

GuideBuilder Mobile

Unified ATSC Mobile DTV ESG & Signaling

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ATSC M/H Features (ATSC A/153)

- Carries mobile/pedestrian/handheld services
- Uses a portion of the ~19.39Mbps ATSC 8-VSB payload
 - Adds Serial Concatenated Convolutional Coding (SCCC) for robustness
 - Adds extra training signals to aid reception in dynamic channel conditions
- Provides burst transmission of the M/H data enabling the receiver to cycle power for energy saving
- Includes control data for use by M/H receivers
 - Transmission Parameter Channel (TPC), for decoder settings
 - Fast Information Channel (FIC), for quick access to channels and for band scanning

Quality Mobile Broadcasting – ATSC A/153

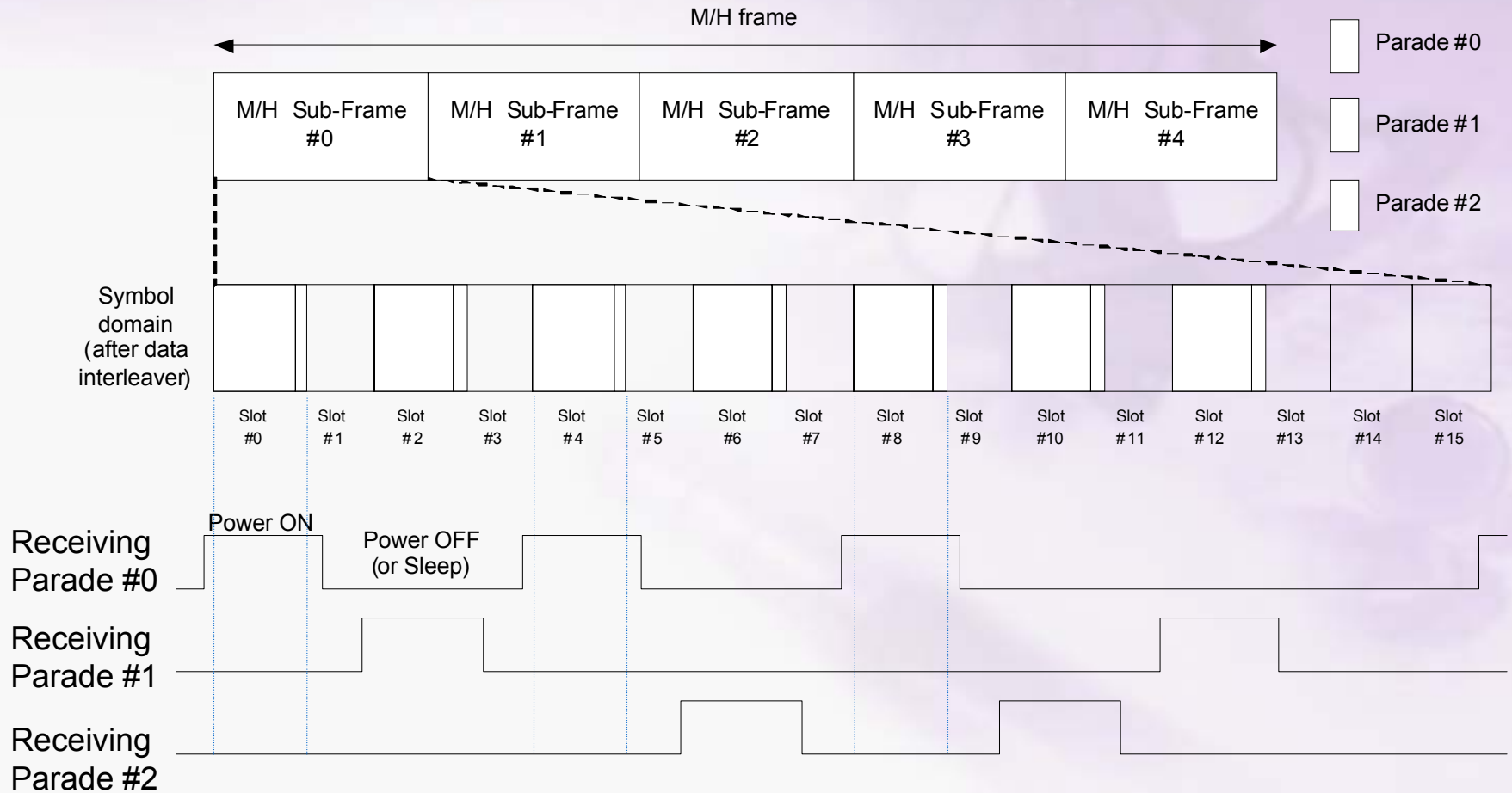
GuideBuilder Mobile allows broadcasters to introduce mobile ATSC services as an extension of their current operations. Integrated mobile DTV metadata management and generation enable transmission of programming information to mobile ATSC receivers, allowing viewers to select programs and view channels.

