Enhancing Broadcasting HbbTV and IPTV in Australia

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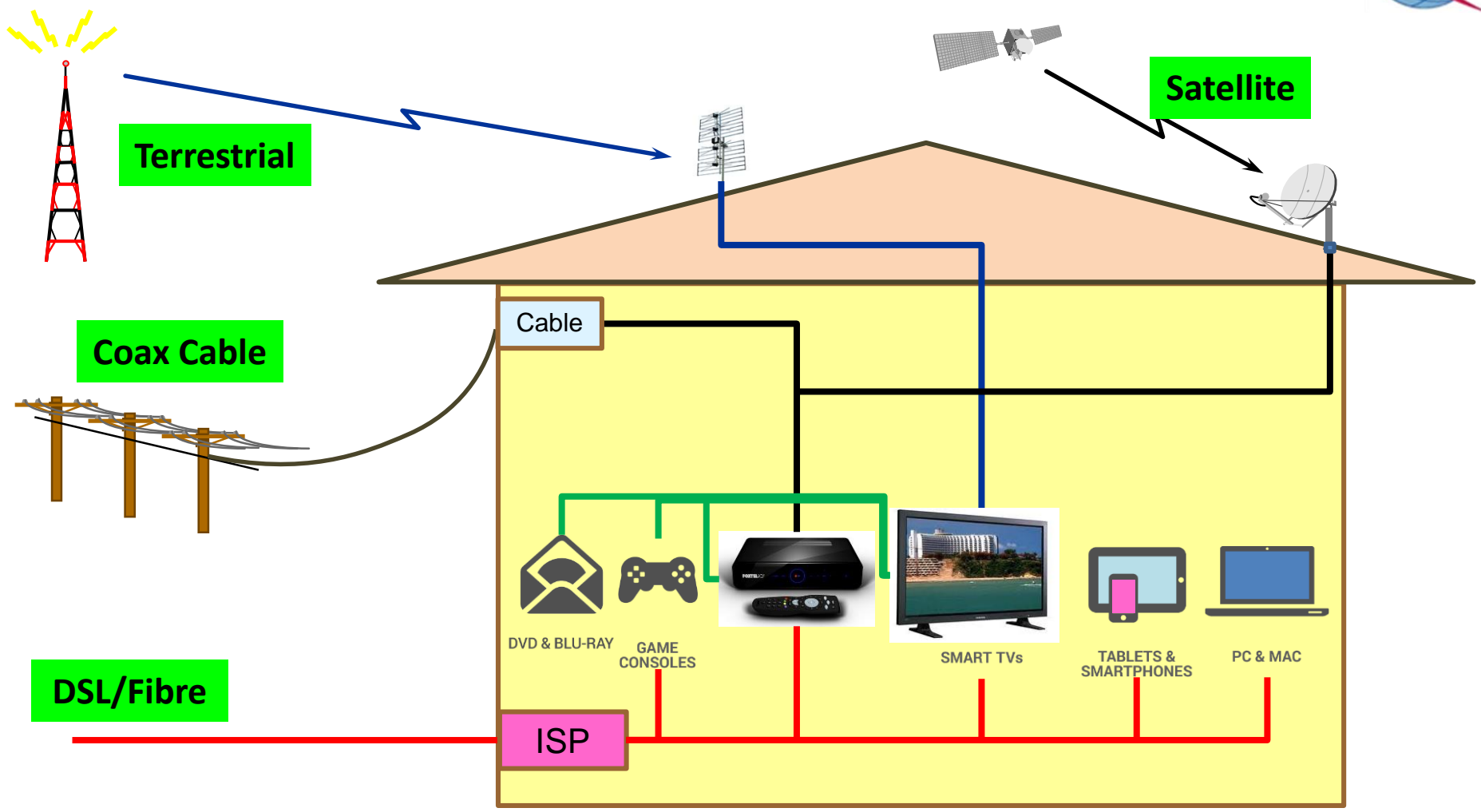
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Outline

