Interactive Multimedia Services : Trend & Insights

2016

Incheon, Korea

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A Vice-Chair of World Broadcasting Union – Technical Committee (WBU-TC)

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IEEE Broadcast Technology Society

IEEE Broadcast Technology Society

"The technologies to deliver information and entertainment to audiences worldwide, at home and on the go."

Outline

- Integration of Broadcast with Broadband
- Technologies of IBB, standards
- Architecture, Model of IBB
- Applications and Services of IBB
- Freeviewplus, Hybridcast
- Summary

What is this?

iflix

MALAYSIA'S AWESOMEST INTERNET TV

- 30 days unlimited access. FREE!
- Thousands of TV shows, movies and more.
- Stream on your phone, laptop, tablet or TV.
- You can even Download & Watch Offline.
- Only RM8/month!

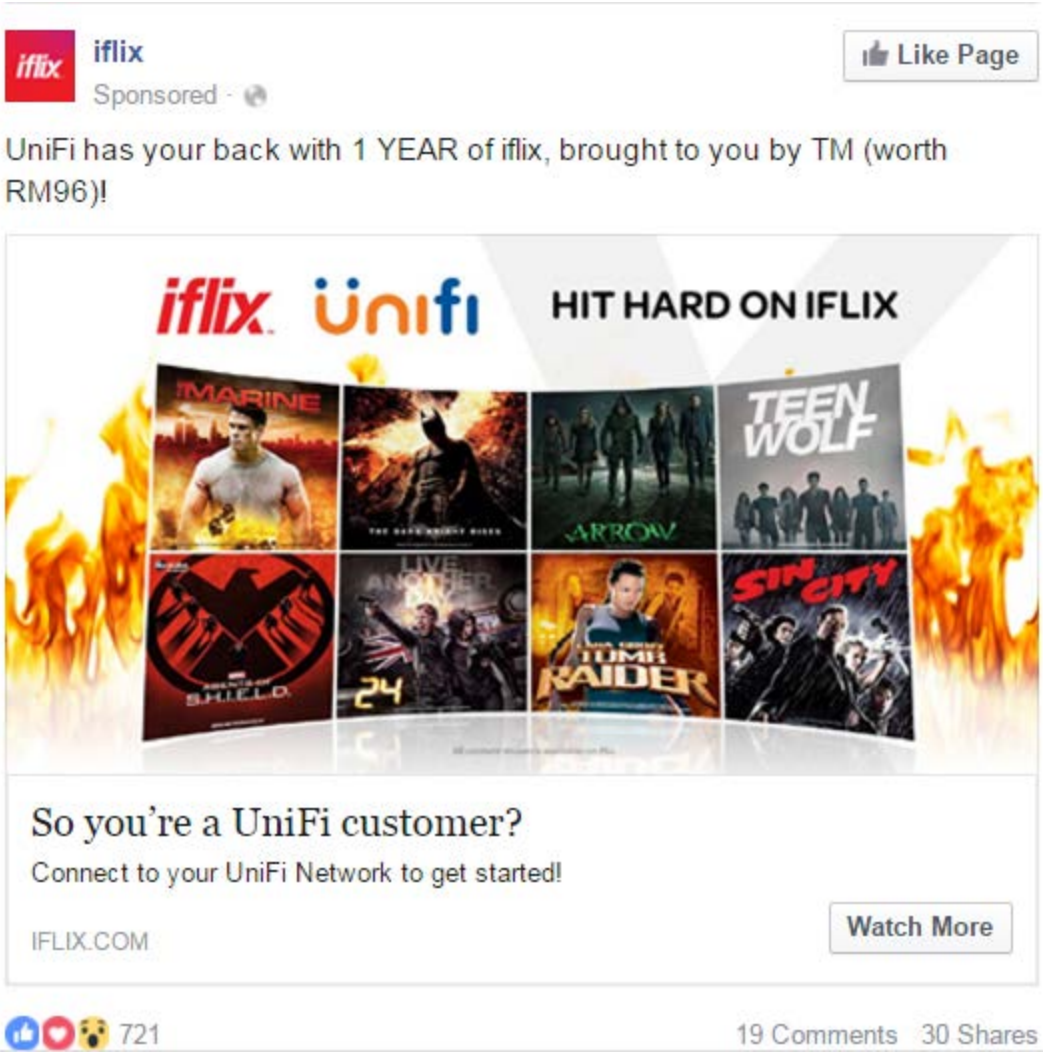
ANDROID APP ON Google Play | Available on the App Store | www.iflix.com | @iflix.letsplay | @iflixMY

HOW TO GET STARTED

(We're super easy, promise!)

- Go to www.iflix.com
- Click **Start your FREE one month trial!**
- Choose to sign up with Facebook or Email
- Create your password and...
- You're in. Let's play!

Where are they?



Is affordable?; Quality ?

