DVB-I Reference Tools

Updates 2024

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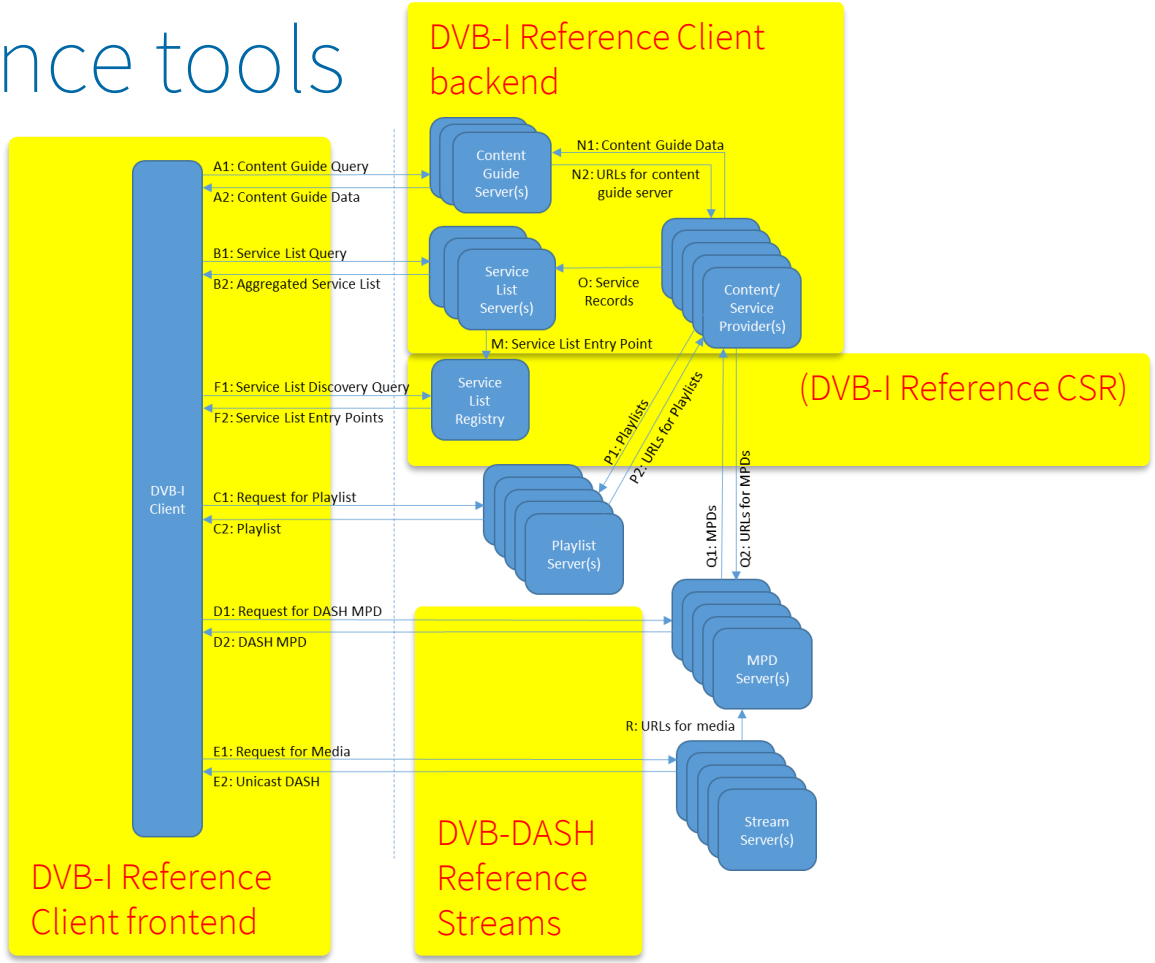
Background

- DVB develops both industry specifications and tools to support market deployment of those specifications
- Tools are an essential component for a DVB Bluebook specification to be promoted to an ETSI standard.
- DVB-I Reference Tools support the development activities and industry operations in a maturing DVB-I based ecosystem
- Since 2020 DVB-I reference tools have been used as a base for several industry trials and PoC, still activity is still going strong for new markets
- For more background, please consult the OSMART 2023 slides and dvb.org

