Video apps Live and On-Demand, devices Android TV/AOSP in practice

Rob van Moorst en Cees Smits

Agenda

History

+ 2001 DVB headend
+ 2003 First certified DVB-T STB for Digitenne
+ 2006 Hybrid STB
+ 2009 Linux STB OTT & IPTV
+ 2016 StreamingBuzz/Rebox combination
+ 2018 Android (ATV in AOSP) STB OTT & Hybrid
+ 2020 Linux and Android in disconnected (Multi-DRM) environment
+ 2022 End-to-End Live & On-Demand Linux and Android STB

Android TV versus AOSP

Live TV and VOD

+ Connected
+ Disconnected

DRM

+ Connected (Cloud Multi-DRM)
+ Disconnected (Offline Multi-DRM)

Android TV

Google certification necessary to access Google services. For certification, Google will study the business case in advance, before approval

Advantages

+ CTS key includes HDCP 1.4 & 2.2 key
+ Widevine key
+ Playready 3.0 key
+ Google key
+ Automatic security updates
+ Removed UART/Busybox
+ Pre-install supplied APK's
+ Remove OTA Update APK

Disadvantages

+ Straitjacket Google
+ Always log in with a Google account first

Android AOSP

No Google certification required

Advantages

+ Own "look and feel"
+ No need to log in with Google account
+ Install your own applications without permission from Google
+ Own Playstore possible
+ More control

Disadvantages

+ CTS key is not standard, so necessary to add HDCP 1.4 &2.2 key yourself
+ MAC address and SN number necessary to add yourself
+ DRM, Widevine and MS PlayReady 3000 are optional
+ Update OS security yourself
+ No access to Google services, and therefore like everything available in the Playstore

Use cases

Hospitality & Care (AOSP)

+ Hotels
+ Holiday resorts
+ Hospitals
+ Elderly homes

Airlines (AOSP)

+ On the principle of “Bring You Own Device”
+ Offline solution including DRM handling without the necessity to download an app

Maritime, Cruise Ships and Ferries (AOSP)

- Each cabin has it’s own TV/ STB for Live TV and VOD
- Bring You Own Device for Live TV and VOD outside the cabin

Defence; Army, Navy, Air Force (AOSP)

+ Crew welfare programs for Live TV and VOD within a private network

Operators and Retail (ATV)

Application preparation

Device selection

+ STB
+ HDMI stick
+ Tablets
+ TV's

Content Protection

+ Online DRM server
+ Disconnected DRM server in Docker container

Functionalities

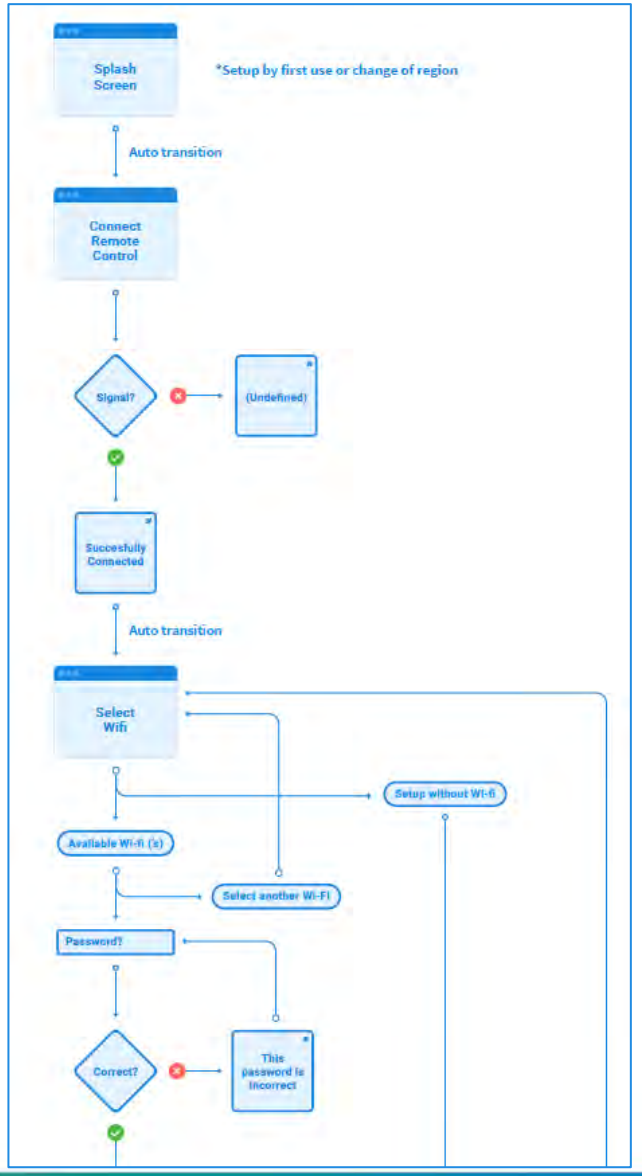
+ Live TV
+ VOD online/offline
+ Additional applications such as:
+ NPO Start
+ NLZiet

