

Terrestrial UHD and Interactive Service in Korea



Nov. 14th 2018

JEONG-DEOK, KIM

KBS, KOREA

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UHD Broadcasting in KOREA



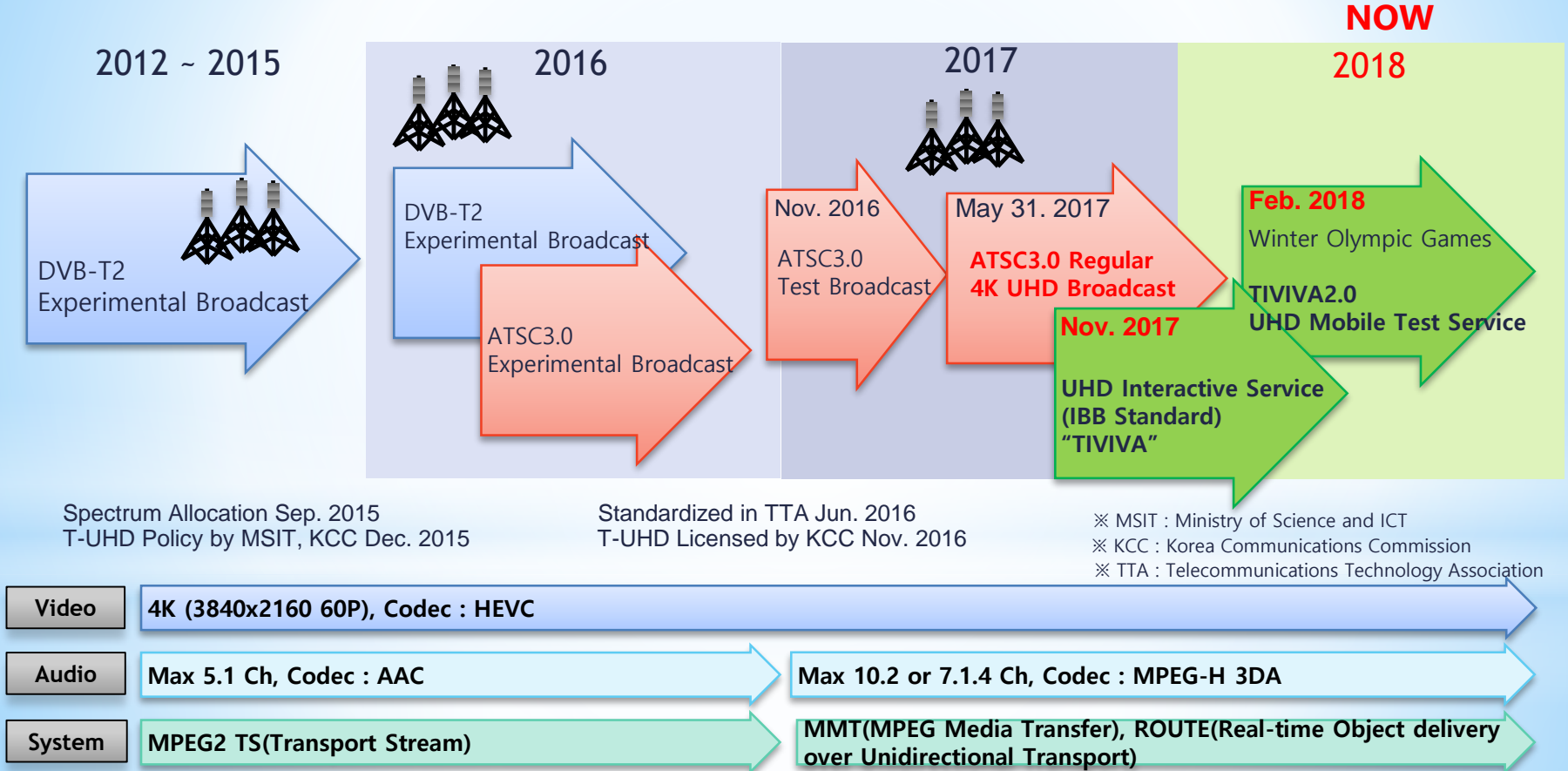
Launching Event of UHD Broadcasting @KINTEX