- Integrates smoothly with existing workflow components: listing services, traffic systems, automation and multiplexers
- Supports centralized metadata generation for fixed and mobile broadcasting
- Supports mobile ESG and signaling
- Allows GuideBuilder users to repurpose existing investment in schedule and metadata management systems

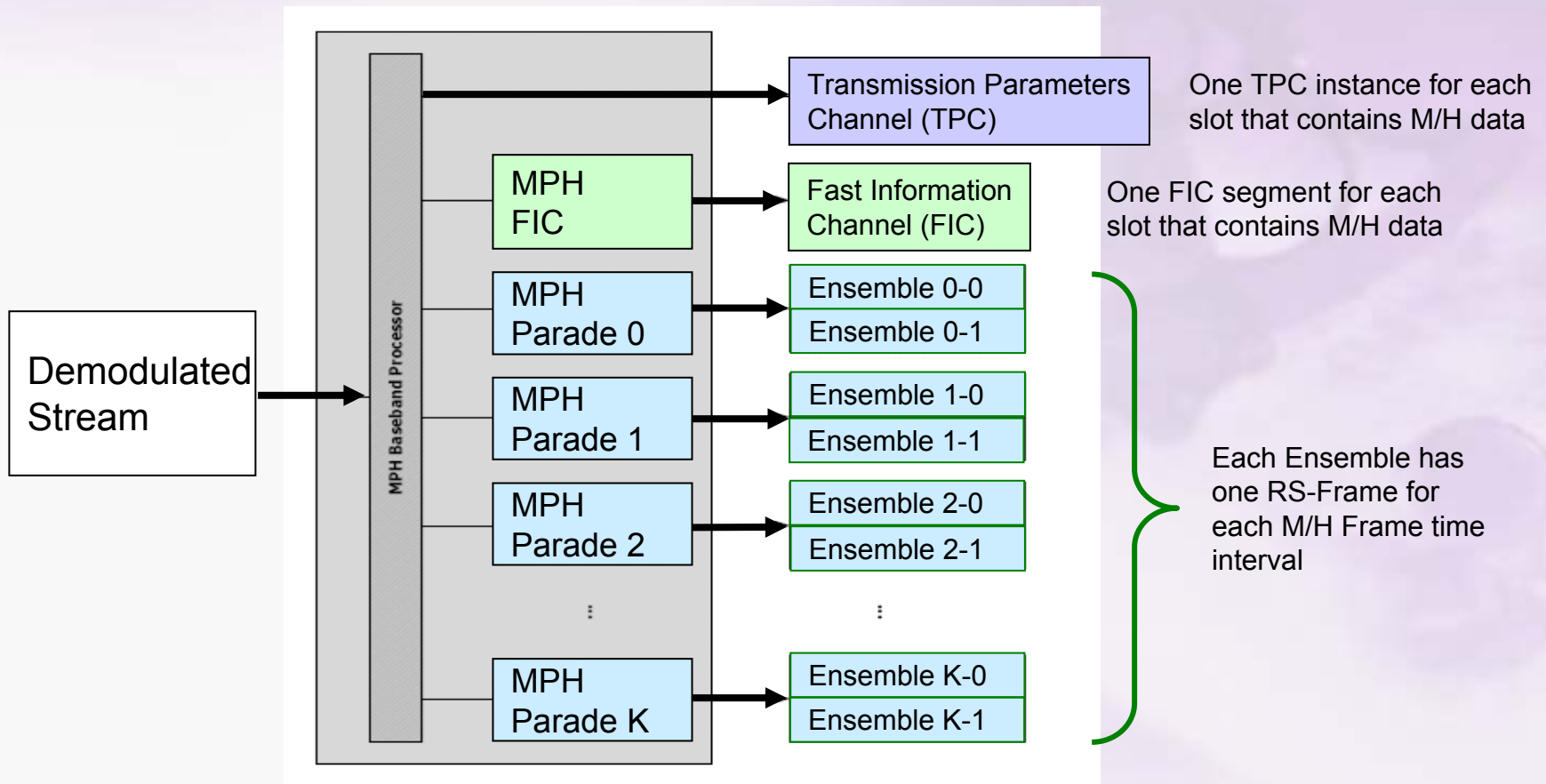