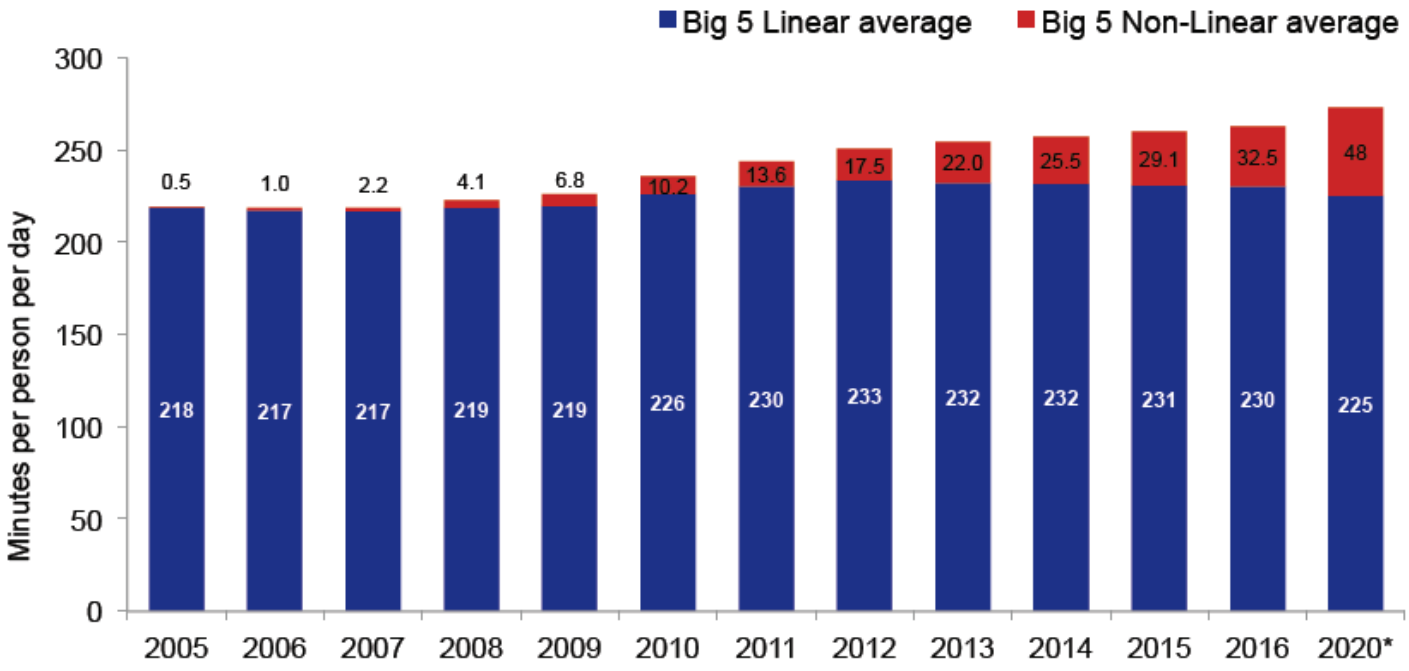
Linear TV audience

- Linear TV audience is growing all around the world

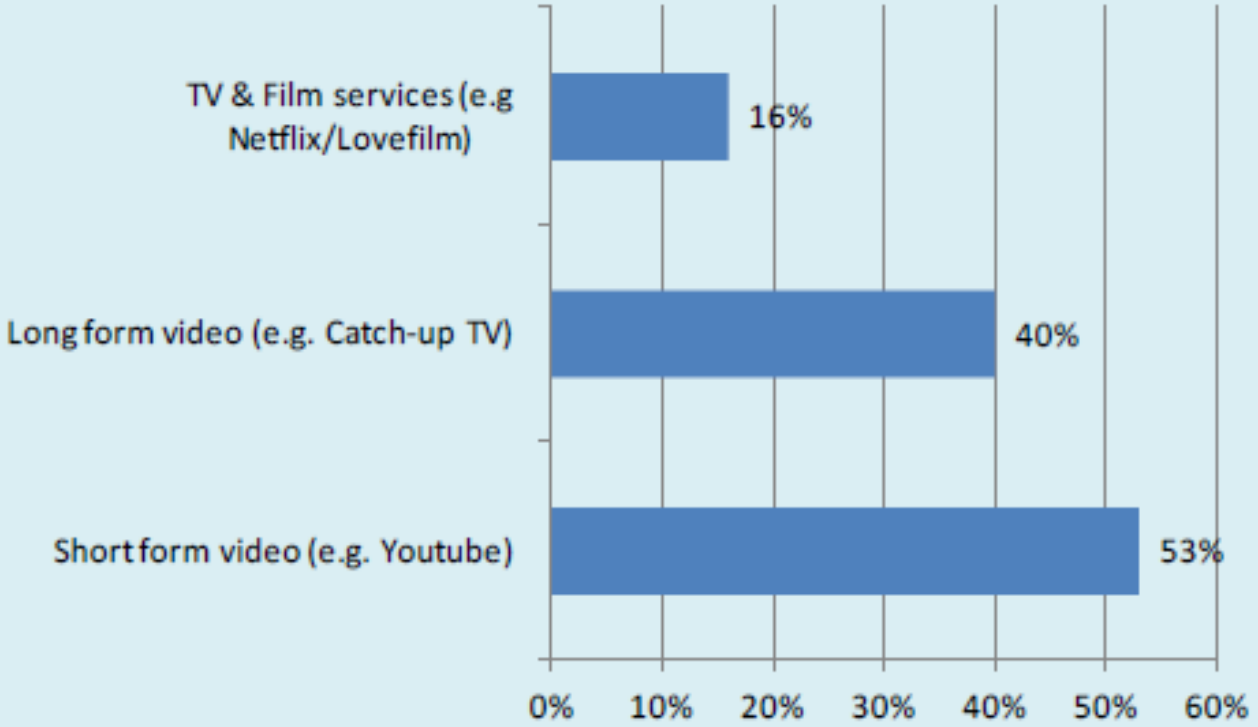
[Source: IHS – ScreenDigest]

- Cross-platform Television Viewing Time FY 2012

Note: Forecast from 2012 // * 2020 forecast by EBU. Non-Linear includes DVR

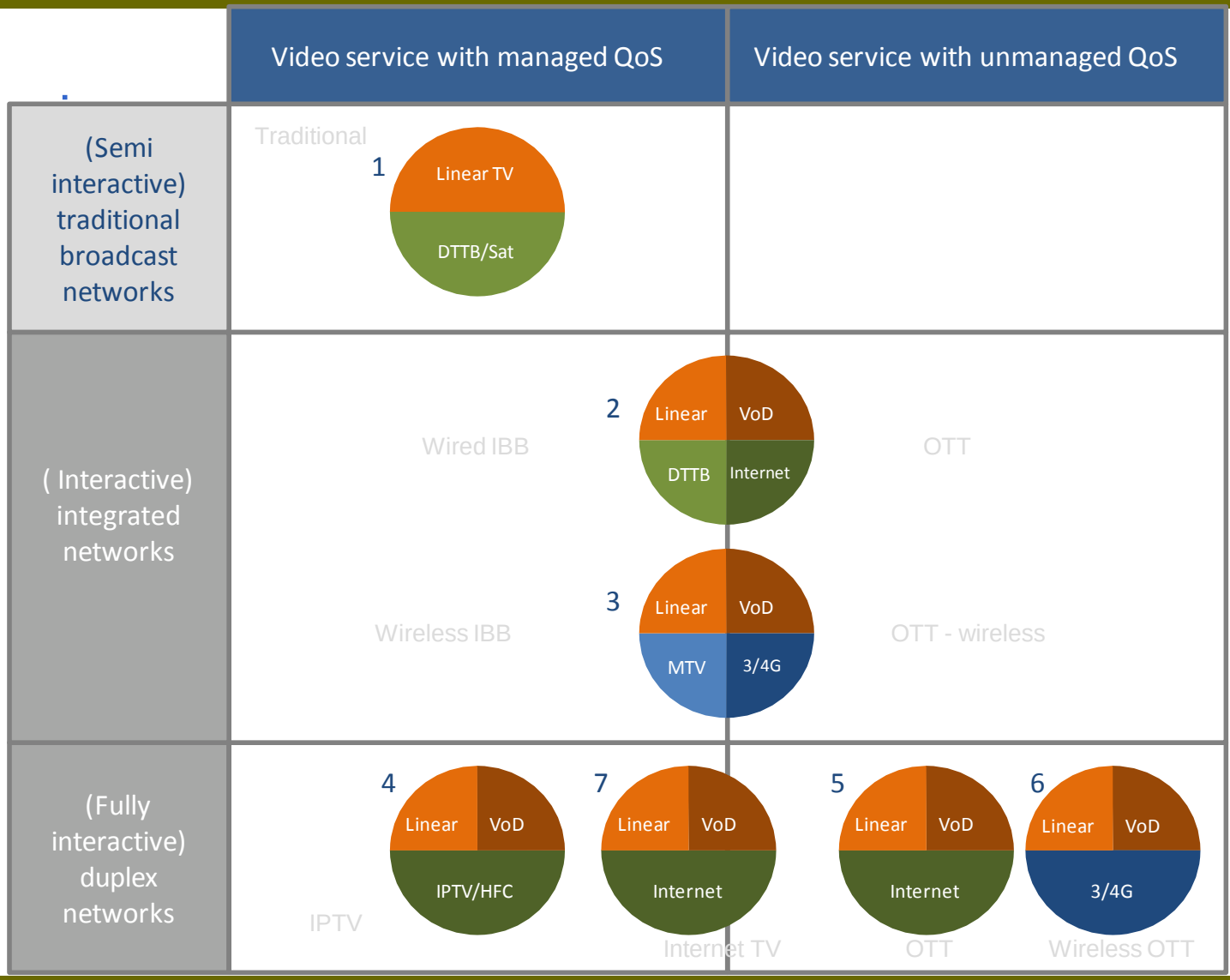


Type of VOD Services Consumed



Source: Ofcom, 2013 (adapted)

Classification



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IBB DTV service

A service that simultaneously provides an integrated experience of broadcasting and interactivity relating to media content, data and applications from multiple sources, where the interactivity is sometimes associated with broadcasting programmes.

[Source: Definition in Recommendation ITU-T 1205]

Application types

- Broadcast-oriented managed application
  - Service associated application with enhancement
  - Can continue running if application signalling in a newly selected channel instructs AUTOSTART to the same app.
- Non broadcast-oriented managed application
  - "Stand-alone application" accessible to broadcast resources under the permission given by broadcasters
- General application
  - "Stand-alone application" not allowed for simultaneous presentation with broadcast programmes

Application Signalling - Example Hybridcast

- ARIB STD-B24, Vol. 4 defines syntax and delivery of application signalling
  - Signalling by Application Information Table (AIT)
  - MPEG Section format and XML notation are defined
  - URL and identification information for application
  - Priority information for execution of data broadcast content and Hybridcast application

- Delivery of AIT
  - Elementary stream which conveys MPEG section formatted AIT
  - XML documents transmitted by DSM-CC data carousel
  - Acquisition from the server(s) on the Internet