- The Battle for Eyeballs

- Digital TV Enhancements in Australia

- HbbTV Background

- HbbTV Architecture
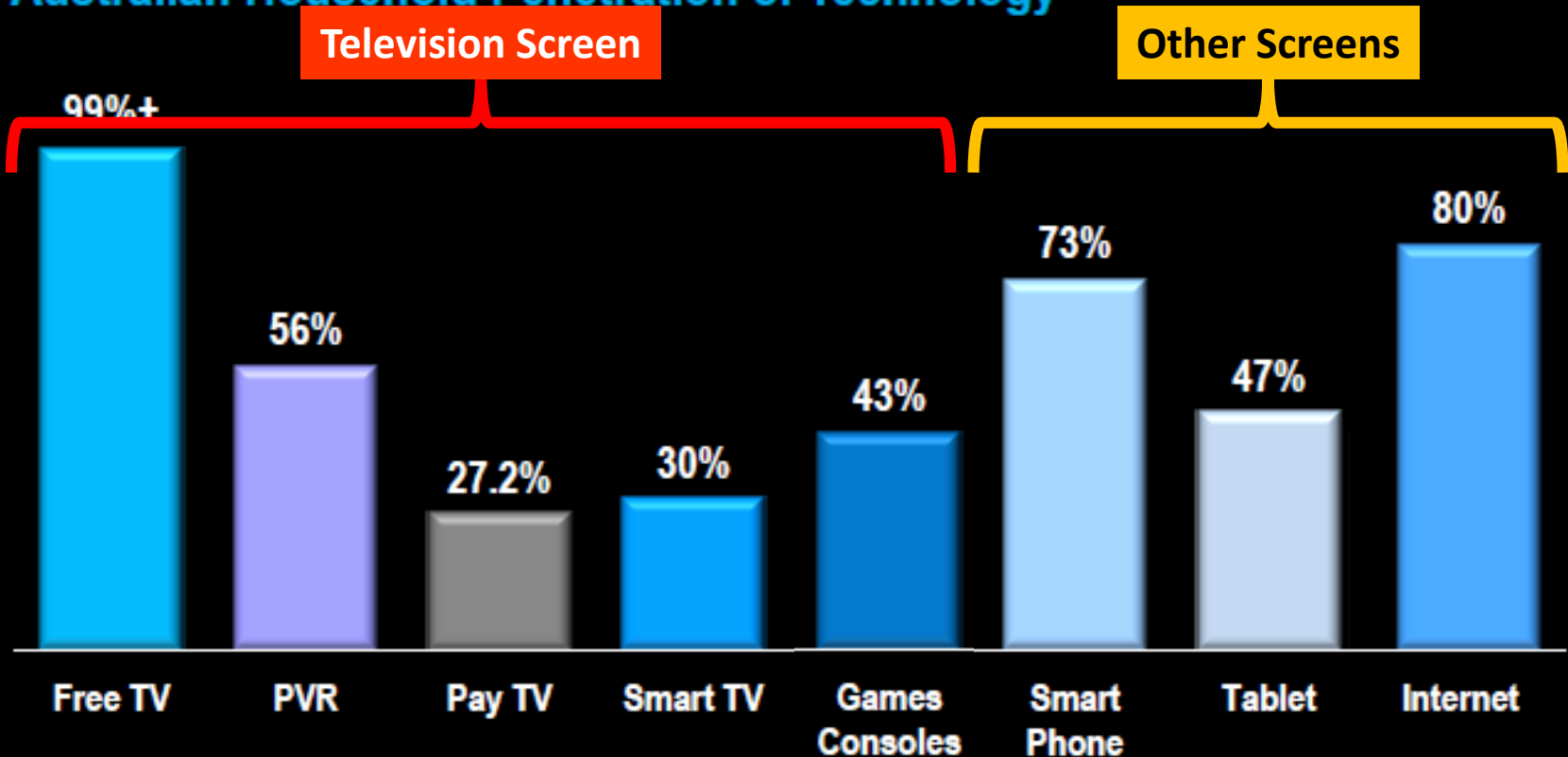
- Freeview+*plus* Application

Where are the eyeballs in the home?

Terrestrial

Satellite

Coax Cable

DSL/Fibre

Cable

ISP

DVD & BLU-RAY

GAME CONSOLES

SMART TVs

TABLETS & SMARTPHONES

PC & MAC

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What screen are they watching?

