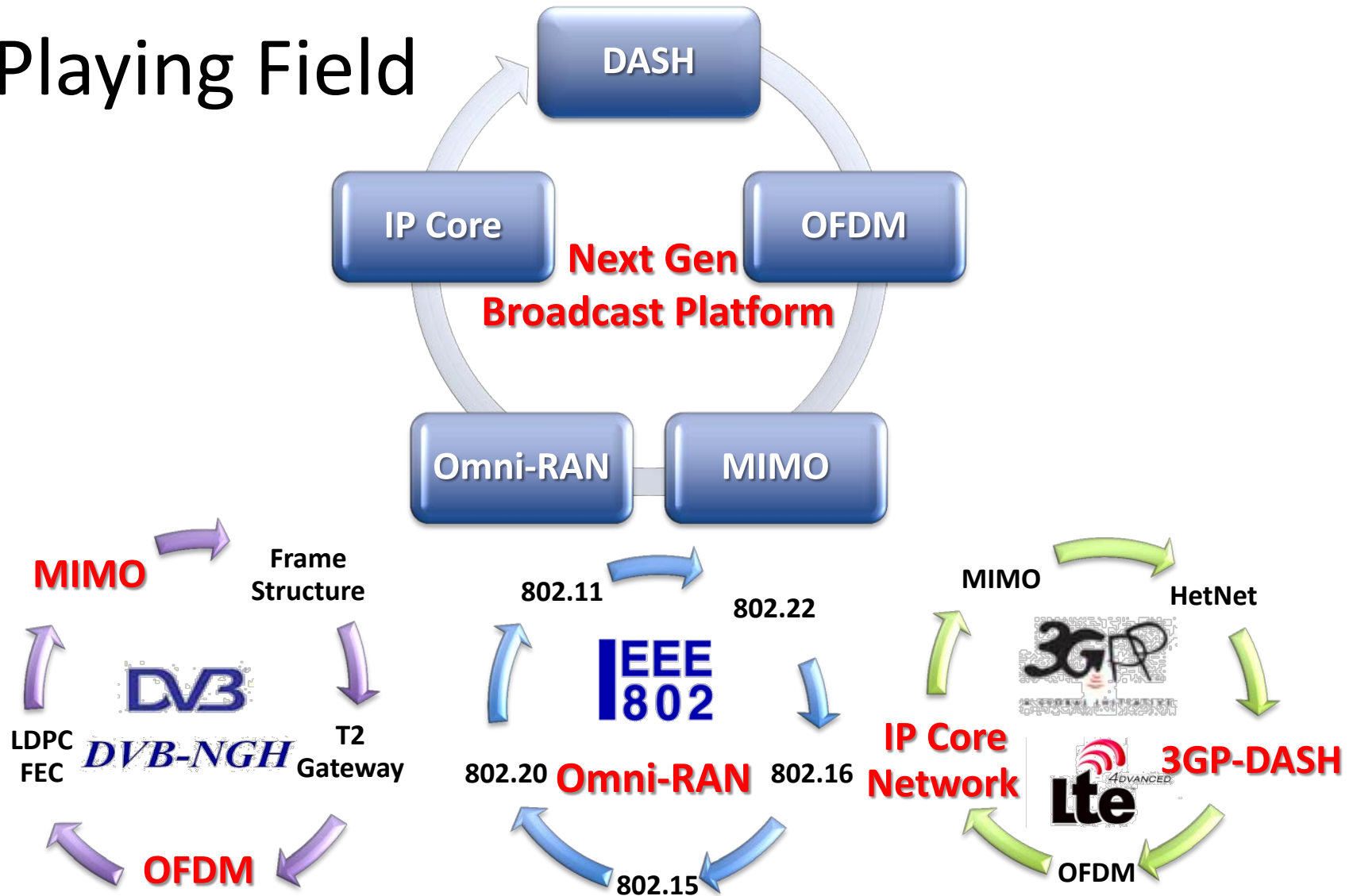
- **FACT - Wireless carriers will expand use of our broadcast model to provide live capacity in direct competition to local broadcast television**
 - Trial runs already conducted (eMBMS)*
 - Trial services launching at large venues
 - Delivering viewer specific ads and related content
- **The wireless carrier broadcast coverage will extend beyond the current coverage of today's DMAs**
 - TV Broadcasters, with our current platform, can not combat a Verizon/AT&T imaging position as the advertising platform of choice
- **We are currently left out!**

*FYI – At NAB 2012 Qualcomm made clear the broadcast capabilities for carriers

What Might a Next Generation Broadcast Platform 'Look Like'?