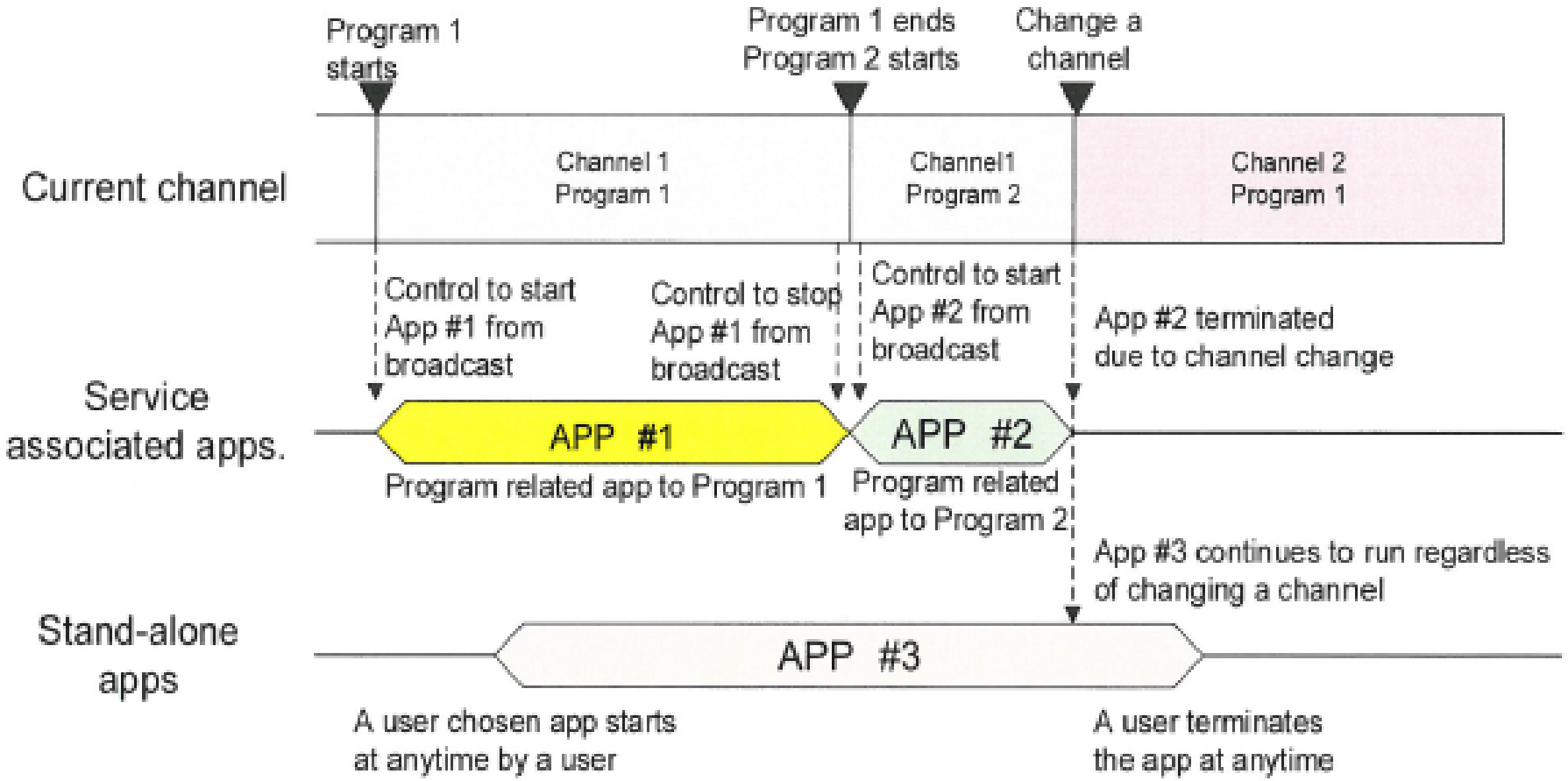
DSM-CC -Digital storage media command and control

Service Associated IBB application

An application that is part of the integrated broadcast and broadband (IBB) DTV service tuned to by the user at a given time.

[Source: Definition in Recommendation ITU-T J.205]

Life cycle and types of applications



IBB - Integrated Broadcast Broadband

- The ITU-R SG6 are currently studying the Integrated Broadcast-Broadband (IBB) Systems, and based on the Recommendations established at ITU-T SG9, in July 2013
  - they established the Recommendation ITU-R BT. 2037: General requirements for broadcast-oriented applications of integrated broadcast-broadband systems and their envisaged utilization,
  - in February 2014 they also established the Recommendation ITU-R BT. 2053: Technical requirements for integrated broadcast-broadband systems
- Currently working towards a new Recommendation ITU-R BT. [IBB-SYSTEM]

ITU Texts related to IBB systems

	ITU-R	ITU-T
Requirements	Rec. BT.2037 Rec. BT.2053	Rec. J.205
Reference Architecture		Rec. J.206
System	Rec. BT.2075	DNR J.acf-spec
Information Doc.	Rep. BT.2267	

IBB systems in ITU Texts

ITU Text	Systems
Rec. BT.2075	• HbbTV 1.5 & 2.0 • Hybridcast 2.0 (+ARIB STD-B62) • HTML5 based smart TV platform
Rep. BT.2267	• HbbTV 1.5 & 2.0 • Hybridcast 2.0 (+ARIB STD-B62) • Enhanced BML for simple IBB • HTML5 based smart TV platform • Ginga

(Wired) IBB

- Wired Cu (Copper) or Fibre
- IBB - Integrated Broadcast Broadband
- Three systems

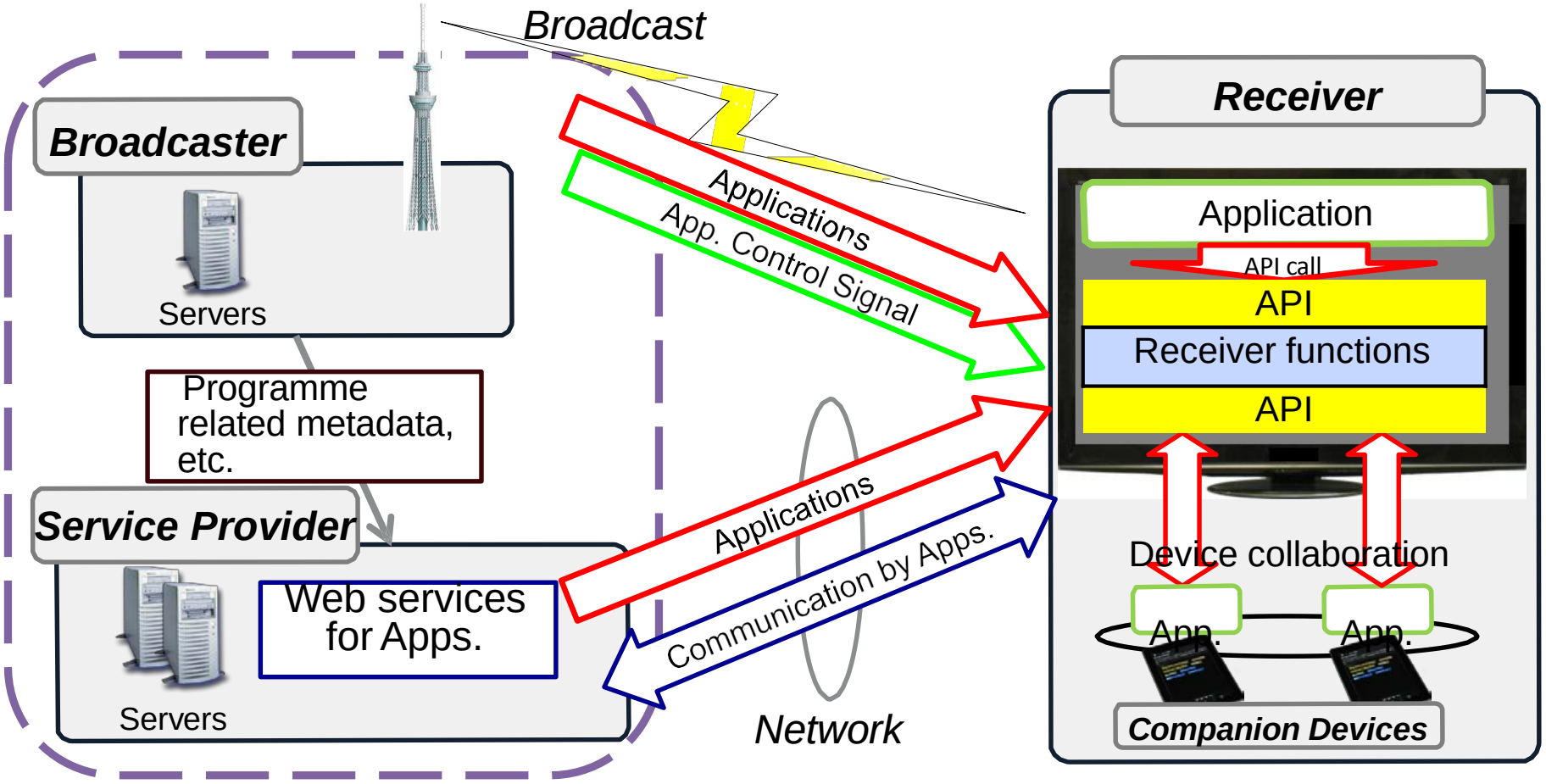
1. HbbTV
2. Hybridcast - Japan
3. iCon , now HTML5 based smart TV platform - Korea
4. Enhanced BML for simple IBB
5. Ginga

- MHP - Italy was considering MHP
- Italy has moved to HbbTV

What is HbbTV?