**Regular Broadcasting
Started : May 31. 2017**

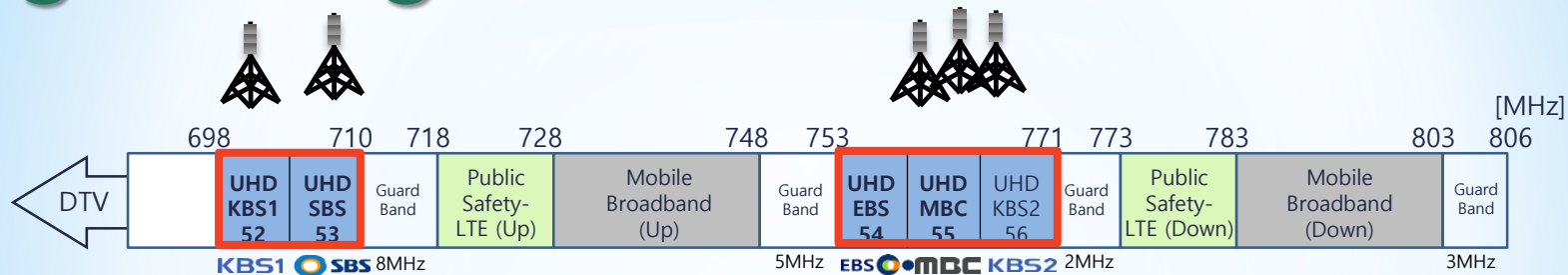


KBS UHDTV Master Control Room

UHD Situation in Korea



UHD Spectrum Allocation and Program Regulation



KBS, MBC, SBS, EBS : Around 700MHz

by MSIT Sep. 2015

Regulation for 4k UHD Program Schedule Ratio

Year		2017~	2020~	2023~	2027~
4k Program Ratio (%)		5%	25%	50%	100%
UHD Channel Time	Minutes per Day	63	315	630	1,260
	Hours per Year	23,114	115,570	231,140	462,280

FBMF Introduction

❖ Future Broadcast and Media Standards Forum

✓ Mission

- Developing the Future broadcast and Media service specification
- **Research & Propagating the Future broadcast and media service**
- Cooperate with government and International standard organizations

✓ Specifications

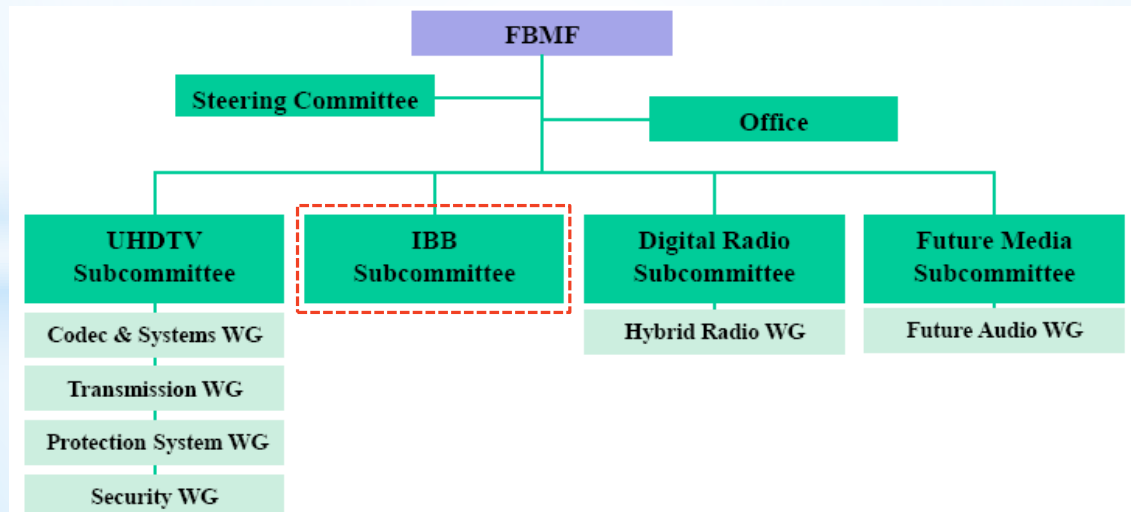
- Transmission and Reception for Terrestrial UHDTV Broadcasting Service
- **Standard for Terrestrial UHD Integrated Broadcast Broadband (IBB)**
- UHDTV/FTV Broadcasting
- UHDTV/FTV Video/Audio
- Immersive Media
- Radio/Mobile Broadcasting Service