- OFDM (multi-carrier) Based
 - Flexible and configurable
 - Robustness, Number of Carriers, Modulation, Interleaving, Guard Interval
 - C/N, Doppler, bps/carrier, Echo Rejection, FEC, (Multipath Immunity)
 - Supporting multiple 'Physical Layer' profiles
 - Nomadic, Portable, Fixed
- IP Transport
 - Universal distribution
- Flexible Application Framework
 - HTML5'*ish*' (*follow the internet...*)

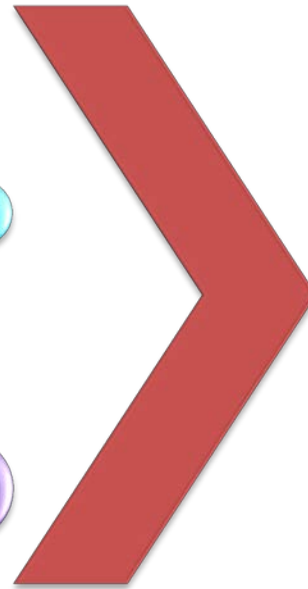
Standards Harmonization 'Levels' the Playing Field



We Have an Opportunity to Reinvent the Broadcast Television

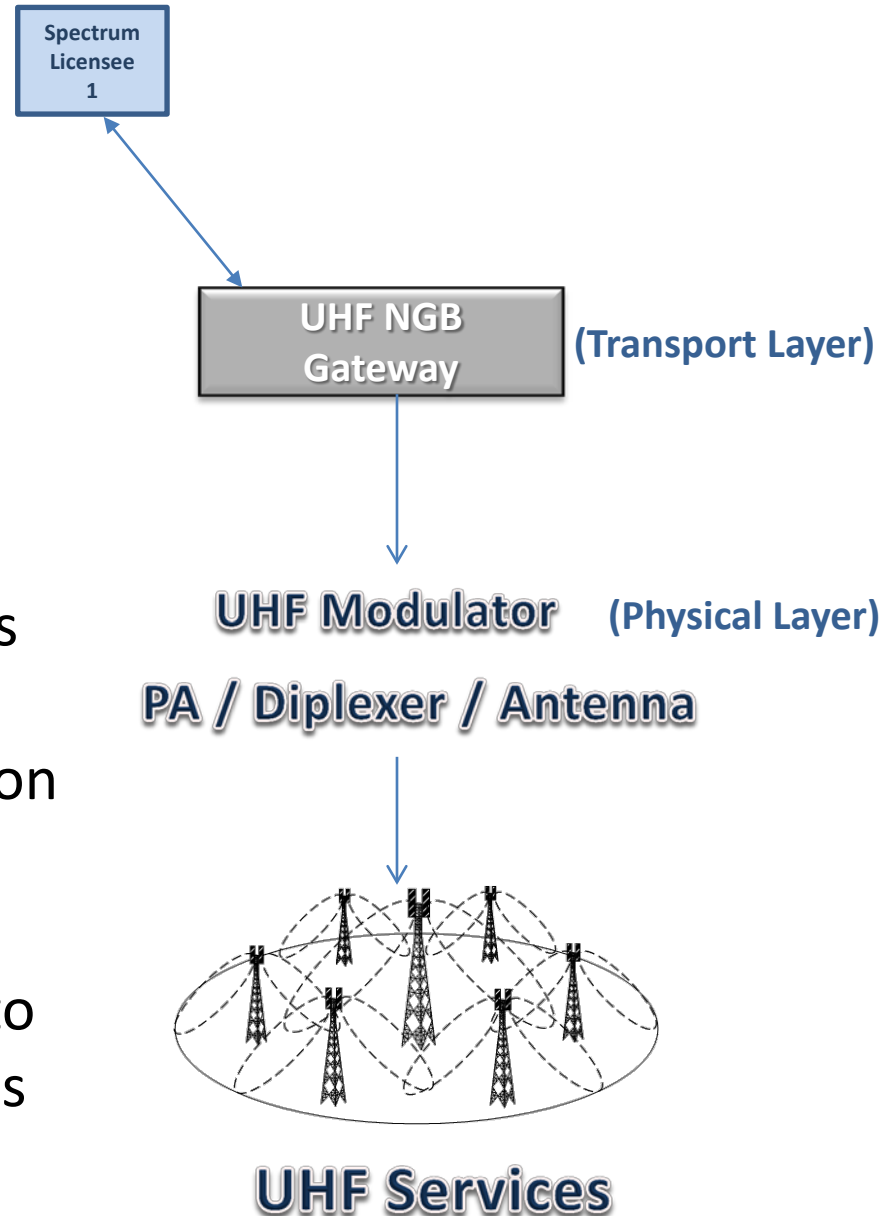


**Today - Broadcasters
are Islands and use a
topology of the 1950's**



Future
**A Connected
Virtualized
Broadcast Network
Platform**
**Using Modern
Broadcast /
Telecom Network
Techniques**