Parade (Sequence of Groups) Burst Transmission

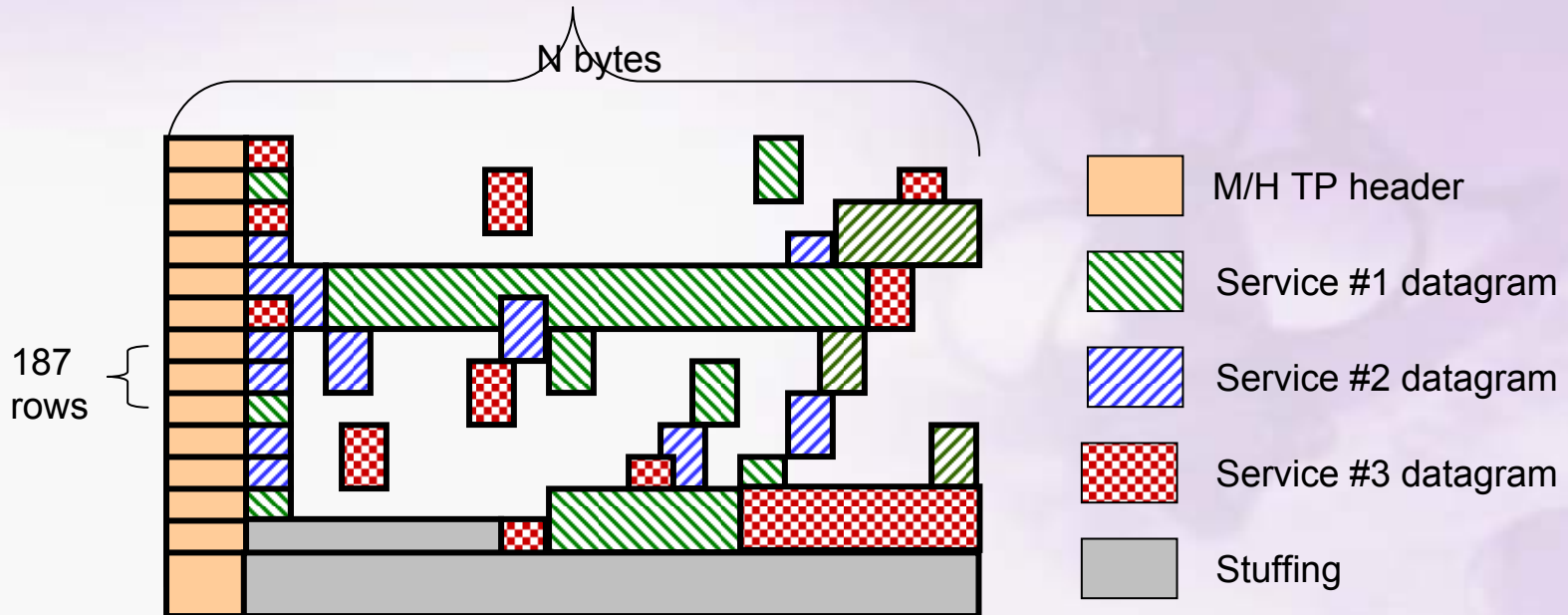
...for Receiver Power Saving and Noise Immunity



Physical Transport



RS-Frame Internal Structure



- Data transport is native IP, not MPEG-2
- RS-Frame row is called an M/H Transport Packet (TP)
- IP Datagrams may wrap around from row to row, and from one RS-Frame to the next (except for RTCP and NTP packets)