FBMF Organization

❖ Forum Members

- ✓ Total 37 organizations and 46 personal members
- ✓ Broadcasters : KBS, MBC, SBS, EBS
- ✓ Industries : LG, Samsung, Aircode, DigiCAP, Alticast, KaiMedia, etc
- ✓ Institutes and Universities : ETRI, KETI, TTA, SNU, KAIST, etc

❖ Organization



IBB Service Standard

❖ IBB (Integrated Broadcast Broadband) Service

- ✓ Provides domestic terrestrial UHDTV Viewers with various interactive content service while watching TV
- ✓ Defines method of providing interactive service application based on web through the broadcast and/or broadband network while watching UHD broadcasting and also defines method of providing companion screen service connecting TV and personal smart devices
- ✓ Refers to ATSC3.0 and HbbTV2.0



IBB Service Standard

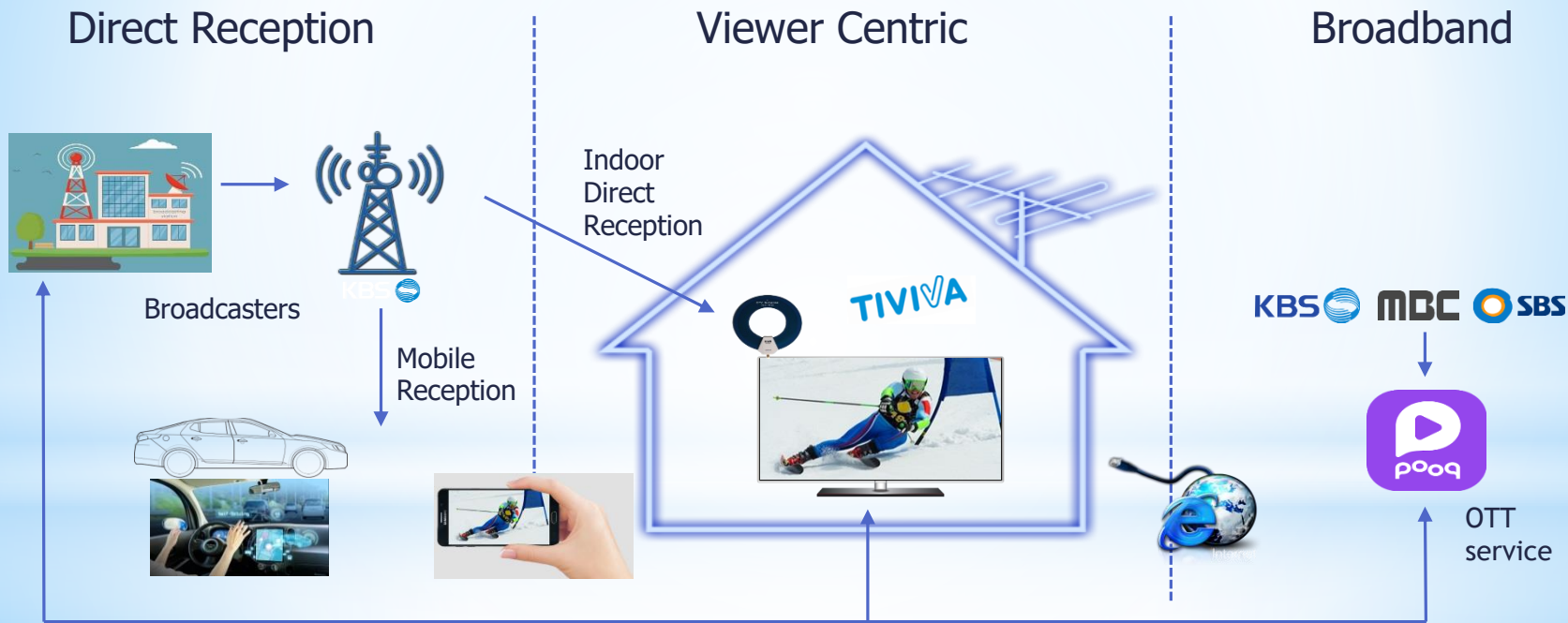
❖ UHD IBB Service Specification consists of

- ✓ Part 1. Common Technology
- ✓ Part 2. Application Signaling
- ✓ Part 3. Browser Application Environment
- ✓ Part 4. Companion Screen Service
- ✓ Part 5. Service Guide
- ✓ Part 6. ACR