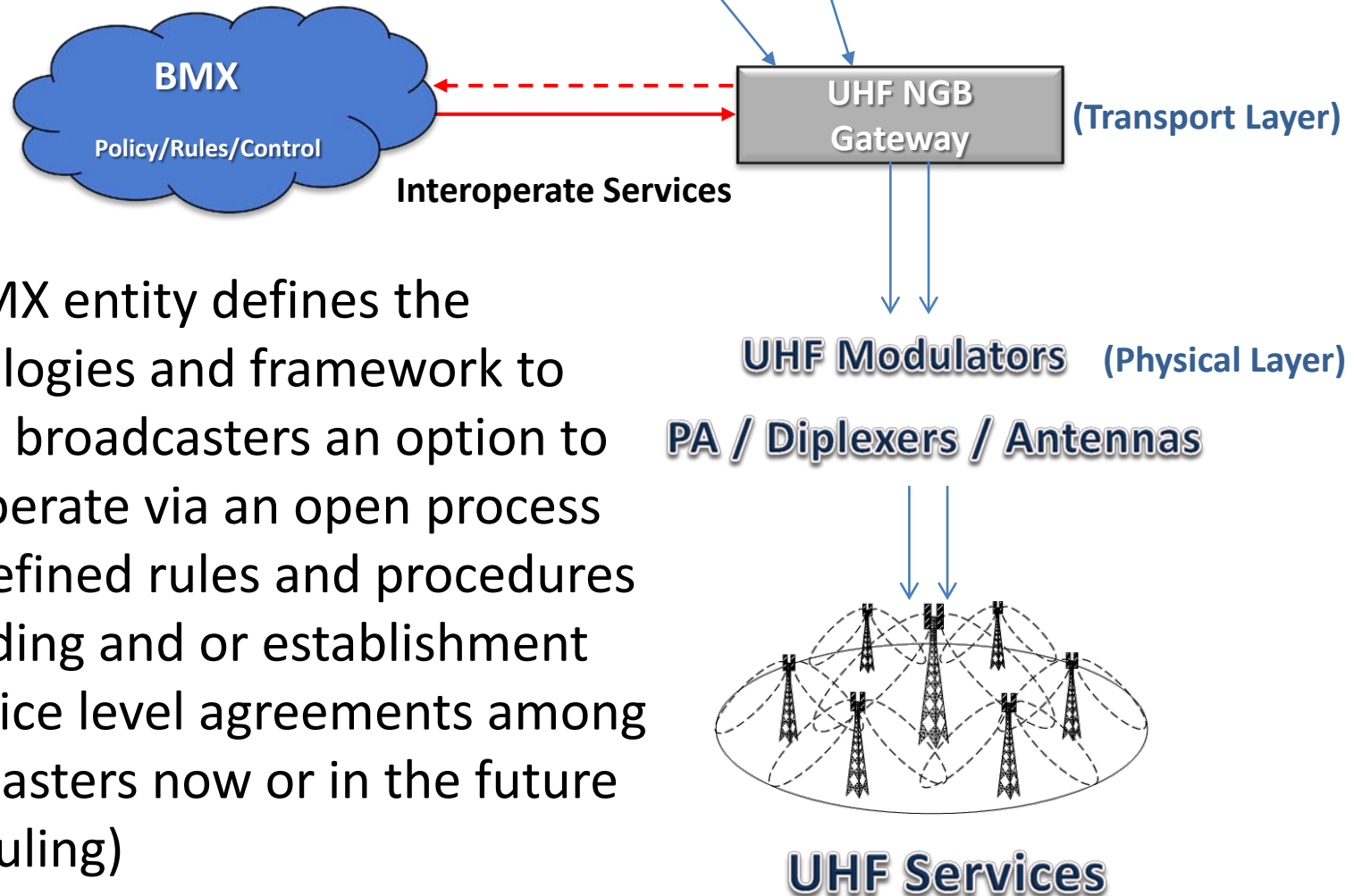
Broadcaster Today



- ❑ Today's Broadcaster typically operates as if an island. It is this author's contention that our competition is NOT the television operator 'across the street'. Rather, our competition is the other platforms that continue to whittle away at our core business opportunities.