General Terminology

- Signaling: Metadata about what's on right now
 - Used for tuning
 - Used to decide if tuning is appropriate
 - Allows simple set of info to viewer
- ESG: Metadata about what's on in the future
 - AKA: Announcement
 - May be used for tuning
 - May be used to decide if informing viewer about event is appropriate
 - Allows rich set of information to viewer
- Information may be duplicated between signaling & ESG
 - If so, signaling always wins

ATSC Mobile Metadata Layers

OMA BCAST Extensions
Aggregated ESG
Long Term ESG
Short Term ESG
Dynamic Signaling
Static Signaling

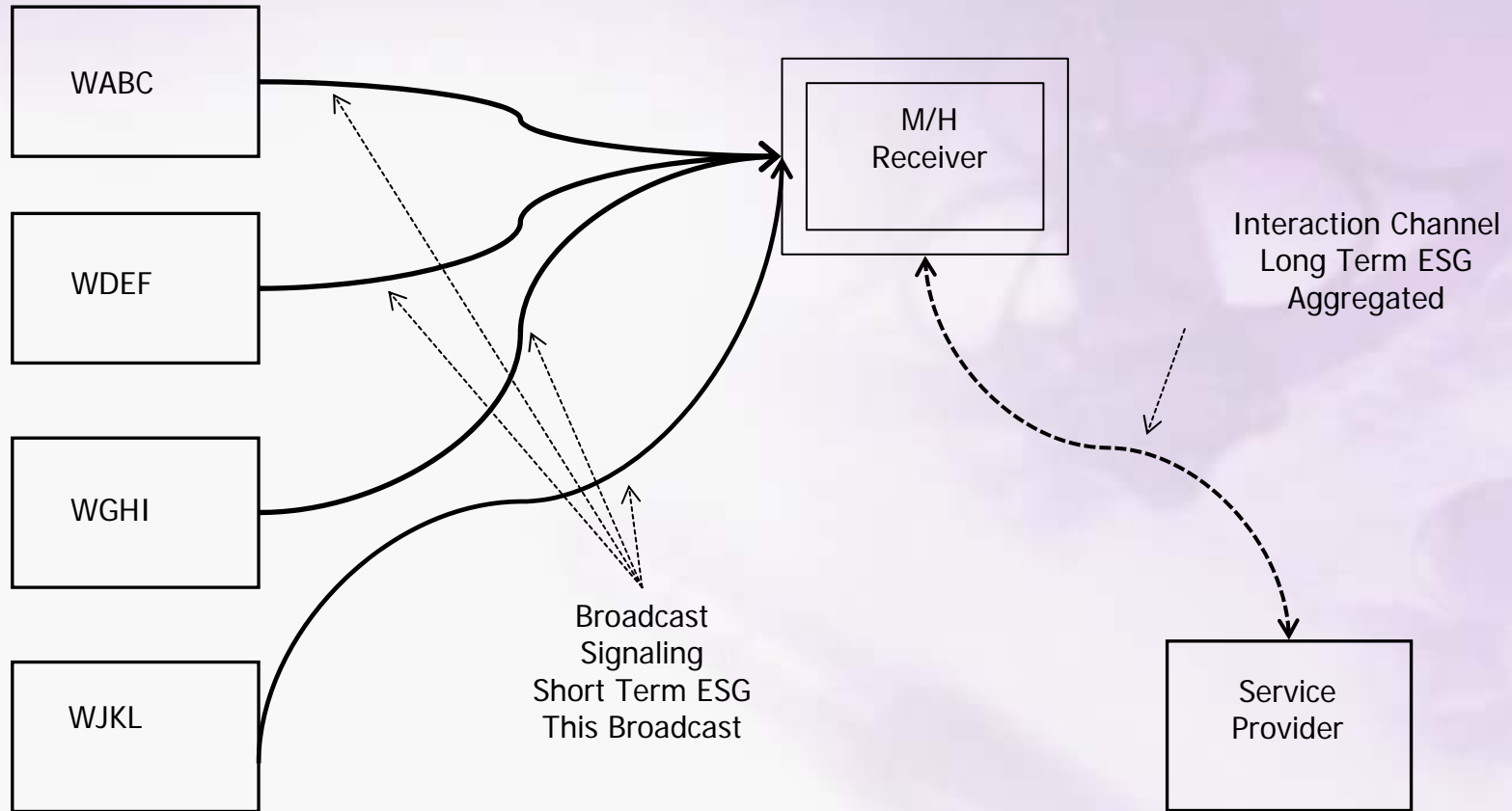
- Static Signaling: A/153 Tuning Information
- Dynamic Signaling: A/153 Tuning + information about current event
- Short Term ESG: A/153 Descriptive information about now/next + a bit (in this broadcast)
- Long Term ESG: A/153 Descriptive information about extended schedule (in this broadcast)
- Aggregated ESG: A/153 Descriptive information about extended schedule (in this & other broadcasts)
- OMA BCAST Extensions: ESG features not specified nor disallowed in A/153