Australian Household Penetration of Technology

| Television Screen | | | | | Other Screens | | |

Free TV	PVR	Pay TV	Smart TV	Games Consoles	Smart Phone	Tablet	Internet
99%+	56%	27.2%	30%	43%	73%	47%	80%

Sources: PVR, smart TV, smart phone, tablet and internet national penetration averages sourced Australian Multi-Screen Report Q4, 2 014, pay TV is the OzTAM national STU-STV universe estimate for Q1 2015 (ie. boxes in homes), penetration of IDS-STV only homes is 1.1% (ie. internet accessed only) , other figures sourced Free TV Australia.
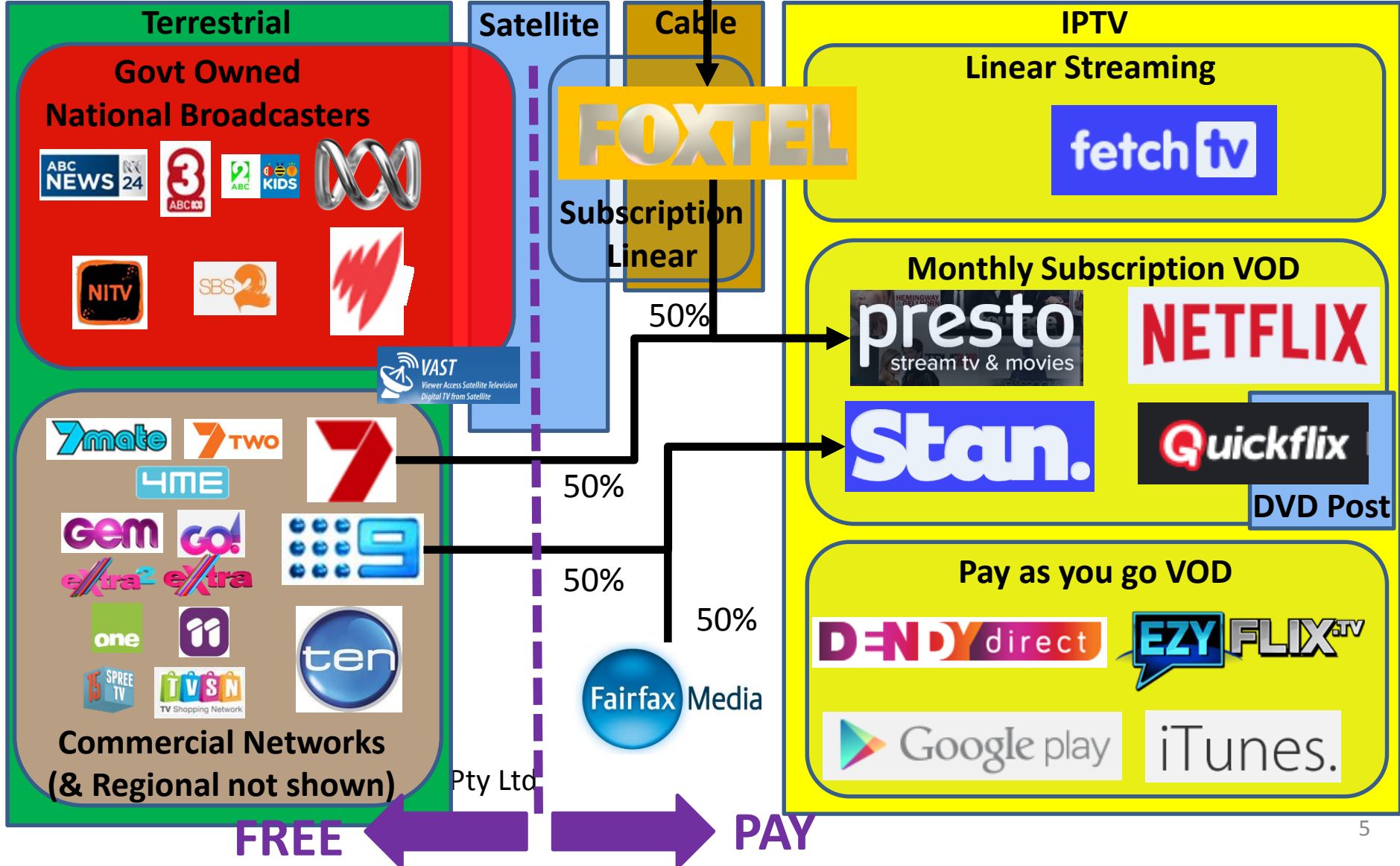
THINK 4 TV

Who is providing the content?