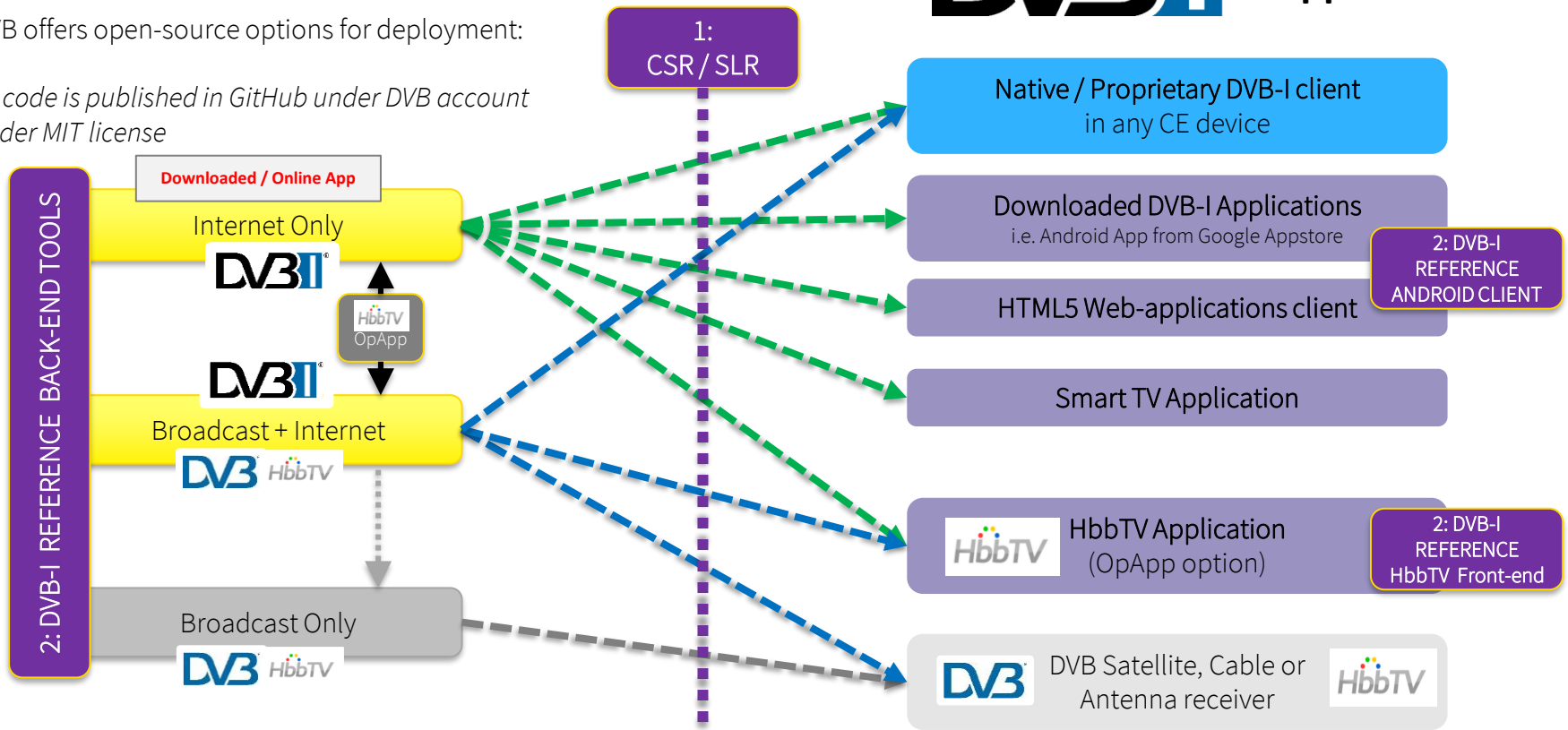
The reference tools



Deployment options of DVB-I

DVB offers open-source options for deployment:

All code is published in GitHub under DVB account under MIT license



Highlights for 2024

- A177r6 support (TS 103 770 V1.2.1)
- New URLs for the Reference client
- Accessibility
- Native Android packaging (APK)
- DVB-NIP support
- Still to come this year
  - inlineImages query parameter
  - Server side service list construction based on postcode

New URLs

- Backend: https://dvb-i-reference.dvb.org/client/backend/
- HbbTV Frontend: https://dvb-i-reference.dvb.org/client/frontend/hbbtv/
- Android PWA Frontend on a tablet/smartphone: https://dvb-i-reference.dvb.org/client/frontend/android/
- Android PWA for testing on a PC browser https://dvb-i-reference.dvb.org/client/frontend/android/player.html

Accessibility

- Work done in the DVB TM-I (Paul Higgs) and TM-I-a11y (accessibility) task force (Andreas Tai) incorporated to the client and example services