- Innovative services can be offered *directly* on a "Connected TV" or on an appropriate set top box, without the consumer having to buy extra equipment using HbbTV technology
- The Hybrid Broadcast Broadband TV (HbbTV) is a new international standard
- HbbTV standards are
  - developed by the "HbbTV Association"
  - published by ETSI (European Telecommunications Standardisation Institute)
- HbbTV launched in Australia on September 2014, July 2015 NZ and may be in Malaysia in 2016
- It is also in the process of being tested in Indonesia, Myanmar, Vietnam, Thailand and Singapore

IBB Basic System Architecture



Countries Adopting HbbTV

- In Asia-Pacific Australia, New Zealand, FreeviewPlus
- Malaysia
- Vietnam
- Indonesia
- Myanmar
- Thailand
- Singapore
- …

Freeviewplus NZ

- NG FTA of NZ
- Game changer
- TVNZ, Maori TV and Mediaworks
- 19 Live channels
- On-demand content from 3 broadcasters
- FTA+VOD
- STB NZ$150, approx. US$ 100 (unified)
- Rx - Panasonic, LG, SONY
- Agnostic to the content is consumed

Freeviewplus - Australia

- Launched in Sep 2014
- STB AUS$129 (approx. US$92)
- Aggregation and Curation (a range of activities and processes done to create, manage, maintain, validate, deliver a component of media)
- Samsung-2015 and range of Rx

Interactivity

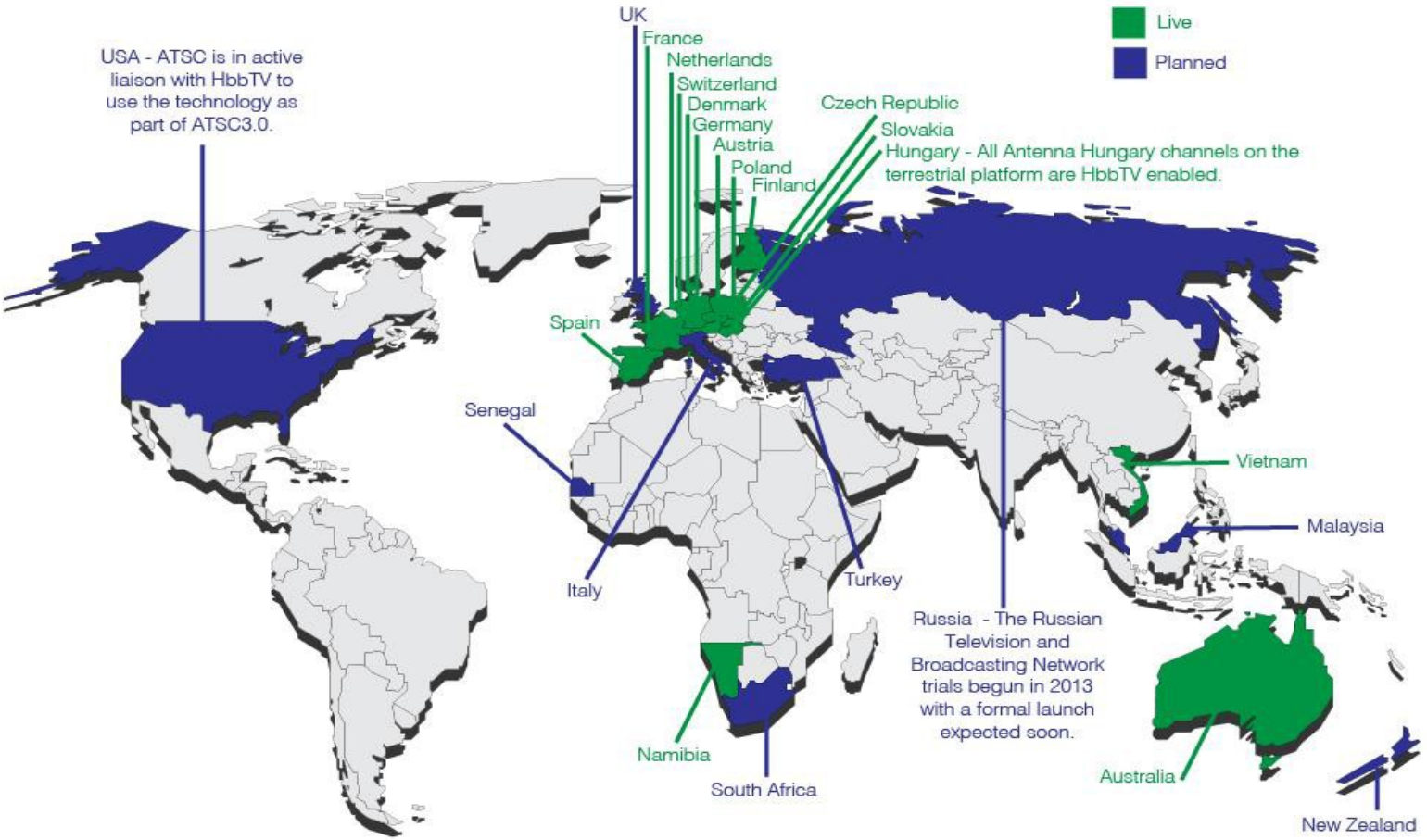
- Robust App Runtime Environment with HTML5 support
- Based on HbbTV 2.0 with restrictions and extensions
  - HbbTV 2.0 was published earlier this year
  - 20+ extensions being documented, several based on ATSC: A/105 (aka “ATSC 2.0”), now in Candidate Standard phase
  - Changes being documented due to ATSC 3.0 IP delivery solution (HbbTV is based on MPEG-2 TS)