Broadcaster Market Exchange

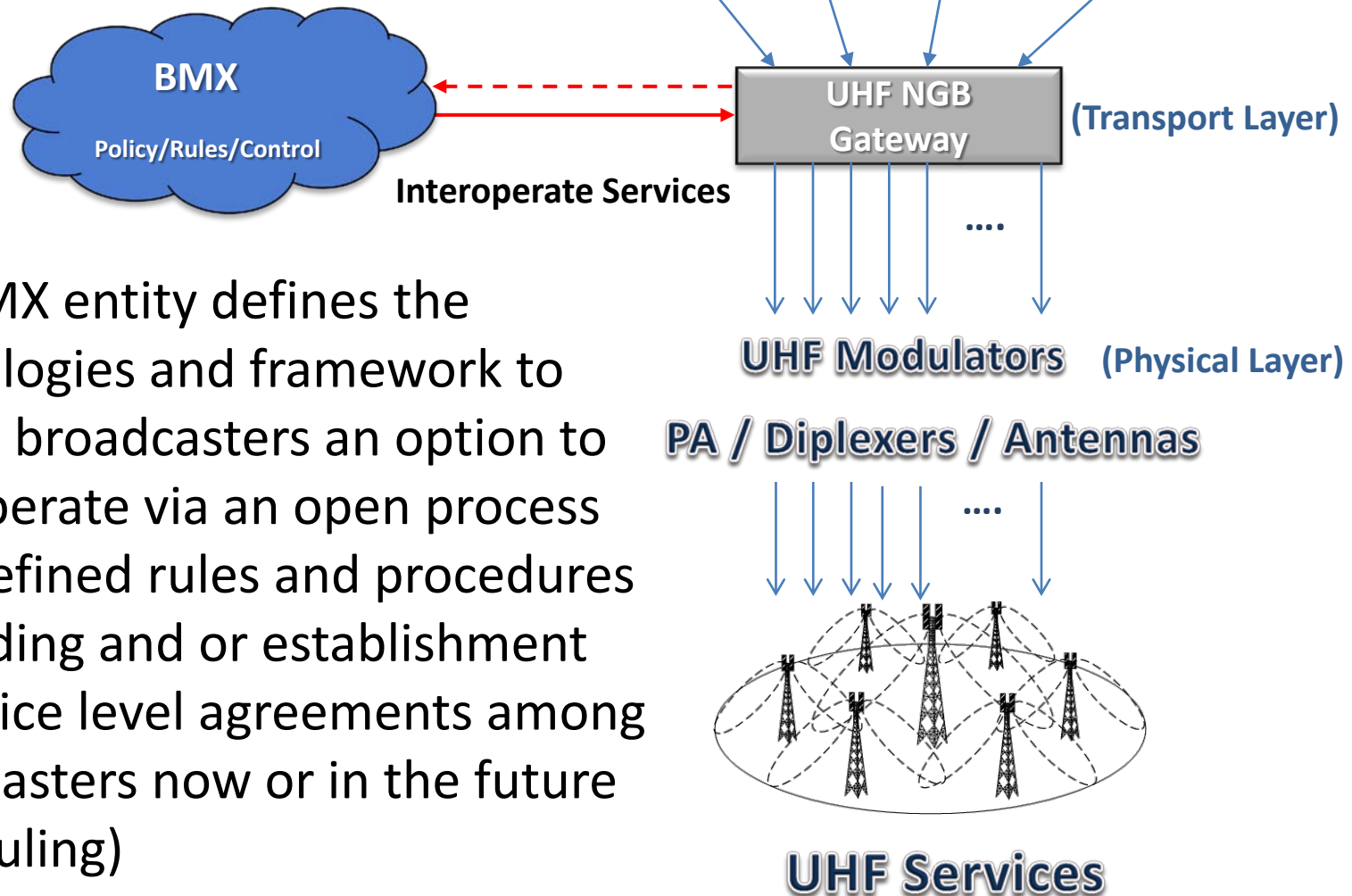
BMX Entity could be an extension of Broadcaster's New **Virtual** IP Core Network



- ❑ The BMX entity defines the technologies and framework to give all broadcasters an option to interoperate via an open process with defined rules and procedures for trading and or establishment of service level agreements among broadcasters now or in the future (scheduling)