Digital TV Enhancements in Australia

Enhancement	Description	Dates	Comment
Multiview	Multiple camera views of a programme / event	2001 - 2003	Allowable "enhancements" were limited by legislation. Underlying DVB specifications not developed fully, did not take off in market
Multimedia Home Platform (MHP)	Interactive API, services broadcast via data carousel, web access	2003 - 2006	Tests only in lab. MHP specification too complex. Cut-down DVB-HTML broadcast for a time. Very limited market takeup.
MHEG-5	Interactive API, industry EPG developed	2008 - 2017	Competing broadcasters joined to form **Freeview** and broadcast EPG carousel. Limited CE manufacturer support. Will be withdrawn from service in 2017
HbbTV	Interactive API, enhance industry EPG and other apps	2014 ongoing	**Freeview+plus** EPG and broadcaster applications to point to own portals.

Freeview Approved Manufacturers

- **Freeview** MHEG EPG certified receivers (no new development)
  - TVs
    - Samsung
  - STB & PVR
    - Uniden, Bush, Grundig, Pixel Magic
- **Freeview+*plus*** certified receivers
  - TVs

  - STBs

  - PVRs
    - Will be announced soon

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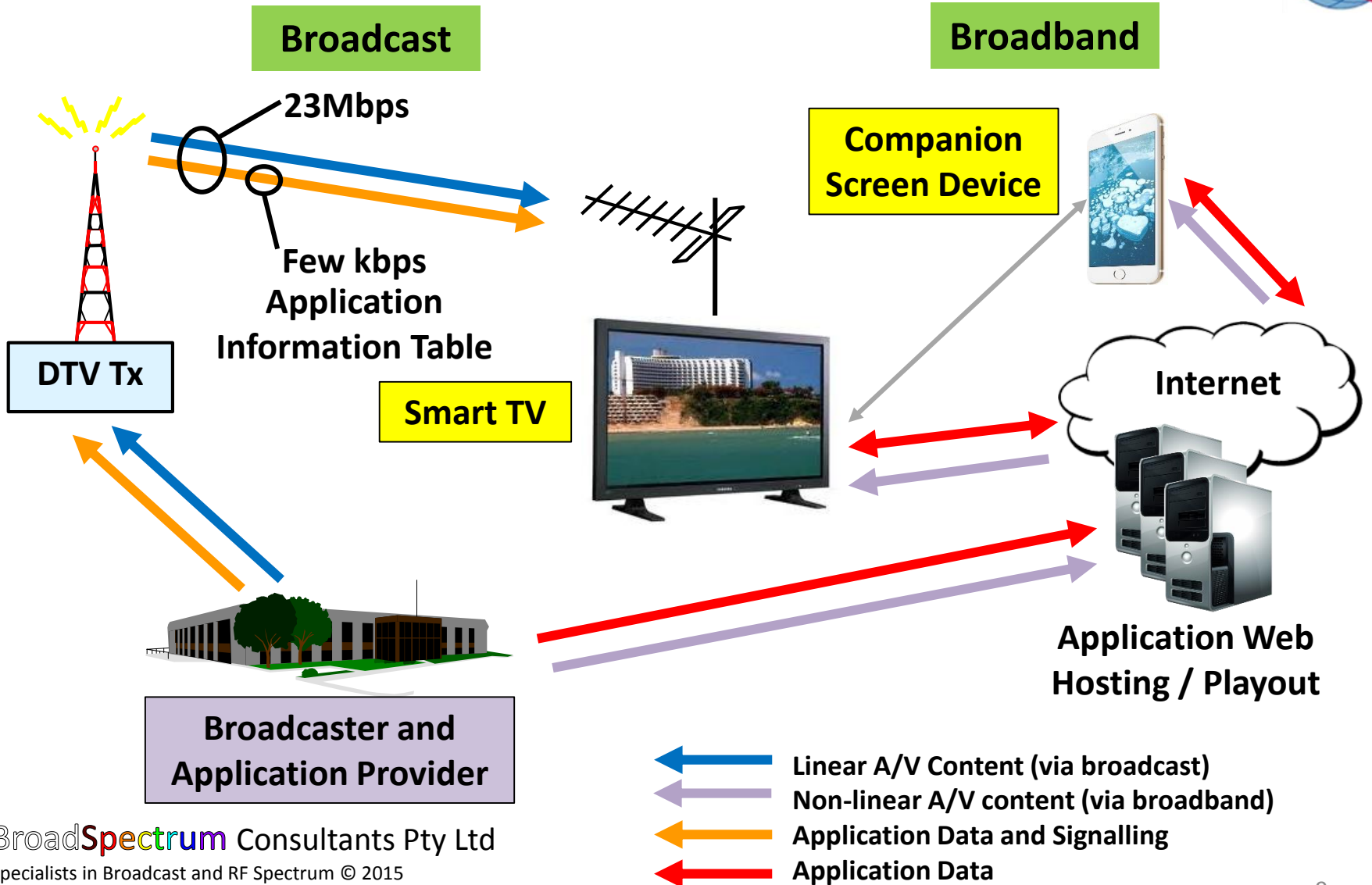Specialists in Broadcast and RF Spectrum © 2015

