

# **ATSC 3.0 Interactivity**

## **An Introduction**

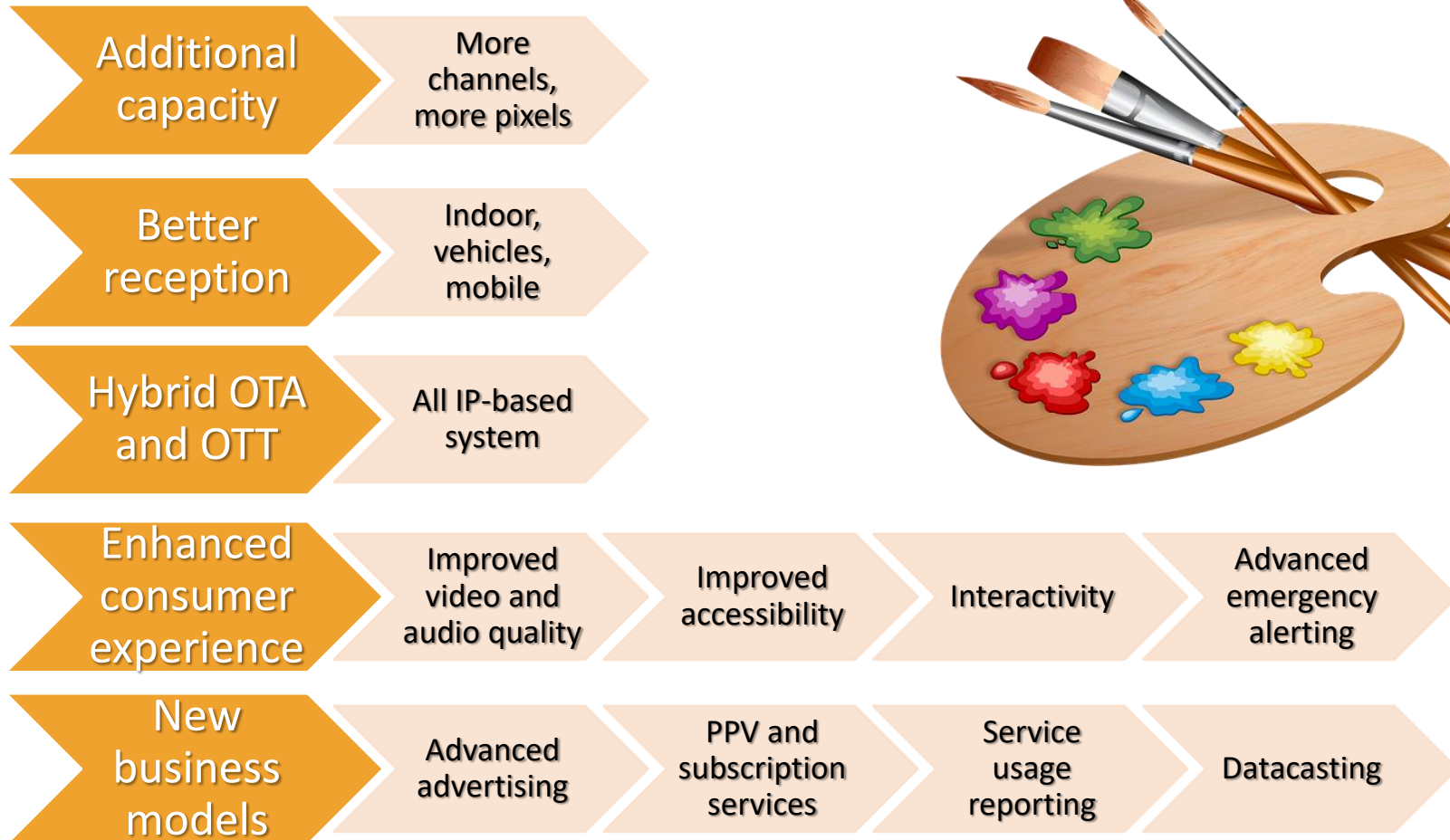
HBBTV SYMPOSIUM NOVEMBER 2019

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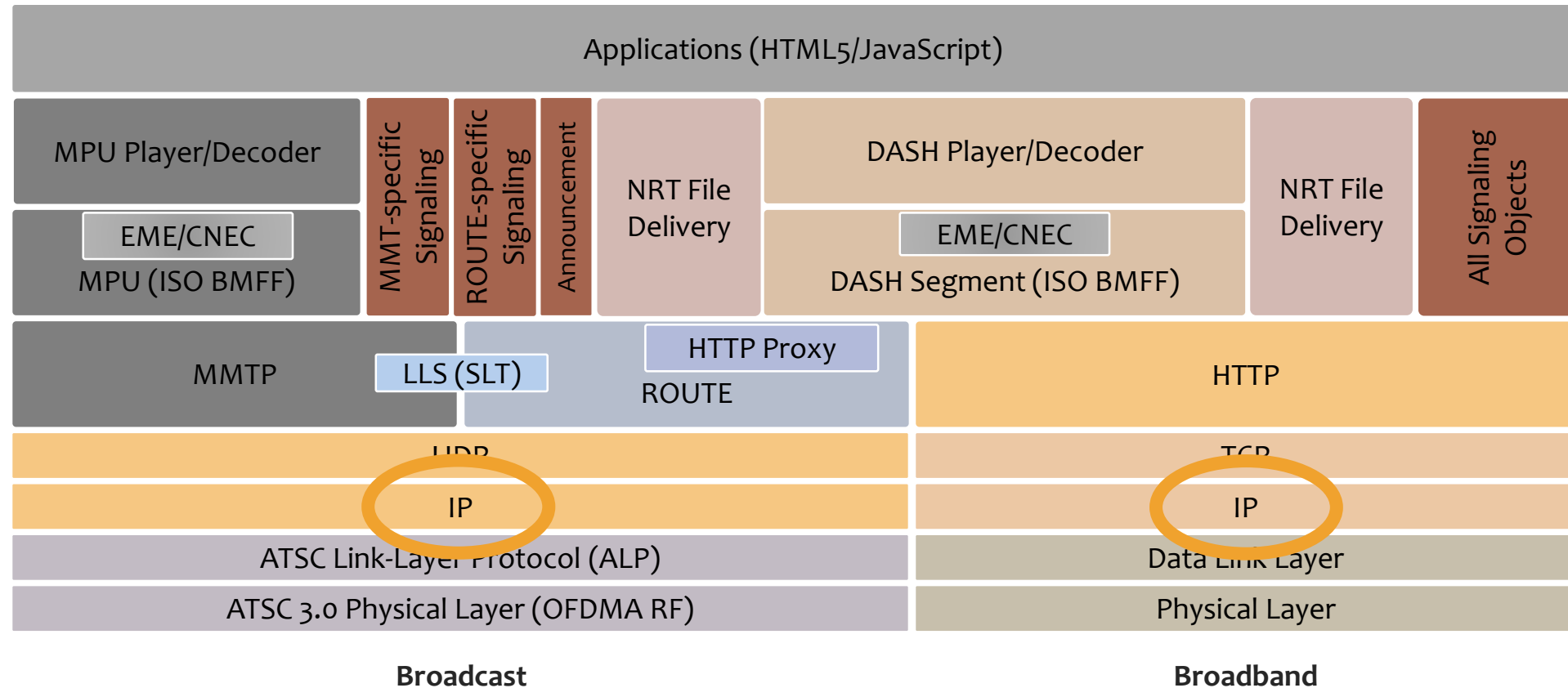
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**ATSC 3.0**

# Key Advancements in 3.0



# ATSC 3.0 Transport Layer – IP Backbone

IP Transport is used for broadcast delivery of both streaming and file content



# ATSC 3.0 Interactive Content – Key Features

- Describes the conceptual application operating environment
- Standard W3C User Agent – HTML5, CSS & JavaScript
- Supports seamless, secure delivery of interactive content from broadcast and broadband
- Provides a separate, unique context for each application
- Defines a WebSocket API to manage the receiver features
  - Unlike HbbTV which extends the DOM with new JS objects and methods
- Enables distributed receiver architectures

# ATSC 3.0 Interactive Content Standard – A/344

## What it is:

Specifies how Broadcaster Applications are distributed

- Leverages A/331, A/360 and A/337

Specifies the WebSocket APIs of the receiver environment where the Broadcaster Application will “execute”