ARD connects HbbTV to second screen

- ARD connects HbbTV to second screen

NRK outlines HbbTV future

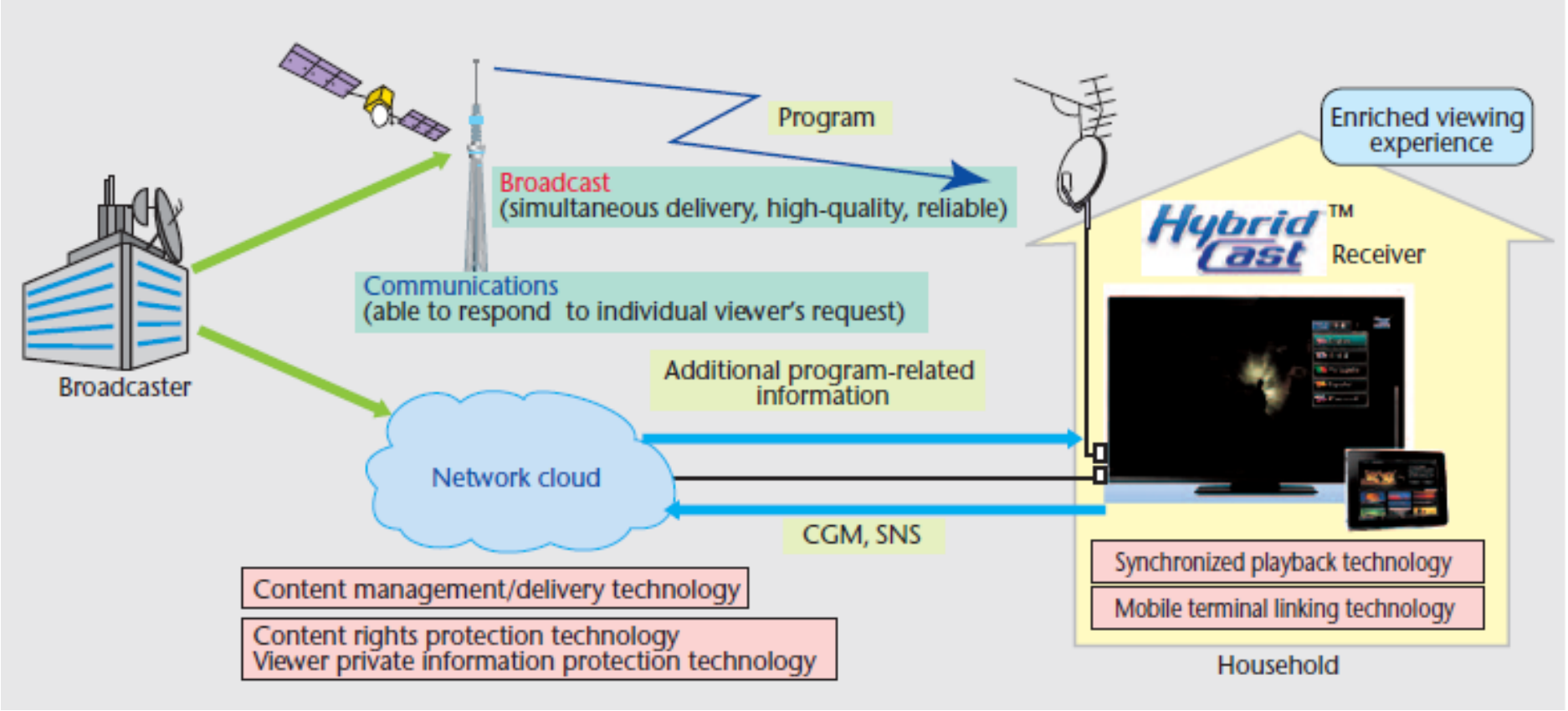
HbbTV deployment



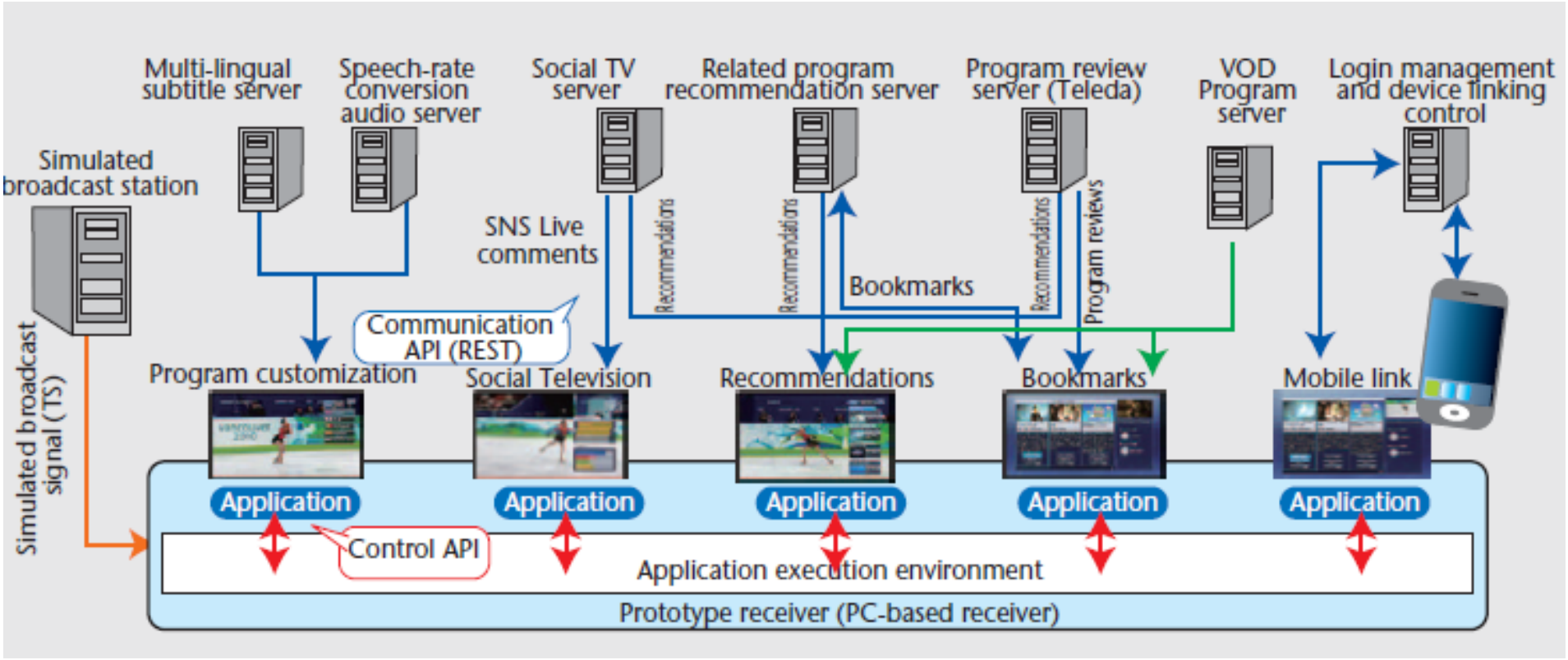
Hybridcast

- Hybridcast
- 2013 Sep
- Broadcast-oriented managed applications
- Standardisatised at IPTV Forum, Japan
- Submitted to ITU for world standardisation as a IBB system

Hybridcast system concept

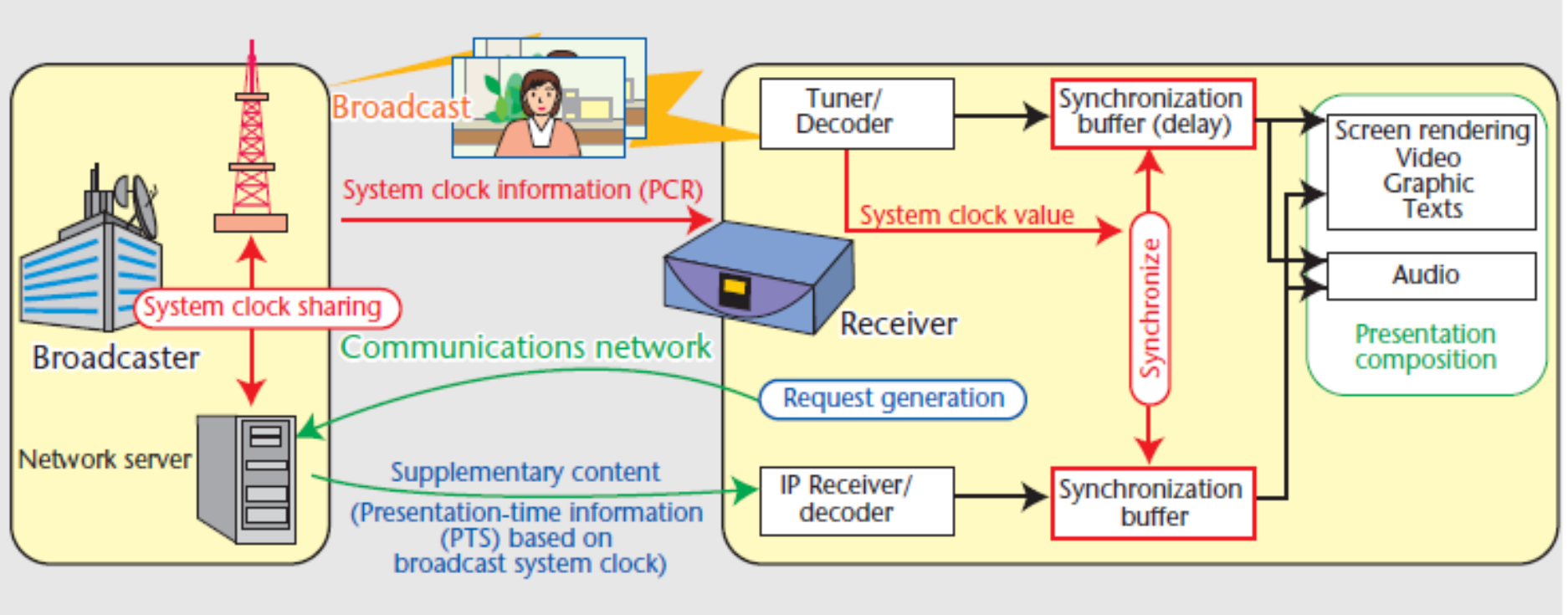


Hybridcast system architecture



Tx/Rx system architecture for sync Brct

Transmitter/Receiver system architecture for synchronized broadcasting



Examples of Hybridcast programmes

Nippon TV

Price of items are fixed by voting of views, utilizing interactivity of Hybridcast.