Device management

+ Application installation flow, MDM

UI

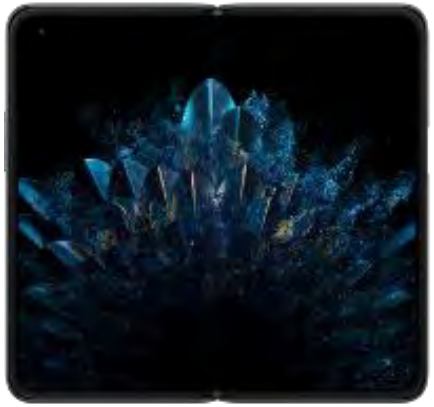
+ Presentation layer



rebox

streaming buzz

Devices & Device Management examples



Services

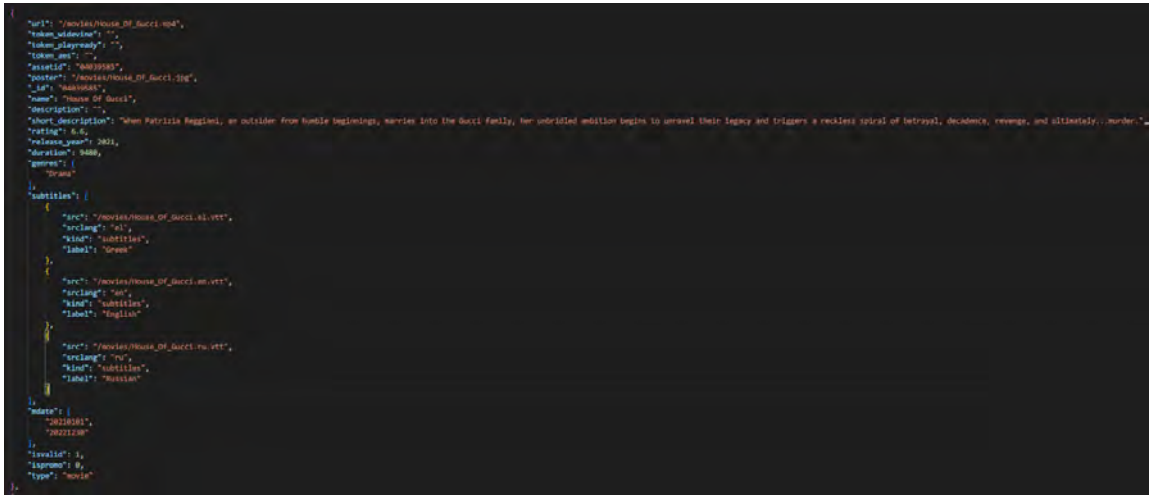
Use of JWT

+ Dynamic and safer because you have a a certain token validity

Login on headend

```
Request: [POST] /api/v1/ip/allow { "username": "USERNAME", "password": "PASSWORD" } Response: 200 OK { "allowed": true }
```

Retrieve Json with all available services.