Native Android package

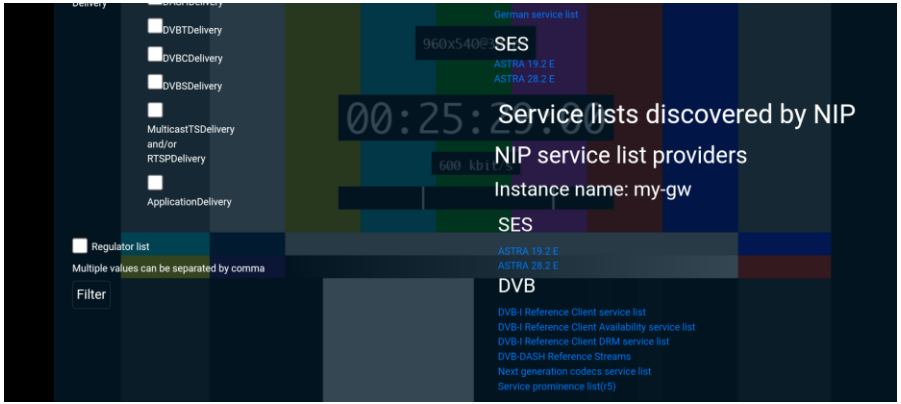
- Reference client now available as an APK and Android Studio project
  - Specifically: an Android layer for DVB-I reference application
- This Android - JavaScript interface allows using native android code for extending functionalities further
- First use case for the enable network service discovery for…

DVB-NIP?

- A protocol stack for satellite and terrestrial television broadcasting entirely based on IP
- Covers both professional content distribution applications and consumer applications (DTH to IP in-home devices)
- DVB-NIP reuses DVB's existing IP-based standards, adapting them for use on DVB broadcast networks where necessary:
  - DVB-I for service discovery and programme metadata
  - DVB-AVC and DVB-DASH for AV coding and packaging
  - DVB-MABR for multicast distribution
  - DVB-GSE (generic stream encapsulation) for link layer adaptation
  - DVB-S2X and DVB-T2 for physical transport
  - DVB-HB (Home Broadcast) for in-home distribution scenarios

DVB-NIP support in the reference client

- New Android layer provides Javascript API for DVB-I NIP service discovery:
  - `android_interface.startNIPDiscovery()`
    - Starts the DVB-I service discovery process.
  - `android_interface.getServices()`
    - Returns the found services as a string containing a JSON array
  - `android_interface.getTest()`
    - Test function to determine if the android API is working
- Return value can be an Service List Registry or a Service List
- Tested with DVB-NIP Announcement Server (available from Docker Hub) and a commercial offering

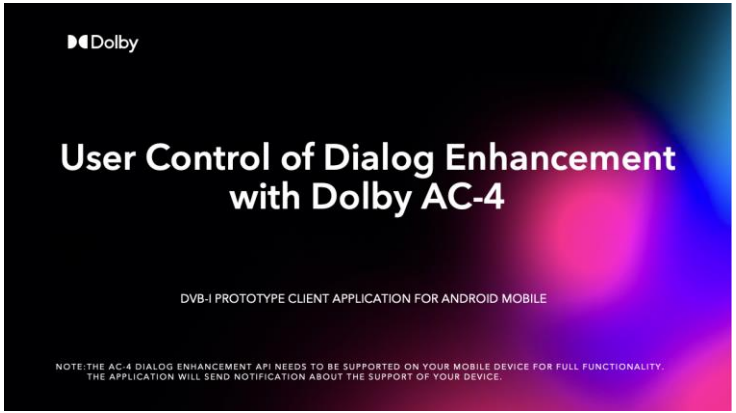


Examples based on DVB-I Reference Client Design:

DVB-I DOLBY AC4 with NGA Dialog Enhancement

Key points

- UI based on DVB-I ref-app client
- Application converted as Native Android App
  - Using common modules in Android SDK
  - WebView HTML5 chrome engine
  - ExoPlayer to use native playback engine
- Works in Android devices with Dolby AC4 codecs
- Android SDK standard ExoPlayer with extensions by Dolby Laboratories



DVB-I adaptations

Based on Reference Client Design

In Germany

- rbb service list validated with the DVB-I Reference application
- Channel logos and XML AIT service
  - Including app only service!
- Complete TVA-EPG data with preview pictures
- Worked as a starting point for the German Pilot

POC with MyTV Broadcasting Malaysia

- UI based on DVB-I ref-app client
- Application converted as Native Android App
- Use available / existing MPEG-DASH OTT streams
- Utilize DVB-I Metadata coming from Sofia Backstage backend (a commercial product)

DVB-I Reference Client also tested in Cambodia, Iran, Ireland, Finland, Spain, and more…

Onwards 2025

- Bring DVB-I over 5G systems also to Reference Client
- Better 24/7 streams for the Reference Client
- Improved documentation and support for most common use cases
- Sharing and collecting experiences / user stories from different places
- CMCD and other things via dependencies like dash.js?
- And don’t forget the DVB-I Discord Server