TV Asahi

Popular animation characters are controlled by viewers smartphones by Hybridcast function.

TBS(Tokyo Broadcast System Television)

Graphical game/players data are shown on the screen of Girls Football game(live program)

TV Tokyo

Viewers participate Invader shooting game program by Hybridcast

Examples of Hybridcast programmes

CBC(Chubu-Nippon Broadcasting Co., LTD.)

Japanese scripts are translated to Foreign scripts by machine-translation

Local area information(Disaster, traffic, tourism, local event) is shown on TV screen, referring to Local information site("Hot-furusato")

YTV(Yomiuri Telecasting Corporation)

1. Activate the application.
2. Access to the Travel Guide.
3. Download coupons, travel info to mobile device.

4. Use coupons and info at the destination.(ex. Purchase a discounted item at a store)

Attracting Torism, Promotion of local areas

Examples of Hybridcast programmes

TBS(24hrs, 2014.10 onward)

Portable device

Customized layout of various data contents on Screen by viewers.
News video clips could be replayed on portable devices.
More detail/rich/graphical information(weather, traffic report) via internet.

Nippon TV(24hrs, 2014.12 onward)

News, weather, program info, Social index of TV programs are available.

Fuji TV(24hrs, 2015.1 onward)

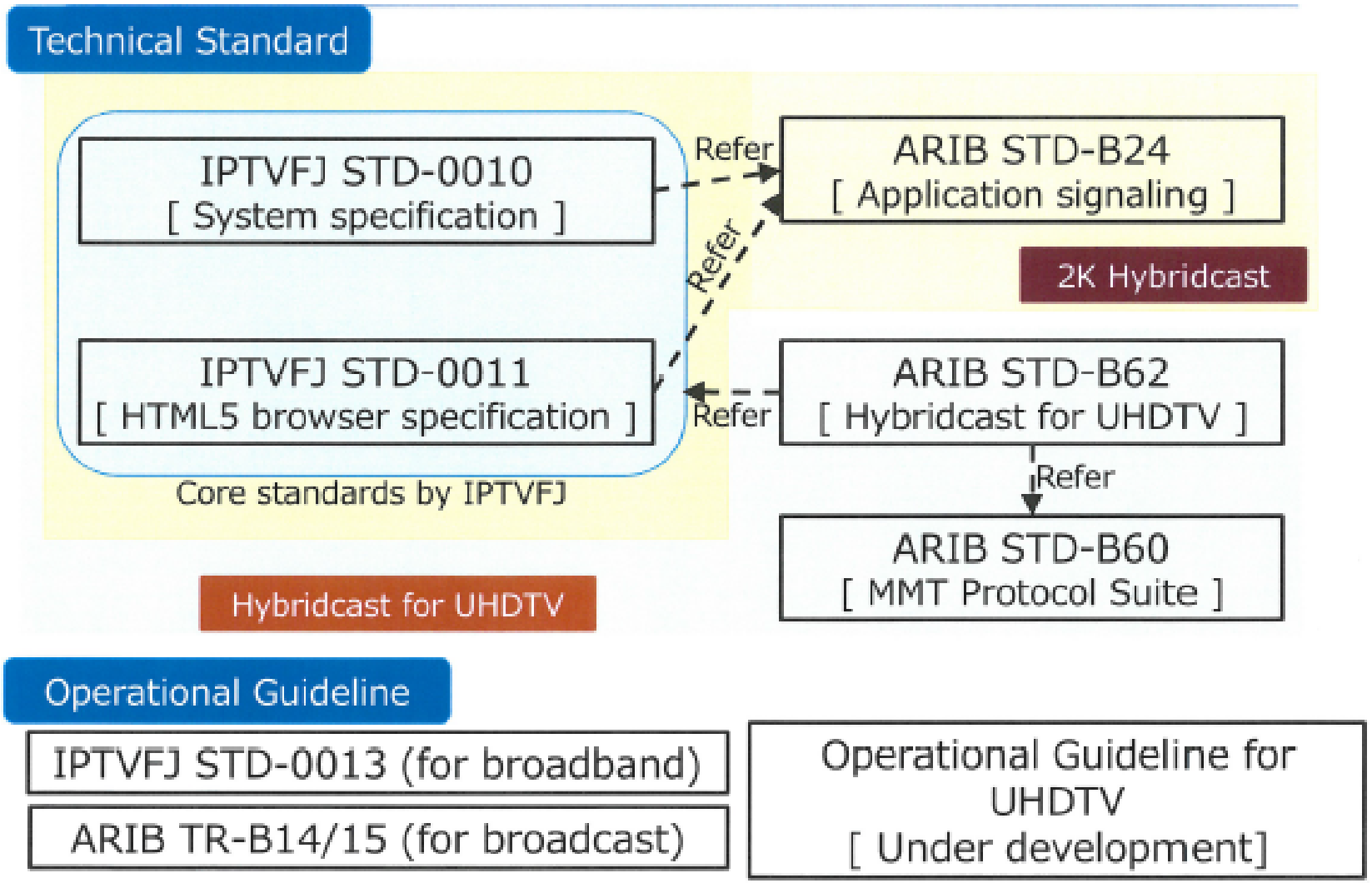
Weather, disaster information, news, EPG interactive services (game etc.)

Hybridcast Rx

- As of January 2015 [Ref. http://www.iptvforum.jp/hybridcast/receiver.html, etc.]

Brand	TV Size	Smartphone applications
TOSHIBA	32V~84V	RZHybridRemo [Android, iOS]
Panasonic	40V~85V	TV Remote2 [Android, iOS]
SHARP	40V~80V	AQUOS Connect [Android, iOS]
MITSUBISHI ELECTRIC	29V~65V	–
SONY	32V~85V	TV SideView [Android, iOS, Windows8.1]
LG Life's Good	32V~65V	LG Hybridcast [Android, iOS]
FUJITSU	PC (TV tuner model)	

Standardization structure of Hybridcast



iCon

- KBS launched iCon in Korea on March 19, 2013
- iCon is the first terrestrial hybrid TV (OHTV) service in Korea
- The service includes EPG, program search, video clip, vote, etc.
- Advertising market share on the Internet has been rapidly increasing and a smartphone is the most necessary media for the age group under 30's

iCon

- About half of viewers in Korea use a smartphone while watching TV
- In future, OHTV 2.0 service will be provided by KBS
- The service uses HTML5 and second screen devices such as smartphones or tablets
- KBS launched VOD service in fourth quarter of 2014
- Now on HTML5 based smart TV platform