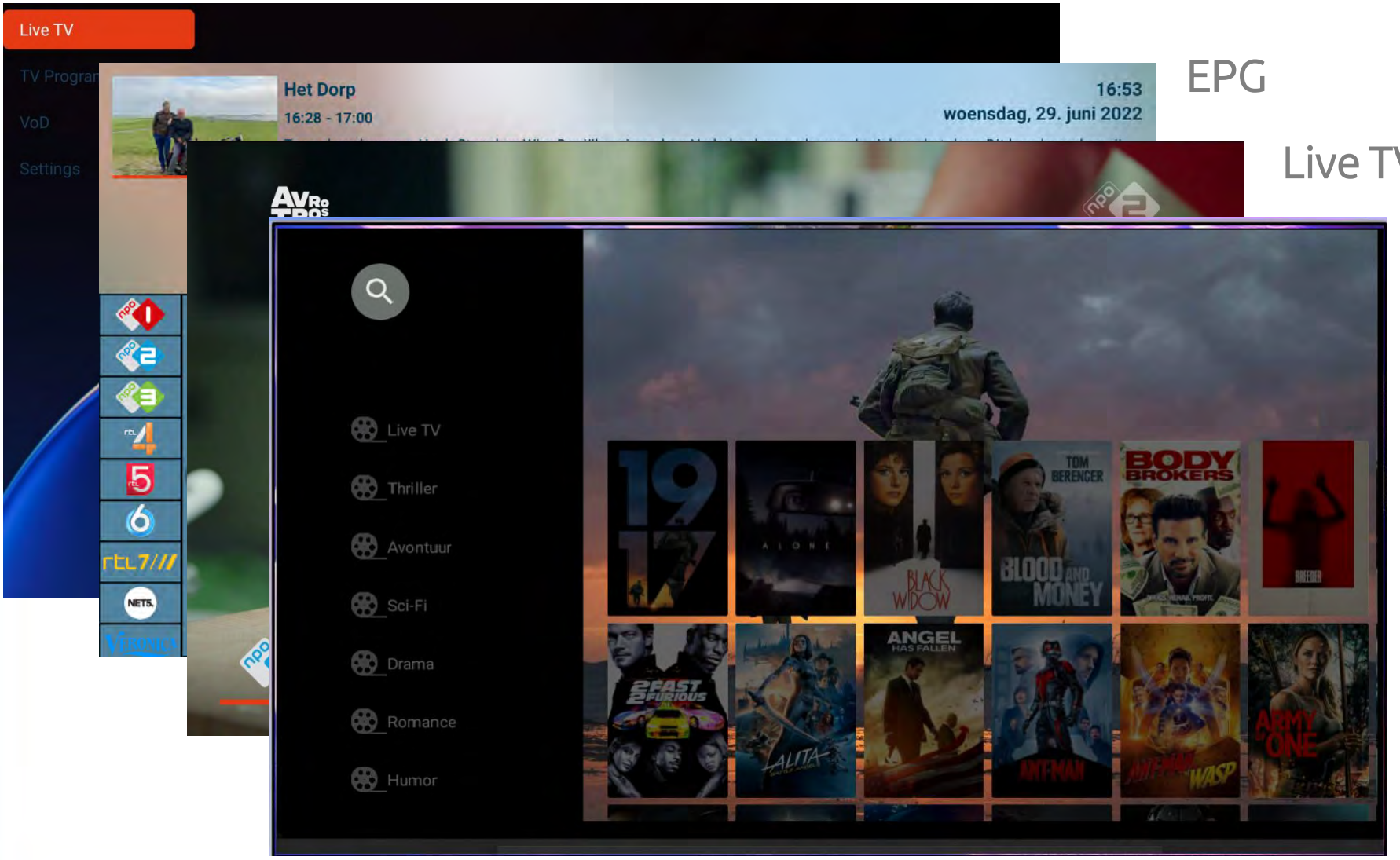
Get desired services

```
Request: [POST] /api/v1/content/channel { "channel_id": "c409292cf921486dad67b7f477f2e5f8", "device_id": "Rebox_Rob", "type": "hls" }
Response: { "details": { "info": "string", "sources": { "id": "string", "label": "CHANNEL NAME", "src": "PLAYER LINK HERE ", "deviceid": "echo of device id", "type": "application/x-mpegURL", "contentProtection": {... DRM stuff ...} } } }, }
```