What is HbbTV?

- Hybrid broadcast broadband TV is a **global initiative** aimed at harmonizing the broadcast and broadband delivery of entertainment services to consumers through connected TVs, set-top boxes and multiscreen devices.

- The HbbTV specification is developed by industry leaders **to improve the video user experience** for consumers by enabling innovative, interactive services over broadcast and broadband networks.

- **For broadcasters** :
  - HbbTV allows broadcasters to retain viewers even when they do not want to watch the live linear broadcast content by providing links to other interesting content
  - HbbTV retains the focus of the large screen television in the home.

HbbTV System Overview

Broadcast

Broadband

23Mbps

Few kbps
Application
Information Table

DTV Tx

**Companion
Screen Device**

Smart TV

Internet

**Application Web
Hosting / Playout**

**Broadcaster and
Application Provider**

➤ (blue)	**Linear A/V Content (via broadcast)**
➤ (purple)	**Non-linear A/V content (via broadband)**
➤ (orange)	**Application Data and Signalling**
➤ (red)	**Application Data**

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HbbTV Architecture

HbbTV Specification (TS 102 796 v1.3.1)

HbbTV

EN 300 468 DVB-SI

TS 102 809 App signalling

TS 101 154

Vol. 2 Media Formats

Vol. 5 DAE

JavaScript

TS 103 286 CSS

TS 103 285

TS 103 205 Extensions to CI Plus

Vol. 7 Content & Service Protection

Web Standards TV Profile

OIPF OPEN IPTV FORUM

DVB Digital Video Broadcasting

Small signalling information in broadcast stream

Tech-3380 EBU-TT-D

EBU-UER

23001-7 CENC

23009-1 DASH

ISO/IEC

CI Plus

CI+

CEA-2014

CEA Consumer Electronics Association

Conditional Access

Video / Audio IP-Elements

TTML

...

DOM3...

CSS3...

HTML5

W3C

HTML5

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Source : HbbTV 2.0 Specification