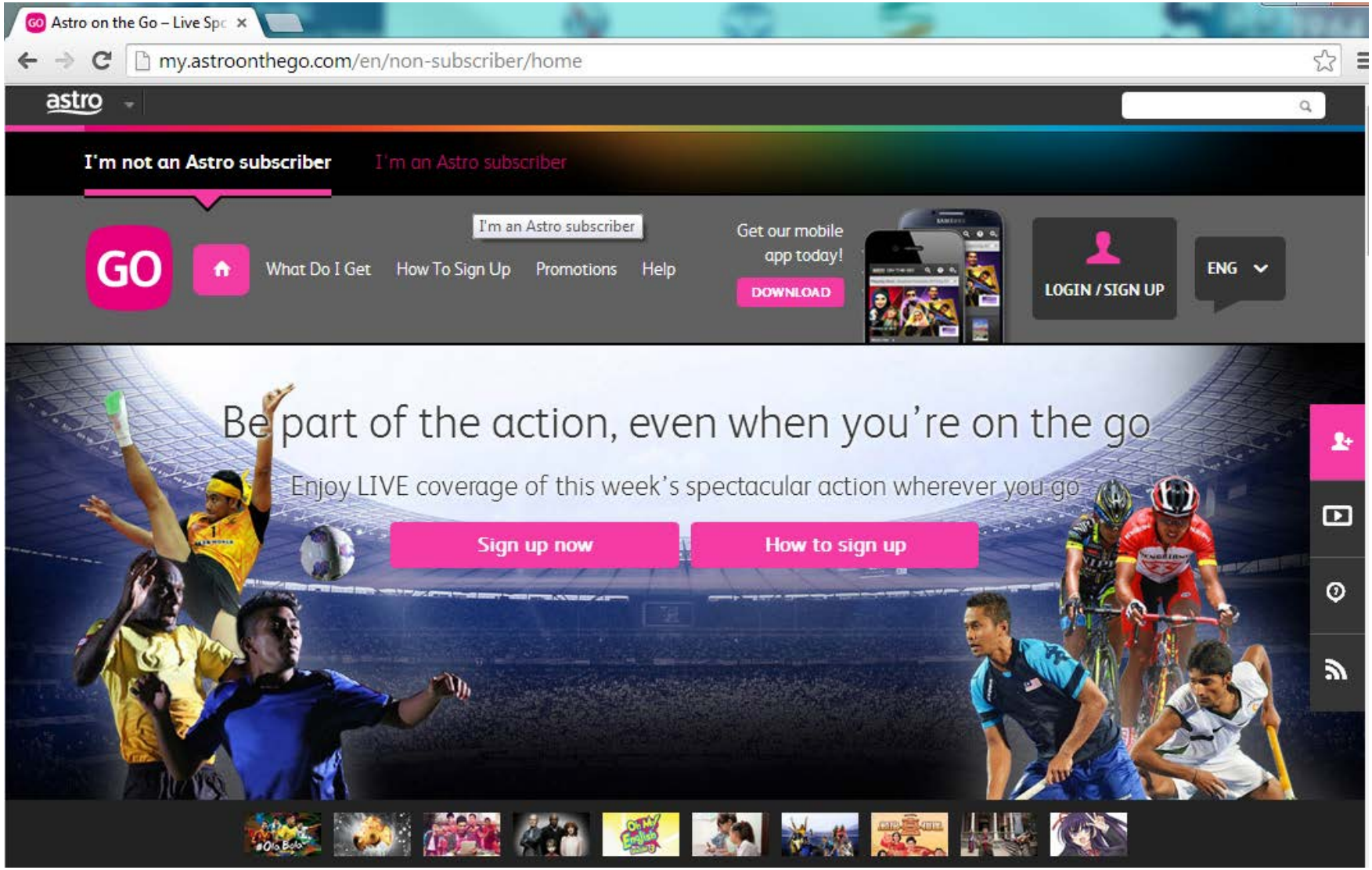
Specifications for IBB systems

- Hybridcast
  - IPTVFJ STD-0010, “Integrated Broadcast-Broadband system specification V1.0”, IPTV Forum Japan and IPTVFJ STD-0011, “HTML5 Browser specification V1.0”, IPTV Forum Japan
- HbbTV
  - ETSI TS 102 796 V1.2.1, “Hybrid Broadcast Broadband TV” and ETSI TS 102 809 V1.2.1 “Signaling and carriage of interactive applications and services in Hybrid broadcast/broadband environments”
- OHTV - Korean system TTAI OT-07.0002, now HTML5 based smart TV platform
- DVB-MHP
  - ETSI TS 102 728 V1.2.1, “Globally Executable MHP (GEM) specification 1.3 (including OTT and hybrid broadcast/broadband)”

Mobile OTT – Astro on the Go

- Collaboration between TM and Astro
- Astro – well known DTH provider in Malaysia
- Telecom Malaysia, National Telco in Malaysia
- Use Apps to interface

Content on Mobile

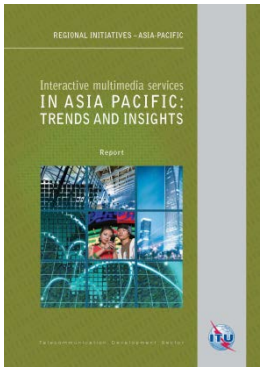


Mobile TV – mmbi

- NOTTV
- April 2012
- On NTT Docomo devices
- ISDB-Tmm
- Sub-spec of ISDB
- Mainly used for time-shift services
- Uses XML based BML meta data
- Encrypted
- MEG4 AVC/H264

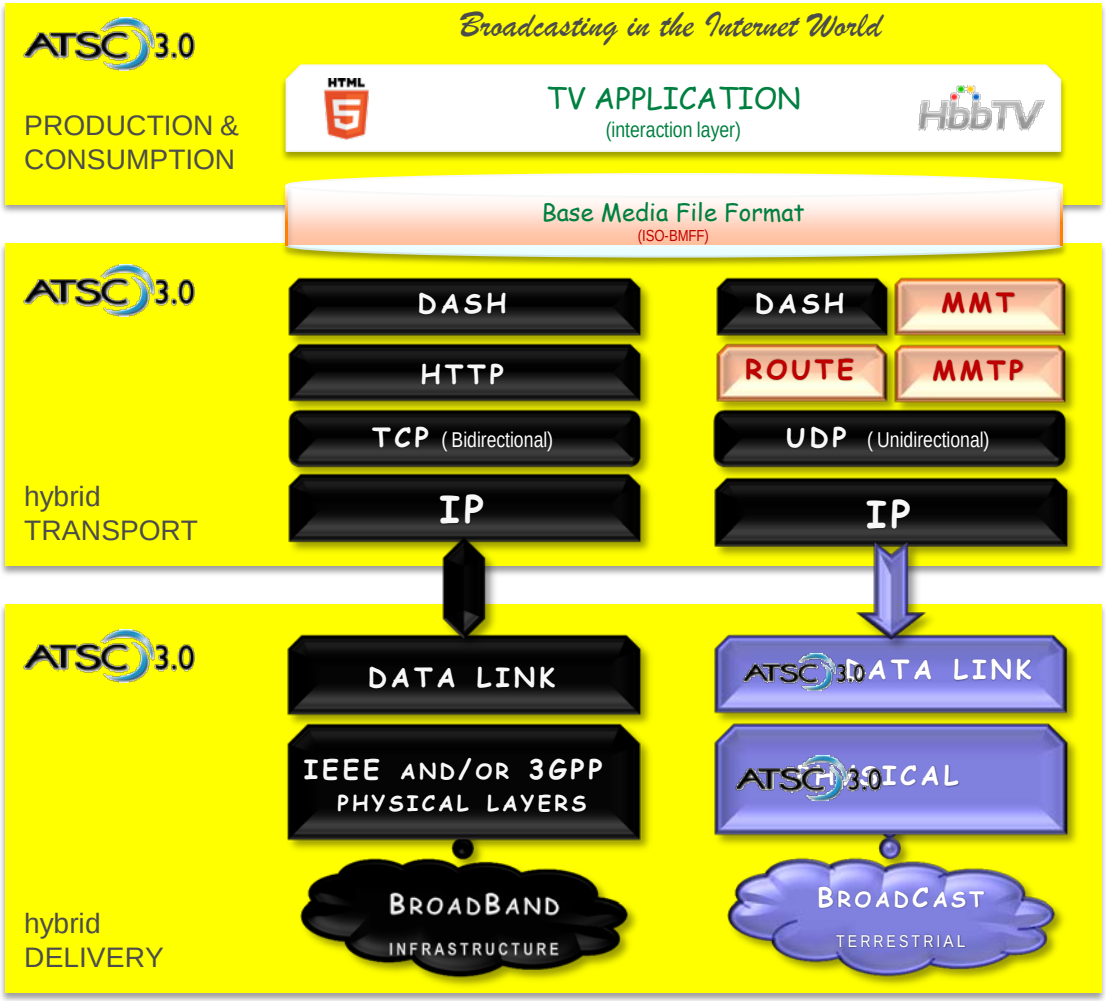
Smooth A2D & maximise the digital dividend

Expectations of ITU:

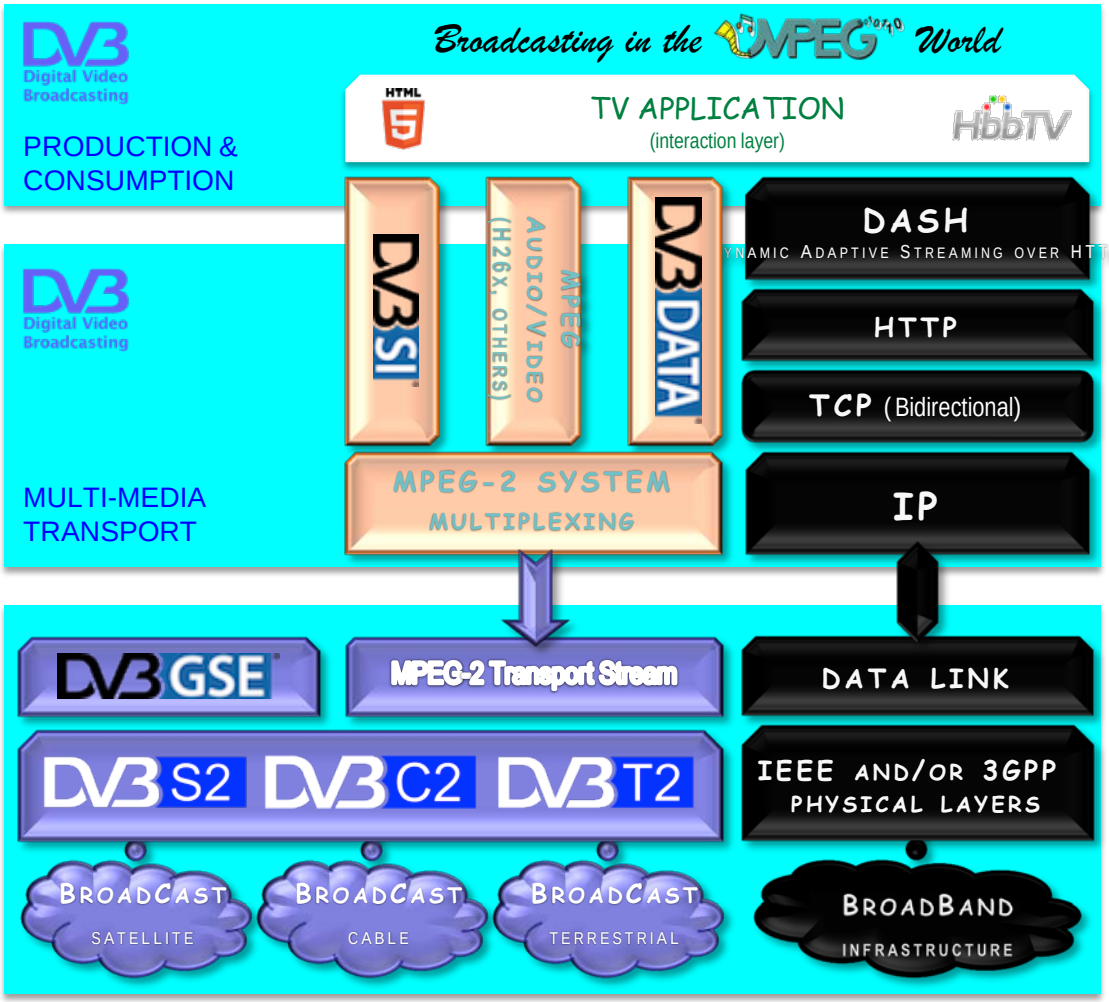


- Policy and regulatory frameworks for digital terrestrial broadcasting, including mobile television and spectrum refarming due to the digital dividend
- Digital broadcasting master plans for transition from analogue to digital broadcasting, including mobile TV and IPTV
- Appropriate mechanisms for conversion from analogue to digital archives and mechanisms for sharing of content
- Provision of assistance in the field of interactive multimedia services to broadcasters in the Asia-Pacific region

Broadcasting in Internet world - ATSC 3.0



Broadcasting in MPEG world



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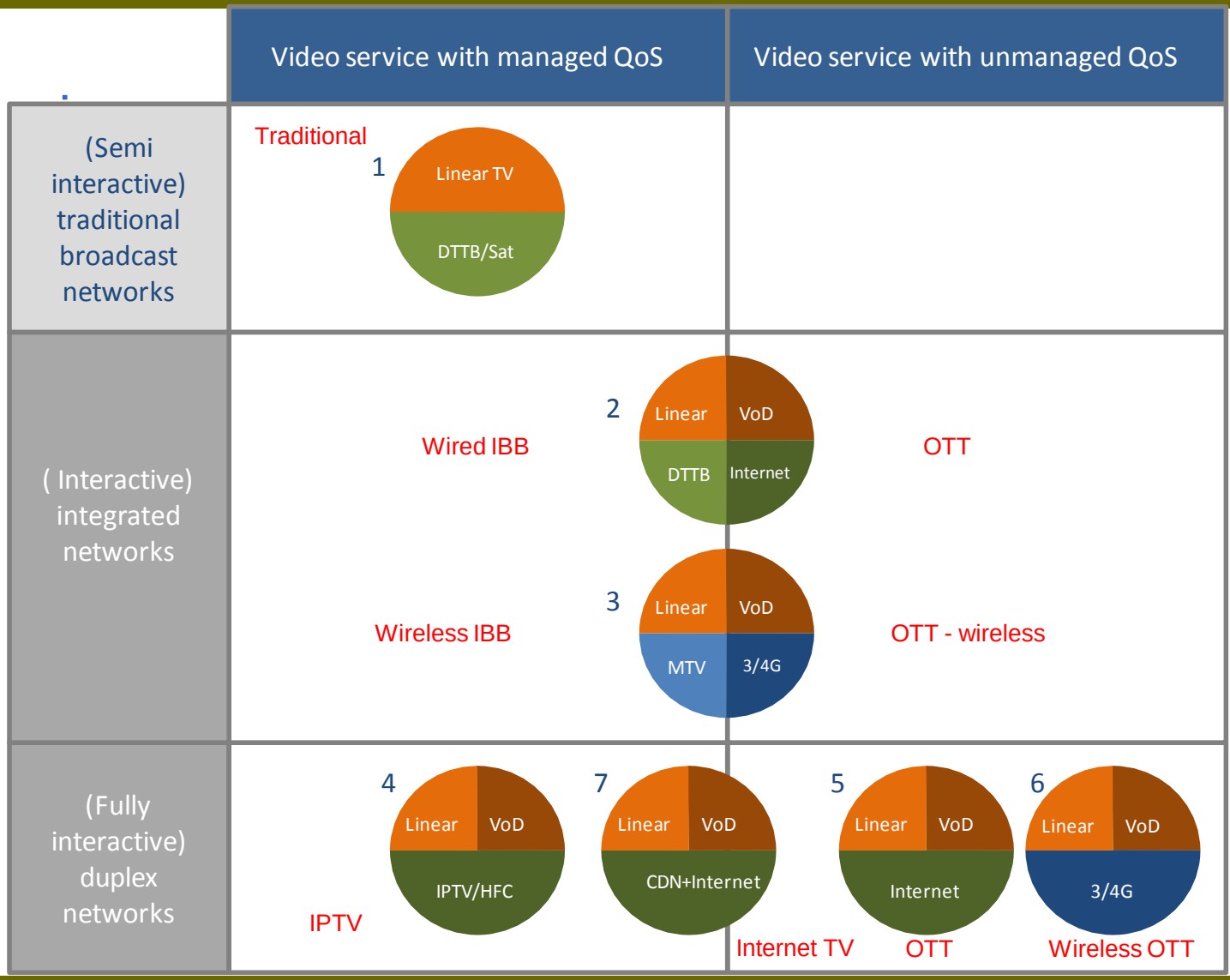

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Summary and Recommendations

- OTT – over unmanaged networks, are improving
- IPTV – less penetration
- IBB – middle ground
- HbbTV, Hybridcasting, HTML-5 Smart TV platform,..
- Technologies are evolving
- How we build infrastructure using such Technology will determine the services
- Regulation especially policies will play a key role in it
- Assurance to access to information - No information divide (Dr AMAL Punchihewa)
- Less harm to the society

To summarise

- Access to content without gatekeepers
- Foster innovation in Hybrid broadcasting

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