rebox

streaming buzz

Application UI example

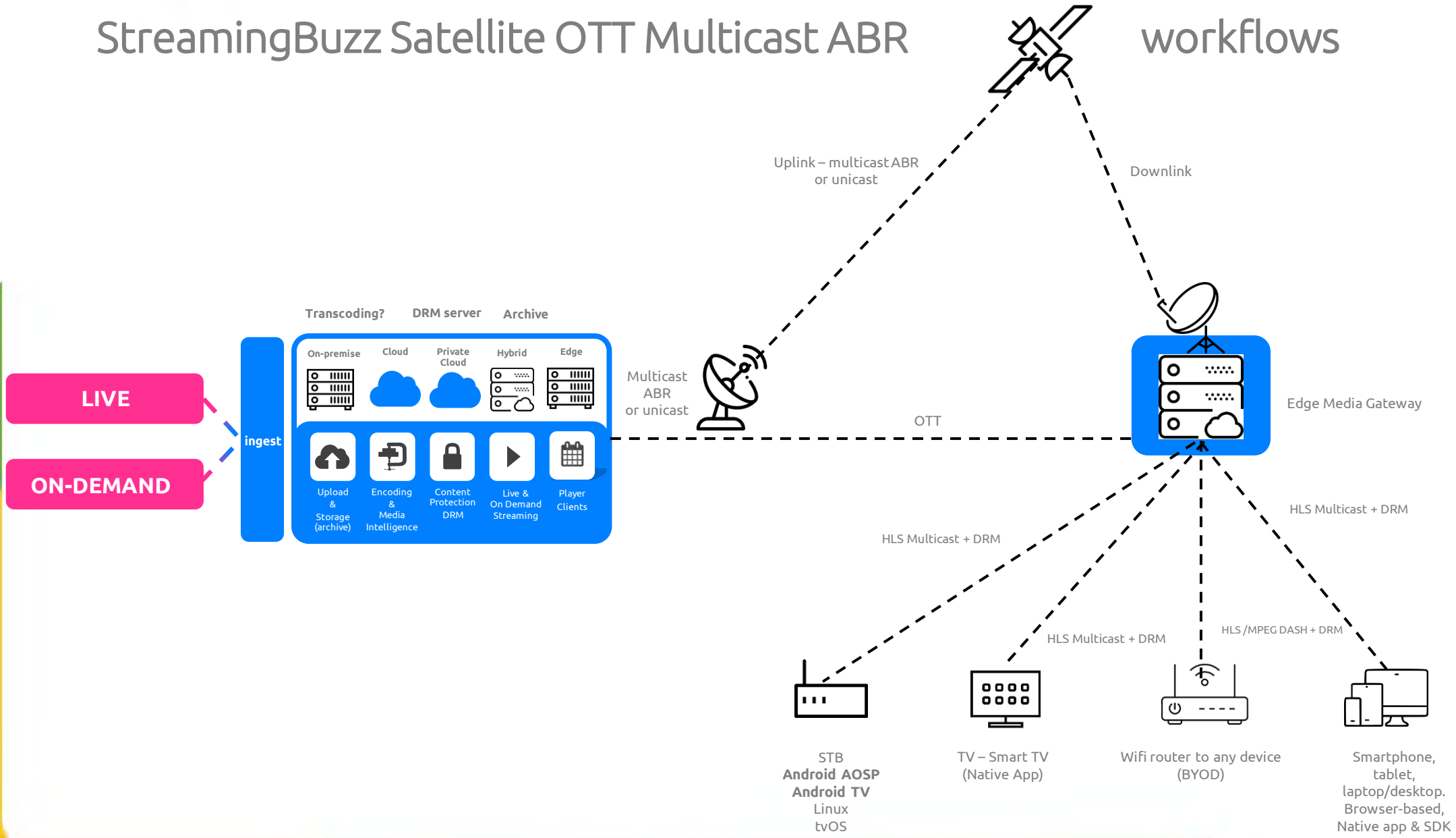


EPG

Live TV with DRM

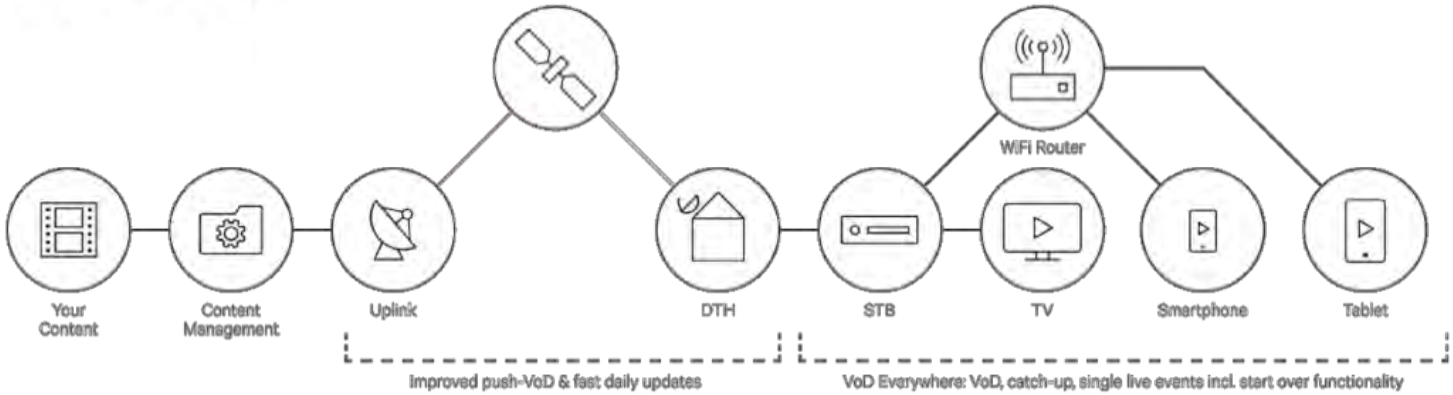
VOD with DRM

StreamingBuzz Satellite OTT Multicast ABR workflows



rebox

streaming buzz



Thanks