❖ Browser Profile(part3) based on HbbTV2.0 with extensions

Markup	HTML5, HTML5 2D Canvas
Style	CSS2.1
Text and Fonts	Web Open Font Format, CSS Font
Graphics	CSS Color Module Level3, CSS Image Values and Replaced Content, CSS Background and Borders, CSS Transforms, CSS Transitions, CSS Animations
Device Adaptation, Layout	CSS Selectors Level3, CSS Media Queries, CSS Multi-column, CSS Flexible Box, CSS conditional Rules Module Level3
Scripting	ECMAScript262 5.1
Events	DOM3 Event
Applications APIs	XMLHttpRequest, Web Messaging API, Web Socket API, Web Workers API, Server-sent Events, Web Storage API
Extensions	Geolocation, MSE, EME, Network Information API

Terrestrial UHD & Mobile Platform



UHD Interactive Service

❖ Terrestrial UHD TV Hybrid Platform Service : TIVIVA (by KBS, MBC, SBS, Pooq)

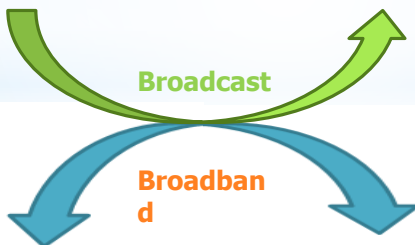
- ✓ **Service Network Convergence : Broadcast + Broadband**
- ✓ **Platform Service : Terrestrial Broadcast + OTT(Over The Top)**
- ✓ **Standard : "UHD IBB Service" (IBB : Integrated Broadcast Broadband)**
- ✓ **UHD, VOD, Terrestrial PP, 2nd Screen...**



UHD TV

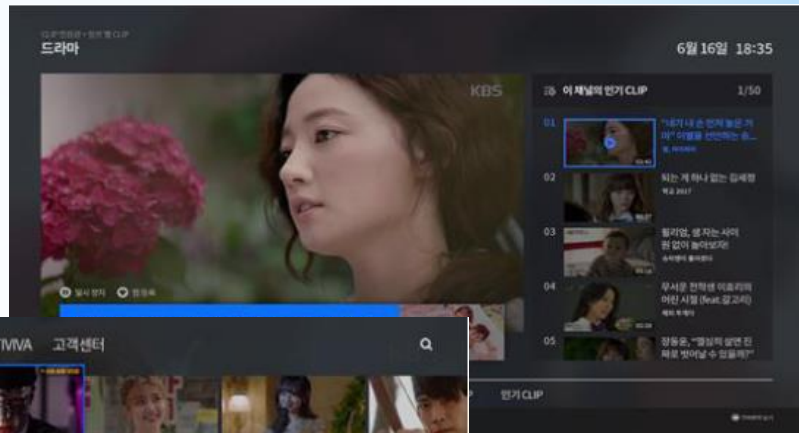
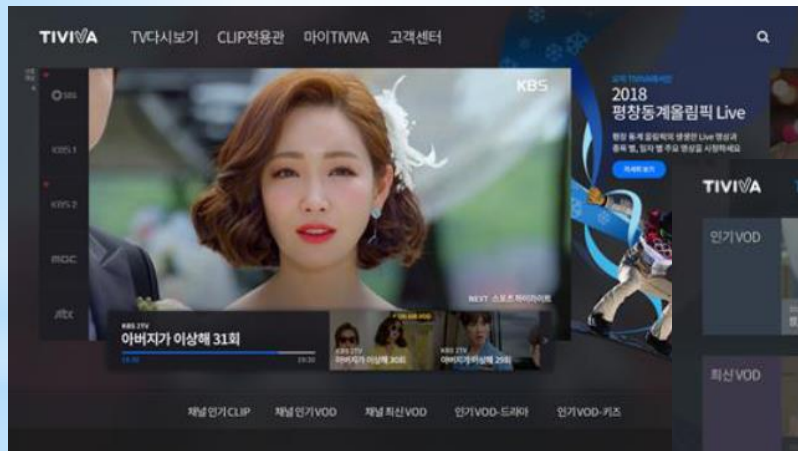