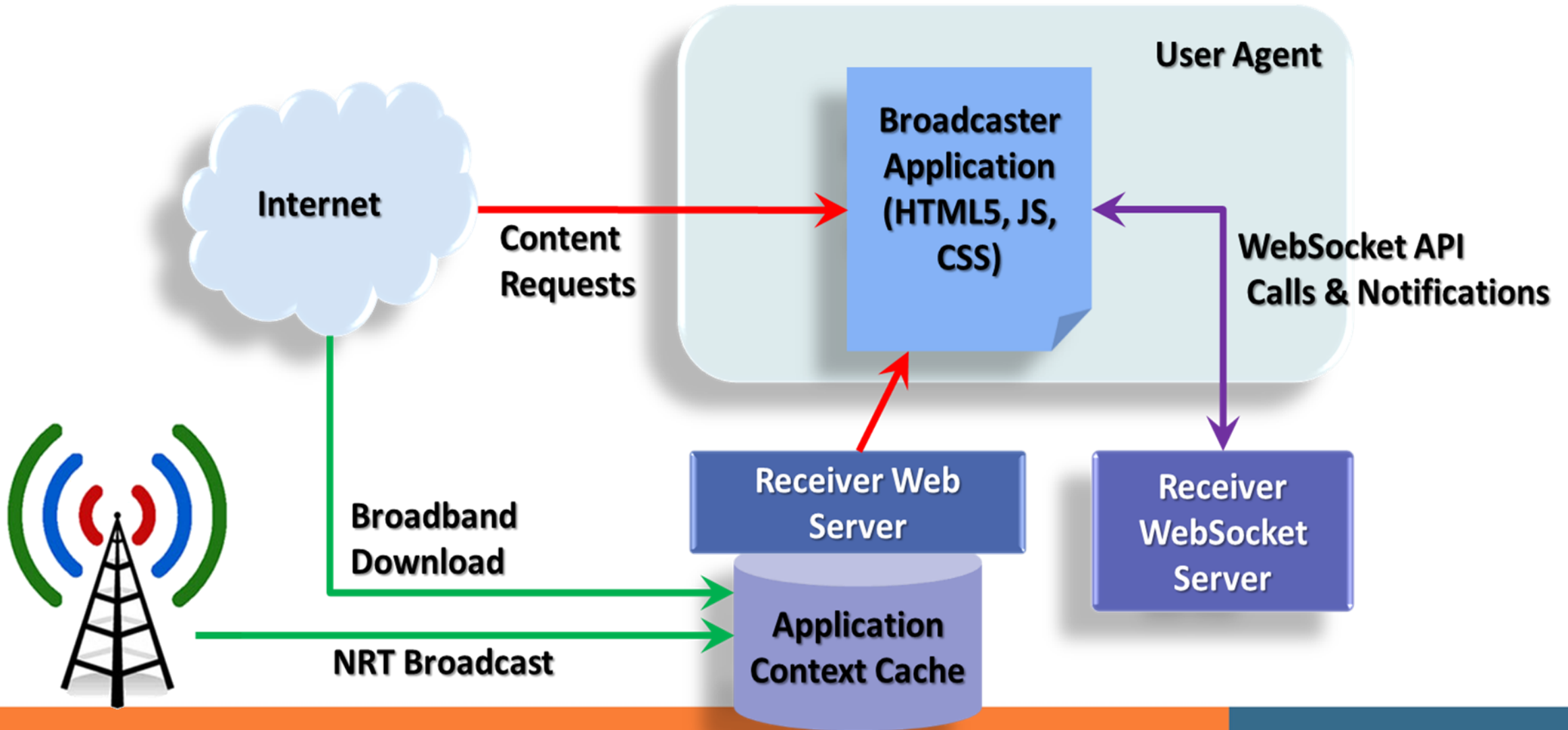
- The standard describes a *Reference Receiver Model* to explain the semantic reasoning behind the API features and functions

## What it is *NOT*:

A normative specification of an ATSC 3.0 Receiver implementation

- The *Reference Receiver Model* defines requirements for such a specification

# Broadcaster Application Interactive Environment



# WebSocket API Features

## Receiver Query APIs

- Allows applications to detect preference settings of the receiver

## Notifications

- Applications can subscribe to preference changes, NRT content receipt, events, emergency alerts and other asynchronous events

## Receiver Controls

- Set Service
- Select Track
- Set Volume
- Request Content be played
- Scale and Position Video Window

# WebSocket API Features<sub>(2)</sub>

## Manage Cache

- Request content and file download via broadband
- Detect current cache usage
- Mark content unused for removal
- “Filter Code” Management selecting NRT content to be cached

## Content Recovery Management

- Provides APIs to manage all aspects of the content recovery process when using Water Marks

## DRM Key Management

## Receiver Media Player (RMP) Management

- Allows Application to track and control RMP behavior

## Content Replacement (DAI)



# Companion Device Concepts – A/338

- Companion Device  $\equiv$  Smart phone, tablet, etc.
- Companion Device (CD) standard defines protocols that allow
  - Receiver to discover CD Applications
  - CD Applications to communicate with Receiver
    - Some A/344 Web Socket APIs are exposed
  - Receiver to launch and notify CD Applications
    - CD Applications subscribe to notifications
- Broadcaster Applications to launch CD Applications
- BA and CD Applications to establish JSON communication paths

# ATSC 3.0 Adoption



- Commercially deployed in South Korea
  - Commercial launch in May 2017 using HbbTV-like interactive system
  - Korea plans to shut off ATSC 1.0 and go all UHD by 2027
- Top 40 U.S. markets – 61 markets in all – expected to launch in 2020
  - 8 test stations already on air – main test bed is Phoenix Model Market
- CTA announced the new consumer-facing logo to support the U.S. deployment
  - ATSC and NAB assisted with logo development
  - A Conformance and Licensing program is in place; receivers must earn the logo
- ATSC Planning Team 6 on Global Recognition of ATSC 3.0 has been formed
  - Develop strategies for informing the international community, including current ATSC 1.0 regions
  - Consider the role of DTT in a 5G world
  - Consider new technical efforts to support use cases unique to other countries/regions

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# Thank you

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