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Application Information Table

```
05:17:53.870  PID 0x0822 (2082):
application_information_section
  table_id                    116 [DVB Reserved]
  section_syntax_indicator     '1'
  section_length              121
  test_application_flag        '0'
  application_type             16 [subject to registration with DVB]
  version_number                1
  current_next_indicator       '1'
  section_number                0
  last_section_number           0

  application list:
    application_identifier
      organisation_id            19 [ARD]
      application_id          16384
    application_control_code      1
    application_descriptor list:
      application_descriptor
        application_profile list:
          application_profile        0
          version_major              1
          version_minor              1
          version_micro              1
        service_bound_flag       '1'
        visibility               '11' [visible]
        application_priority       0
        transport_protocol_label   1
        transport_protocol_label   2
      application_name_descriptor
        application_name list:
          ISO_639-2_language_code    deu [German]
          application_name           HBBTV-Start-DSMCC+Web
        descriptor_tag            21
        descriptor_length         10
        0x0000: 69 6E 64 65 78 2E 68 74   index.ht
        0x0008: 6D 6C                     ml
      transport_protocol_descriptor
        protocol_id                3 [reserved]
        transport_protocol_label   1
        selector_bytes
        0x0000: 22 68 74 74 70 3A 2F 2F   "http://
        0x0008: 68 62 62 74 65 6E 30 31   hbbten01
        0x0010: 2E 6E 65 74 77 6F 72 6B   .network
        0x0018: 74 65 6E 2E 63 6F 6D 2E   ten.com.
        0x0020: 61 75 2F 00               au/.
      transport_protocol_descriptor
        protocol_id                1 [MHP Object Carousel]
        transport_protocol_label   2
        remote_connection        '0'
        component_tag             12
```

Start at http://hbb...com.au/

transport_protocol_label 1
= web address

transport_protocol_label 2
= MHP carousel

Application Content and Services

3 main categories:

1 **Information**
news, weather etc

2 **Program-related information**
such as EPG, program extensions, social, polling and voting, etc

3 **Content** such as catch-up TV, on-demand programs, games, streaming channels, dedicated sport applications etc
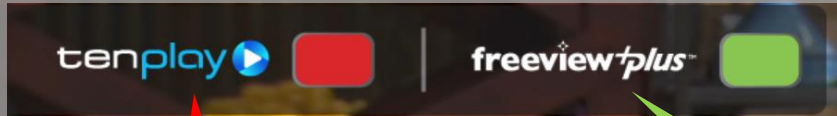
freeview™

Next Generation Platform

freeview+plus™

- Integrate broadcast channels and broadband video
- Create a marketable platform for free television
- Engage all major television manufacturers
- Enable a retail market of interoperable products
- Motivate retailers to promote the platform
- Maintain broadcaster branding and control
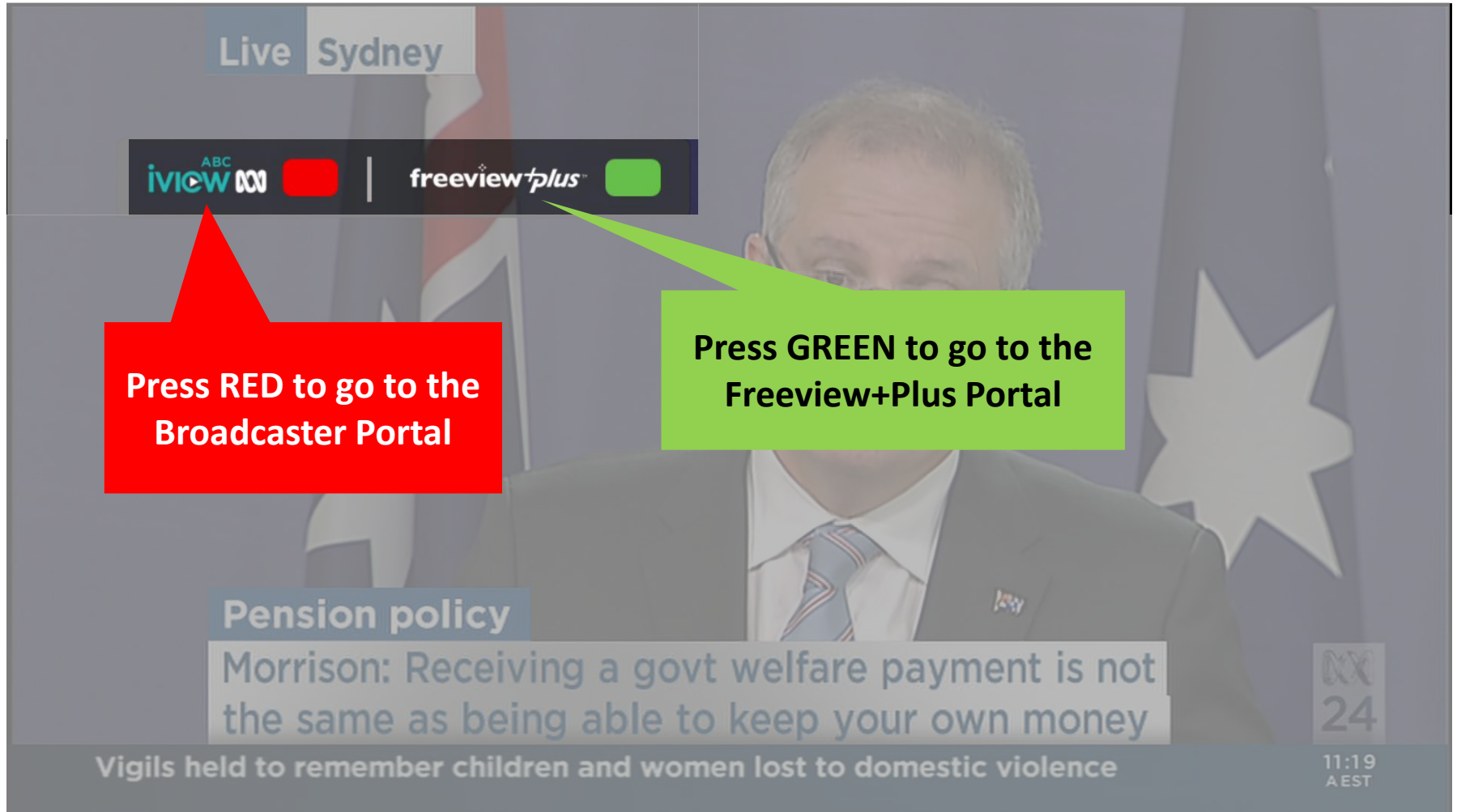- Deliver an unrivalled user experience