LTE 5G Giga Internet



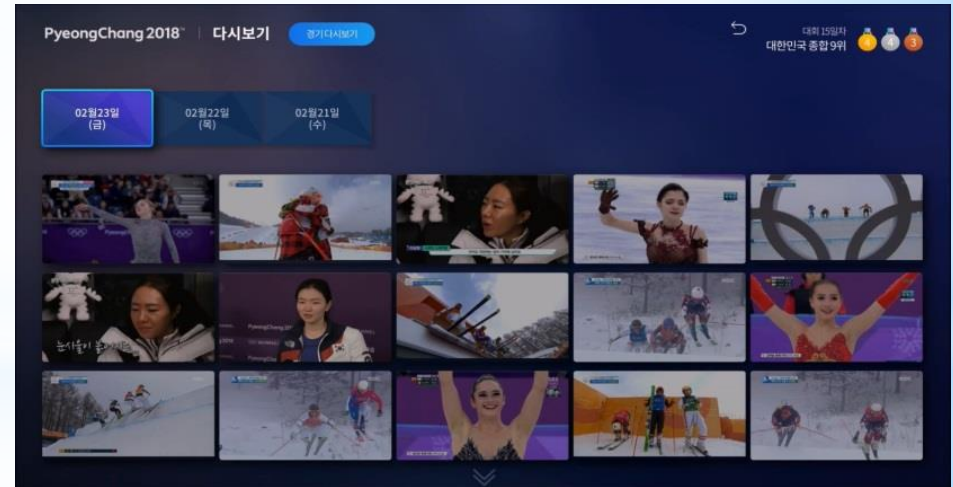
IBB Interactive Service : TIVIVA

- * Channel Service : Real-time TV; Broadcast, Broadband
- * VOD, CLIP, Searching Service
- * Personalization, Recommendation
- * 2nd Screen Service



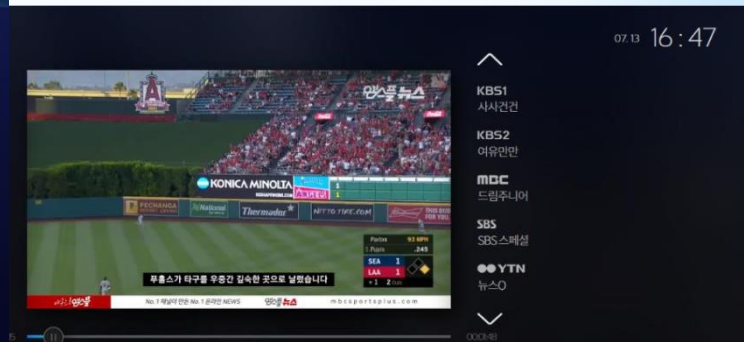
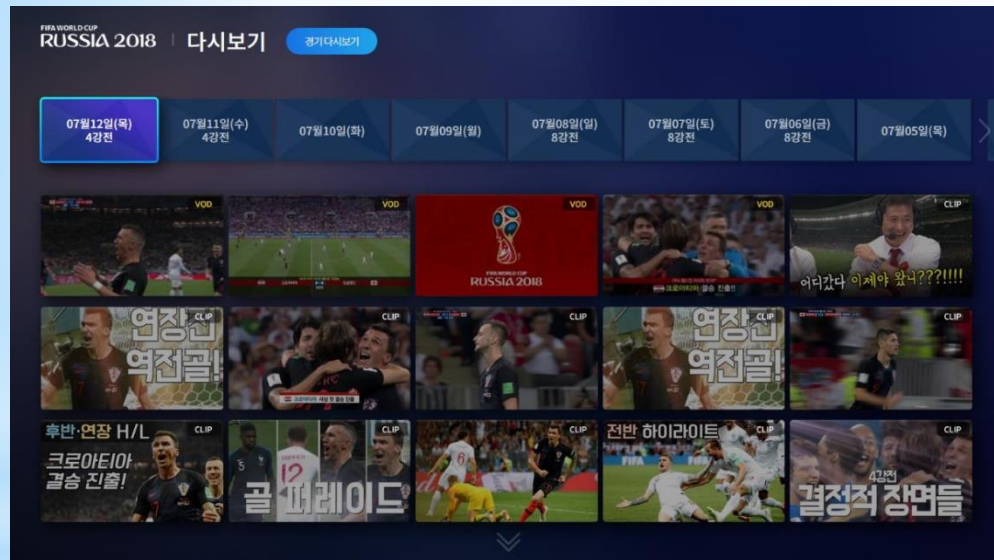
TIVIVA Examples