Broadcaster Market Exchange

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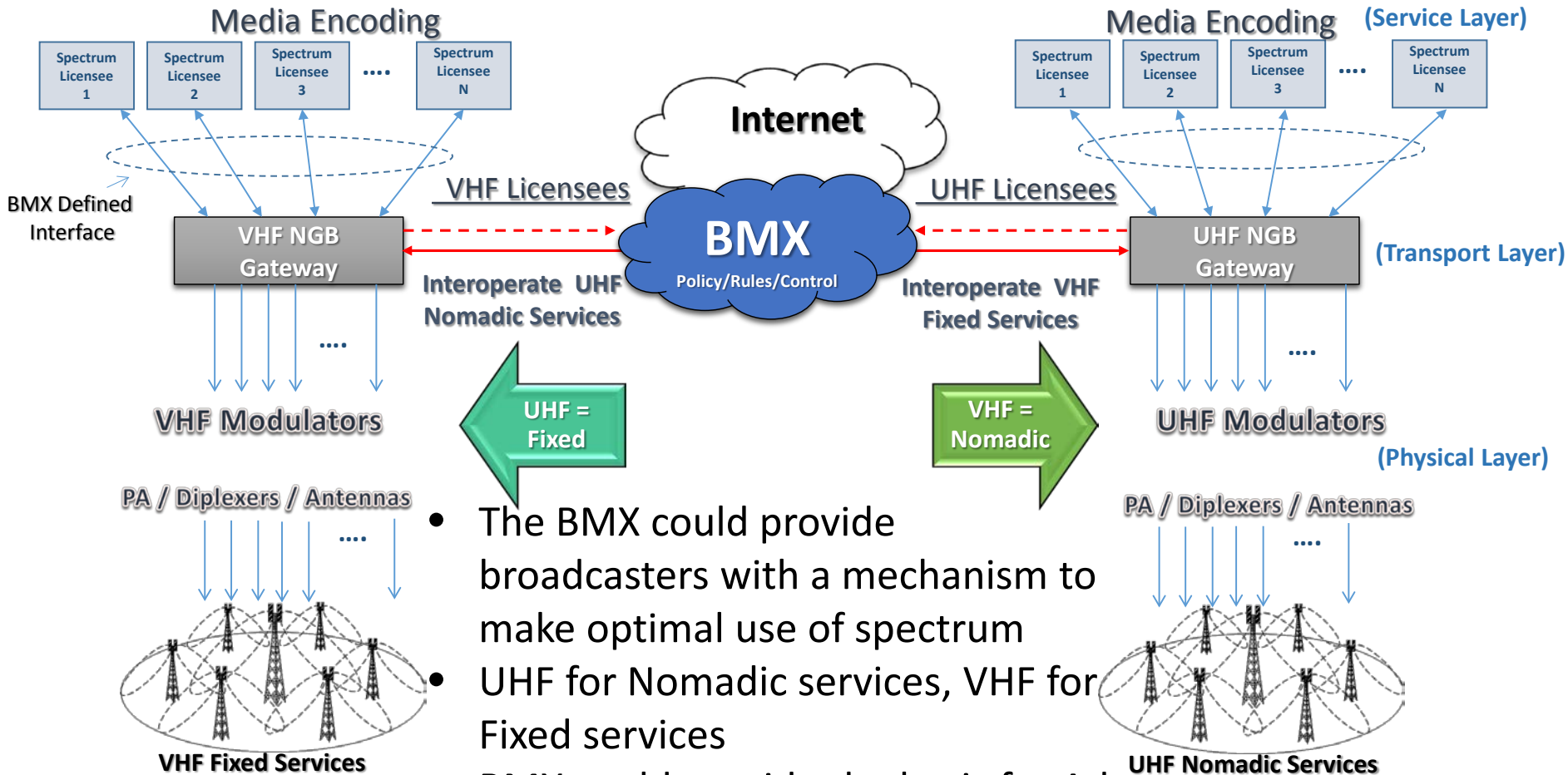


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Broadcaster Market Exchange

VHF/UHF Services Interoperate

(Separating the Service from the Platform)



- The BMX could provide broadcasters with a mechanism to make optimal use of spectrum
- UHF for Nomadic services, VHF for Fixed services
- BMX could provide the basis for Ad Agency “dashboard sales” on targeted basis

Check List for Business Success

- ✓ Targeted Advertising
 - ✓ Reaching the audience advertisers require
 - ✓ Huge CPM multiplier
- ✓ ‘The Second Screen’
 - ✓ Interactivity, engagement, sharing and Social Networking
 - ✓ Delivered in all locations across multiple wireless connections
- ✓ We need to be “TV Everywhere”, reaching all devices
 - ✓ TV in the home, Tablets on the go, EVERYWHERE!
 - ✓ Fixed and Nomadic with definable QoS
- ✓ We must be engaged in this activity as ‘an Industry’
 - ✓ We have to think outside of and build a ‘bigger playground’
 - ✓ As an industry, we must work together to become the leading provider of wireless content and become the consumer’s champion

'Next Gen' Broadcasting

- Configurability will yield bitrates that vary based on intended receive environment (w/o MIMO), i.e.;
 - ~35Mb/s payload for fixed reception
 - ~12Mb/s payload for nomadic reception
 - “Mix and Match” for a combination of services
- 'Next Gen' Video Codec (HEVC) is 4X more efficient than MPEG2
 - 4 channels HEVC for every MPEG2
- This means many multiples in additional services
 - ~6-8X increase in fixed reception video services
 - ~12X increase Nomadic reception video services

What Businesses Come out of These 'Next Gen' Capabilities?