freeview™

Application Start

Press RED to go to the Broadcaster Portal

Press GREEN to go to the Freeview+Plus Portal

Application Start (2)

Press RED to go to the Broadcaster Portal

Press GREEN to go to the Freeview+Plus Portal

Live Sydney

Pension policy

Morrison: Receiving a govt welfare payment is not the same as being able to keep your own money

Vigils held to remember children and women lost to domestic violence

11:19 A EST

EPG

Past events changes to IPTV

Book recordings of future events of over-the-air broadcast television

TODAY

The M

9:00am - 11:3

John Larry Emdur a...   ...Gillies each morning for a variety of segments on the lates...
news, entertain...   ...other hot topics. (2015)

11:22 AM

EARLIER   NO...   ...1 PM

- Press the green button on the remote
- A state of the art EPG : +7 and -7 days
- Seamless access to catch up - in one place
- "Featured" - recommendations of the big shows today, in the future and on catch-up
- Ability to browse by genre and search programs for the next 7 days
- "Favourites" function – live and catch up episodes
- Ability to record

QI   Antiques Ro

3   Spa...   Living Blac

7   The...   House Rules

9   Mo...   The Guard

10   Ree...   Everyda

↕ CHANNELS   ↩ BACK/RETURN   ■ EXIT   ■ OPTIONS   ■ MENU   ■ SET REMINDER

Programme Synopsis

Detailed synopsis and programme graphic sent via the internet

11:23 AM

THE PROJECT

The Project ♥ Today

Season 6, Episode 209 6:31pm - 7:32pm [NC] [CC]

Join Waleed Aly, Gorgi Coghlan, Pete Helliar and Gretel Killeen as they chat about the day's top news stories. Plus, we chat to the cast of Pitch Perfect 2.

SET REMINDER ♥

MORE E

The Proje

The Proje

The Proje

↩ BACK/RETURN 🟥 EXIT 🟩 TV GUIDE 🟨 MENU

Menu

Broadcaster Catch Up Portals

CATCH UP

6:43 PM

Whilst searching for other desired content, the viewer still watches the broadcaster live service

iview ABC · SBS ON DEMAND · PLUS 7 · 9 jumpin · tenplay

Navigating to a broadcaster catch up service seamlessly moves the application from the Freeview portal to the broadcaster portal

⟲ BACK/RETURN   ▮ EXIT   ▮ TV GUIDE

Catch Up Services

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