* PyeongChang Olympic Games 2018



TIVIVA Examples

* Russia Worldcup Games 2018



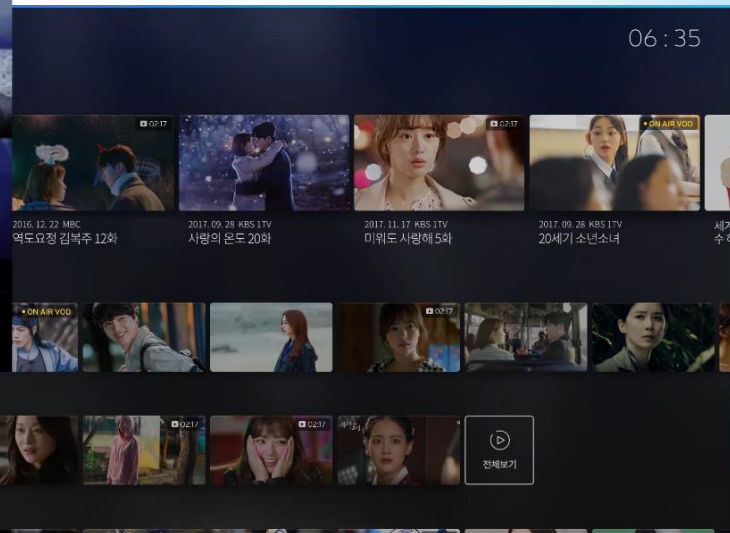
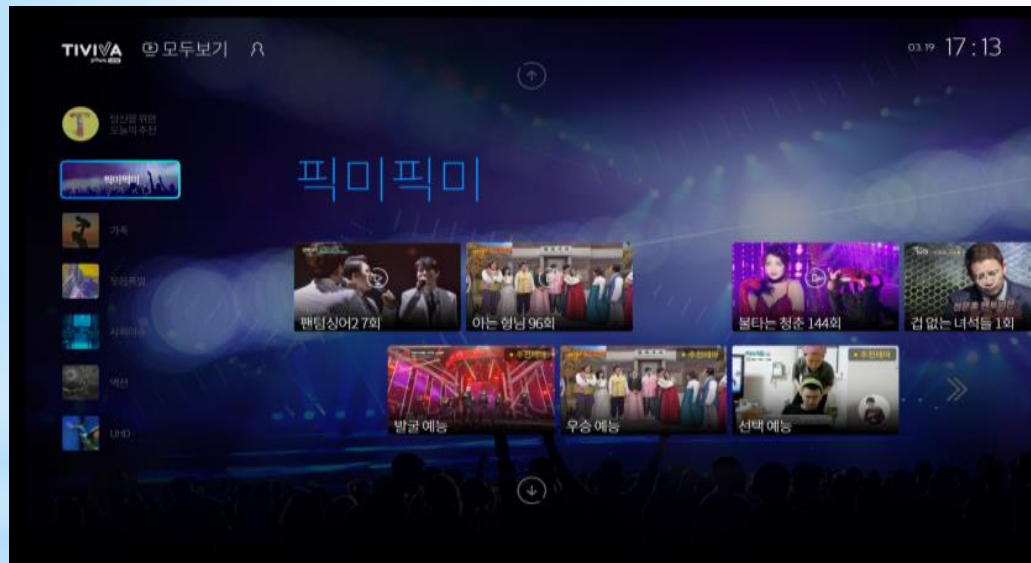
TIVIVA Examples