Expected Delivery Approach for Mobile Metadata

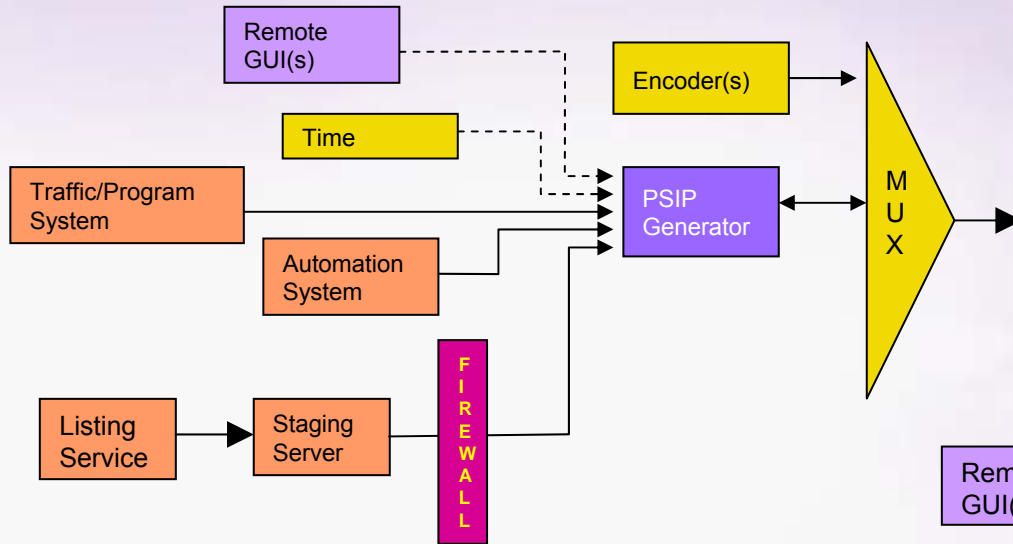
OMA BCAST Extensions
Aggregated ESG
Long Term ESG
Short Term ESG
Dynamic Signaling
Static Signaling

- Static Signaling: In each Ensemble – rapid - required
- Dynamic Signaling: In each Ensemble – rapid - dynamic portion optional
- Short Term ESG: In each Ensemble (info for all ensembles in broadcast signal) – moderate rate - optional
- Long Term ESG: In each Ensemble (info for all ensembles in broadcast signal) – trickle – optional (may not be carried, due to BW overhead)
- Aggregated ESG: Pull from interaction channel (source?) – not broadcast - optional
- OMA BCAST Extensions: Pull from interaction channel (source?) – not broadcast – optional (may not be supported in receivers)