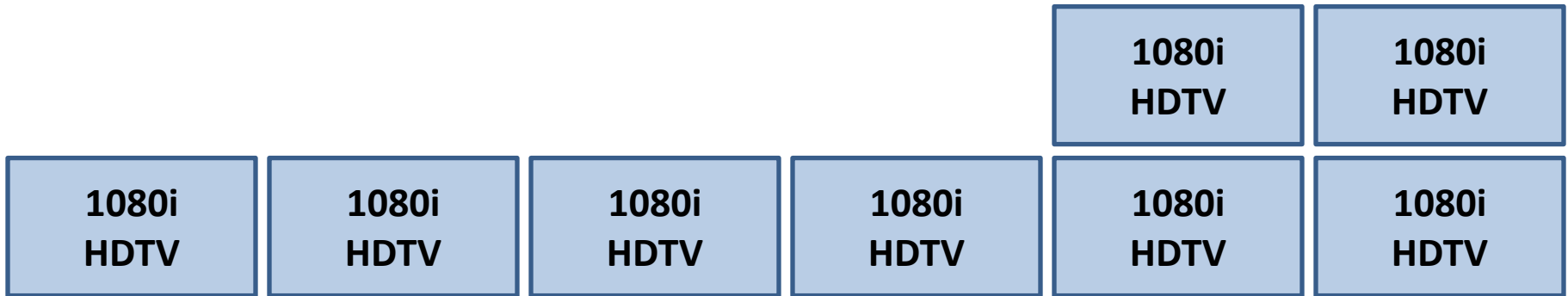
- More programming capacity, service capability and opportunities
 - 8-12 HDTV services in a single channel
 - Dozens of SD services
 - Targeted Advertising
 - 4G 'off load' services with wireless carriers
 - Virtual 'wireless CDN*' pushing content over wide service areas
 - SFNs (Single Frequency Network) to compete 'head-to-head' with the carriers

'Next Gen' Broadcasting

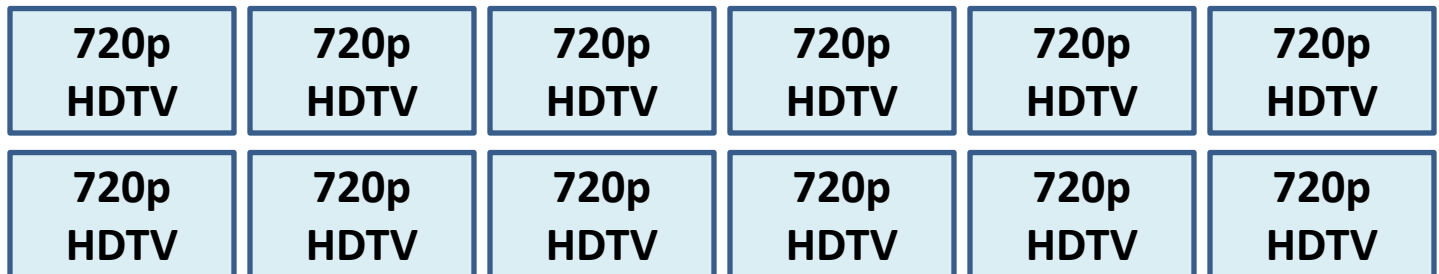
- The 'Holy Grail' for Fixed & Nomadic TV content and advertising
 - With 'device storage' and 'return channel' support , new advertising paradigms can be executed
 - Device Storage = Hard drive, SD cards, "the cloud"
 - Return Channel = Internet access (wireless or wired Ethernet, mobile broadband, WS, etc.) and 'viewer metrics'
 - Combine 'broad reach' of television with the addressability, interactivity and tracking capability of the internet
 - Targeted ads down to single user/profile!
 - Interactive engagement!
 - 'eCommerce' capability!