* VOD : UHD, HDR contents



TIVIVA Examples

* Categorized and Personalized Contents



UHD Mobile

Fixed Reception for 4K-UHD Channel



Showcase for ATSC3.0 UHD Mobile During PyeongChang 2018 Winter Games



Mobile Reception for UHD-MOBILE Channel



AS-IS

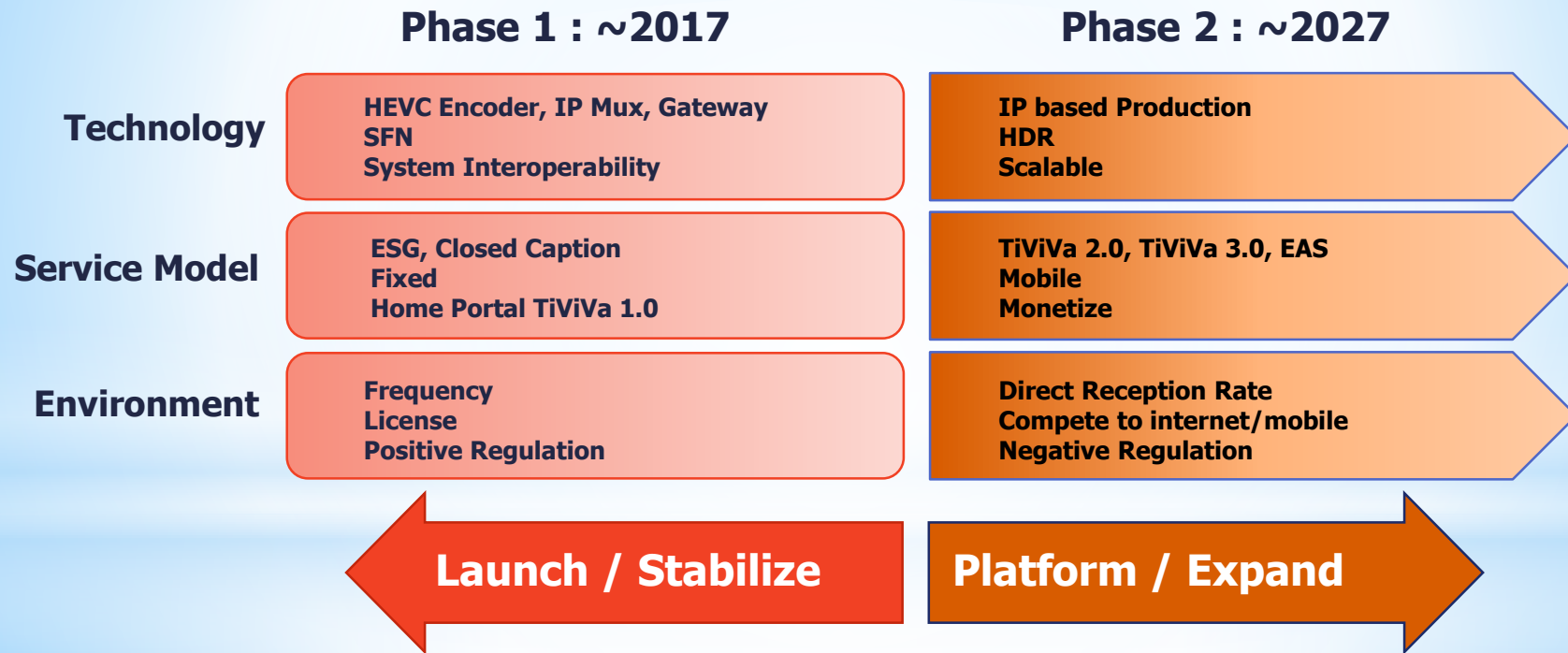
Until now, USB dongle-based
EXTERNAL receiver only.
Not sold on the market.



TO-BE

**ATSC3.0 Chipset
EMBEDDED
Smartphone**

Challenges

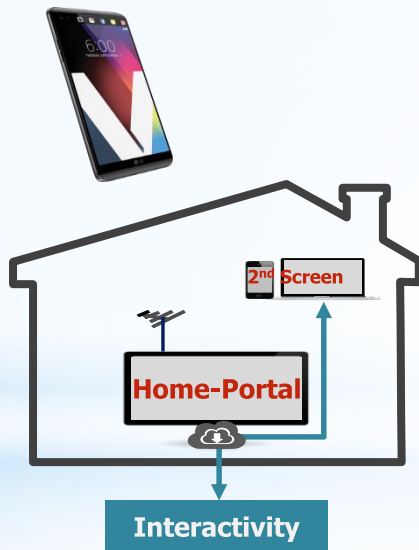


Service Expansion



Mobile Broadcast

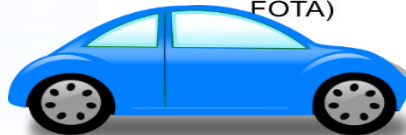
Real-time broadcast
Mobile TIVIVA
Emergency Alarm
Radio



TIVIVA



Firmware Updates
(Firmware Over the Air
FOTA)



Dashboard
Infotainment

- Radio
- Audio TV
- Traffic
- Weather
- EAS



4K UHD TV (RF+IP)

UHD TV Direct Reception
TV TIVIVA
A-ESG
Event Real-time broadcast



2ND Screen

Multi-view
Target AD

이
종
석

MBC UHD

**A Mutual Exchange will be always welcomed for every
one to promote terrestrial interactive service in Europe
and Korea in future!**

Thank you!

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