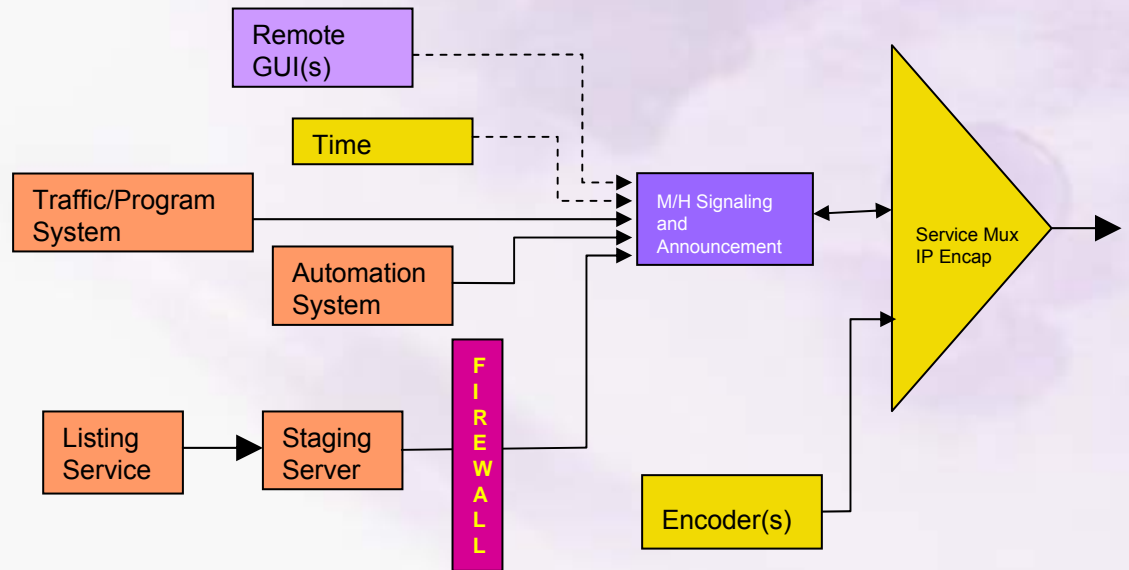
DMA View – Likely Scenario for Metadata



ATSC Fixed compared to ATSC Mobile



ATSC Fixed



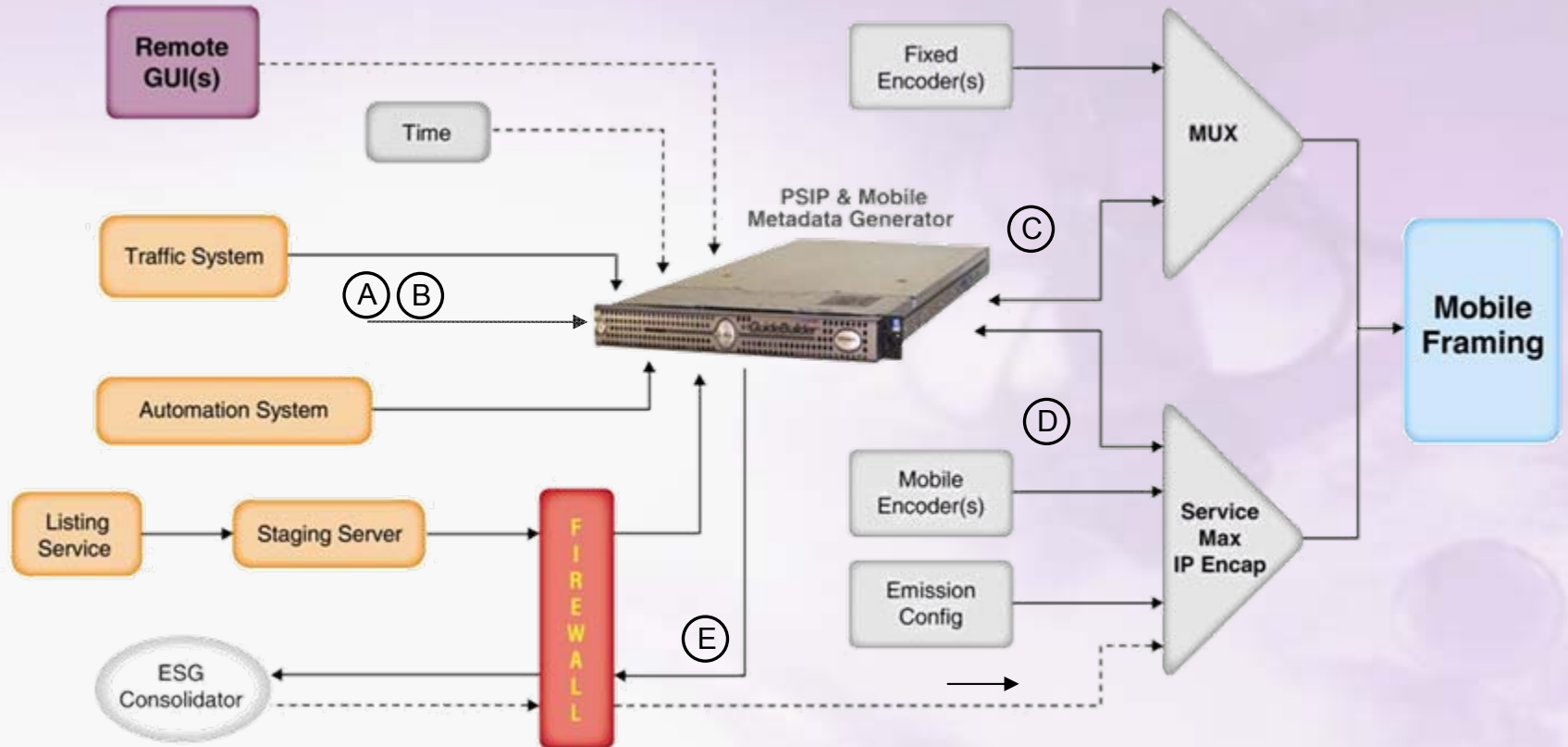
ATSC Mobile only

Schedule info & sources common for Legacy & A/153. Linkages and relationships established for legacy can be leveraged for A/153

Common Elements – Fixed & Mobile

- Workflow for fixed and mobile ATSC
 - Unlikely that new listing, traffic, automation systems be put into place for Mobile content