'Next Gen' Broadcasting

- ~ Eight 1080 'fixed' HDTV Services?*



- ~ Twelve 720 'fixed' HDTV Services?*

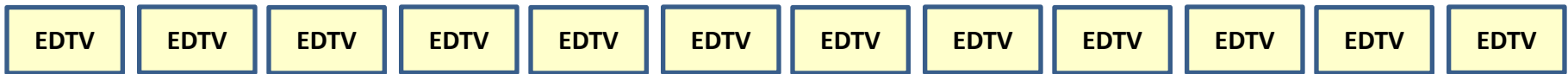


* 2TB of storage = 1,300 hours

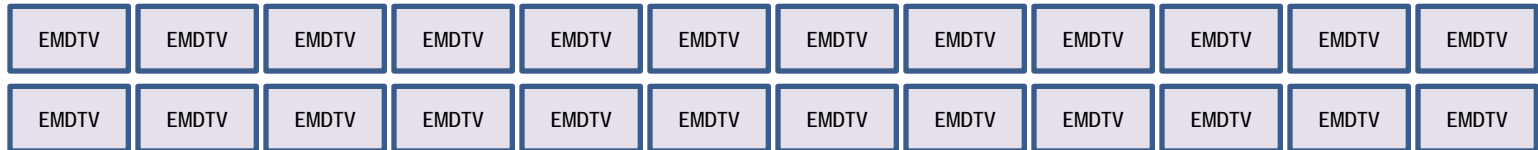
** 2TB of storage = 2,000 hours

'Next Gen' Broadcasting

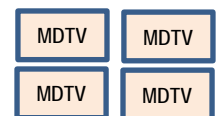
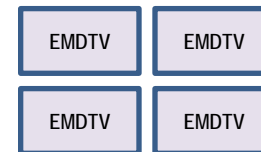
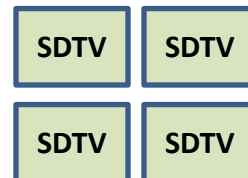
- Fifteen or more 480p “Nomadic” Services?*



- Thirty or more 360p “Nomadic” fully mobile Services?***



...or variety of combined “fixed & Mobile” video services

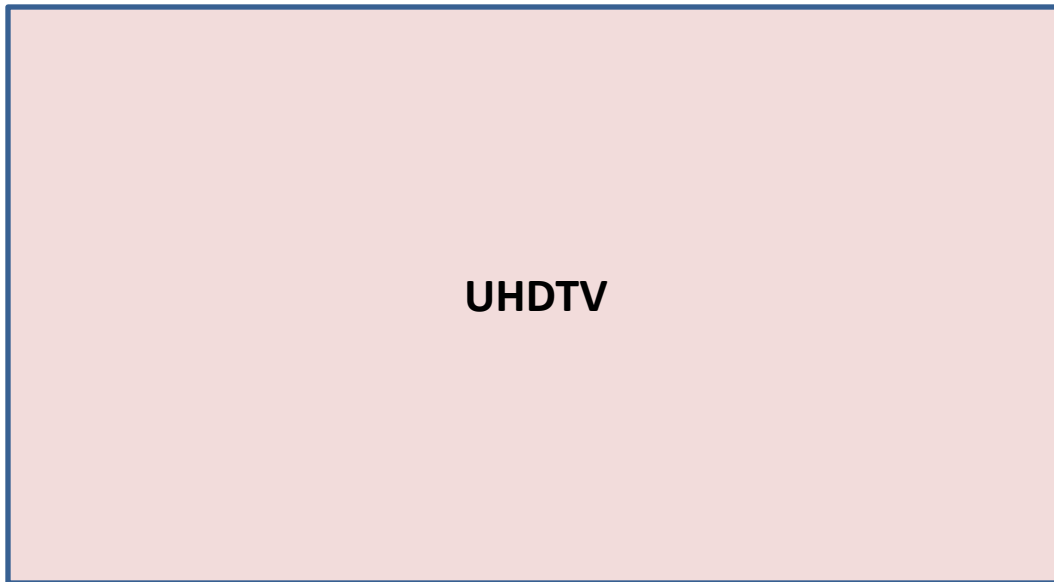


* 2TB of storage = 6,000hours

** 2TB of storage = 10,000 hours

'Next Gen' Broadcasting

- UHDTV is *only possible* with a new broadcast platform!!!



- or -



- Multiple 3DTV...and lots of data for a variety of services including wireless carrier offloading!

UHDTV

- Streaming OTT services are launching UHDTV programming this year
- HDTV will be the AM radio of yesterday!



Here's an Idea!

- The combined assets of the television broadcast industry, fueled by a new and capable broadcast platform, can supply the majority of the nomadic media content Americans wish to consume
 - Broadcaster authenticated MVPD 'live'
 - Broadcast 'push' content cached on devices
 - Bring the wireless phone companies back to their origins...voice call providers!