 - Schedule information sources for fixed and mobile
 - Mobile scheduling likely to be driven by existing workflow elements (see above)
 - Simulcast likely initially, separate mobile schedule will evolve
 - Operational staff
 - Mobile likely to be one more thing added to existing burden
- Recommendation: Utilize existing systems and interfaces by adding Mobile support to existing PSIP generator

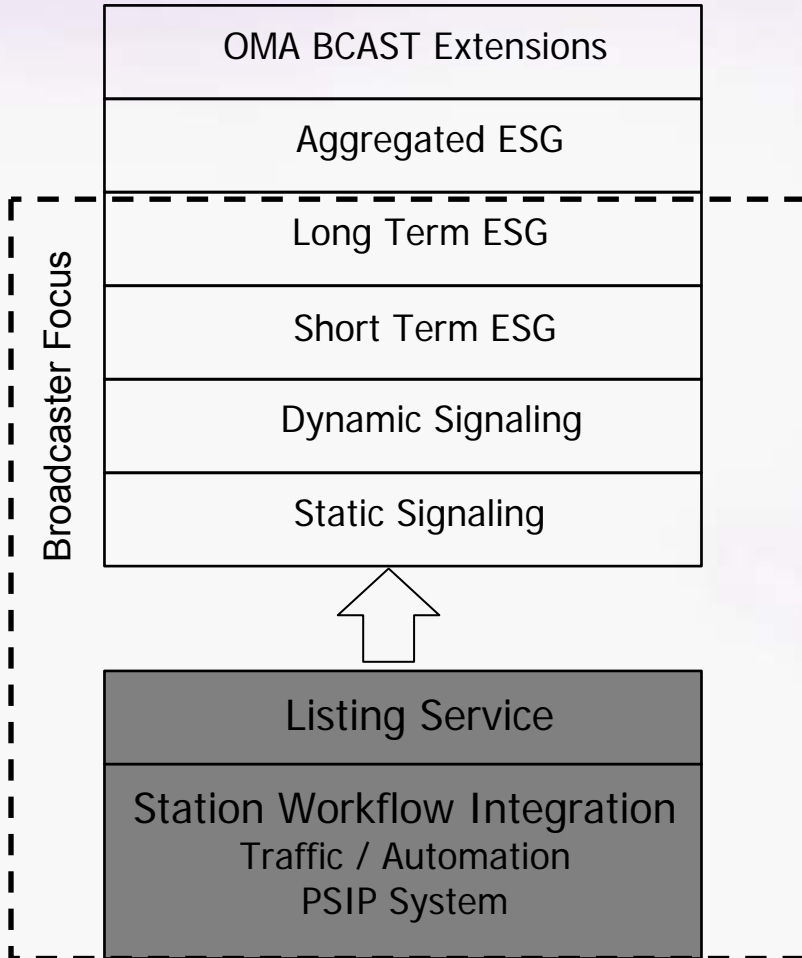
Triveni Digital Strategy - Unified Metadata Management