'Next Gen' Fueled Delivery Capacity Pays

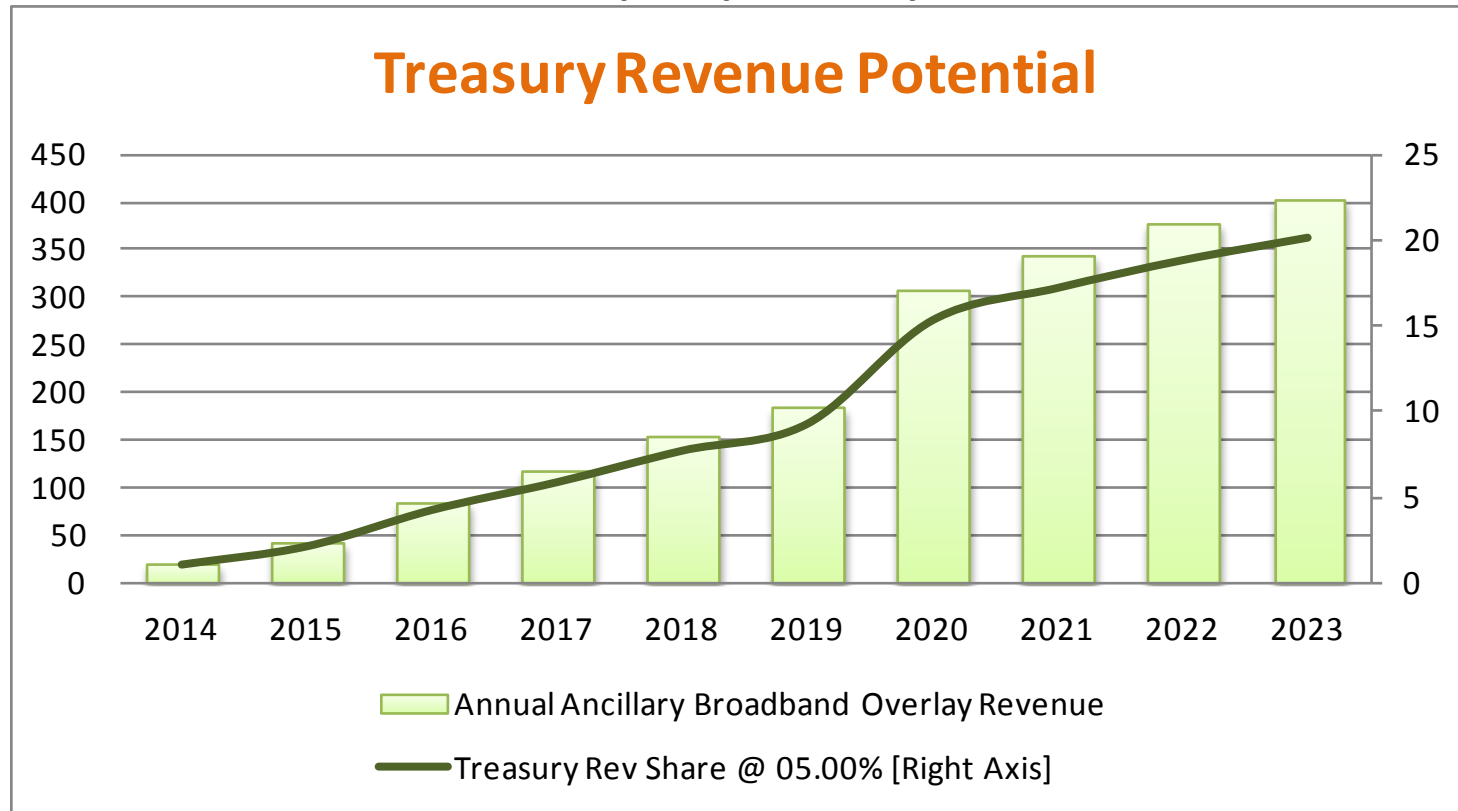
- Delivery of most valued content for consumption, both LIVE and STORED (cached) provides large universe of opportunities
- With a 'Next Gen' platform (more capacity, increased efficiency, definable QoS) we can deliver content to devices everywhere for anyone - including the carriers!
 - New TV broadcast technology will be harmonized with carrier network technologies... and could generate ~\$150B+/year of industry revenue inside of 10 years!*
 - 5% to U.S. Treasury = \$7.5B+/yr. (annuity)
 - We can deliver broadcast bits to consumers at 1/6 the price-point of the carriers*



* November 2011 "Business Analytix" Report - THE ECONOMIC VALUE OF BROADCAST INNOVATION – IMPACT ON THE U.S. TREASURY



The Ancillary Revenue generated by Broadcast Overlay will result in substantial Treasury "annuity" contribution in perpetuity





**Confiscation?
Redistribution?**

Our choice as an industry!



What can you do?

- Join the ATBA

www.broadcastingalliance.org

- File your comments with the FCC
- Stand ready to respond to the needs of the entire industry