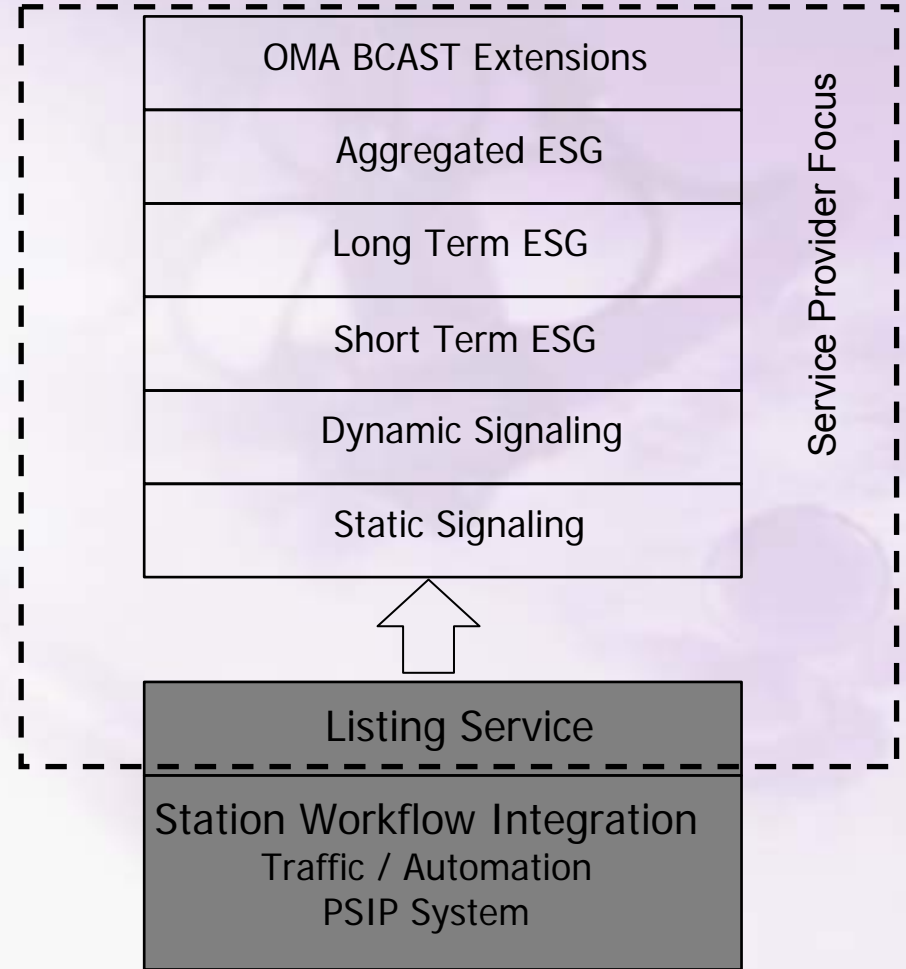
- (A) Fixed Schedule Info, Event Info, Characteristics
- (B) Mobile Schedule Info, Event Info, Characteristics
- (C) ← MPEG program Info, Virtual Channel Info, PIDS → Encoded PSIP tables
- (D) ← Ensemble Info, Service Info, IP addresses → Encoded A/153 Signaling Tables, A/153 ESG fragments
- (E) ← Schedule Information to Consolidator

Solution Comparison

Triveni Digital



Legacy ESG Vendor



GuideBuilder Mobile - Solution Advantages

- Unified metadata management
 - Same workflow as existing PSIP
 - Common schedule sources for fixed and mobile
 - Utilizes existing infrastructure investment
 - Common User Interface
- Transmitter independent
- ESG client neutrality
- Single unit for both PSIP and ATSC Mobile – Go Green!
 - Less hardware
 - Lower power consumption
 - Less maintenance

Thank You

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