

Recipe for STB-less IPTV based on standards

Lessons learned from a STB-less IPTV Proof of Concept

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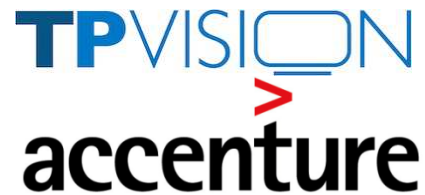
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Background: “STB-less IPTV using CI+”

- › Joint project carried out by TNO together with European Operators:
- › Objective: to find a solution for IPTV without a STB, directly to the TV set
- › Design solution based on [standardized](#) components
- › Work with actors in the ecosystem for support and implementation
- › Started in spring 2012

Proof of Concept: Managed IPTV service straight to the Smart TV



...so, how did we get here?

Started when new features for CI+ v1.4 were announced

- › Multi-stream support
- › Content delivery over IP
- › CI Plus browser extensions
- › Application launching
- › URI extensions
- › Allow watermarking

The main drivers for STB-less IPTV

Complexity

- No extra box
- No extra remote
- No extra cabling

Calls

- Cabling confusion
- Control of devices, menu structures, TV input selection
- Education in device usage

Cost

- STB and HDDs
- Stock
- Installation, Helpdesk

Competition

- CI+ proves popular for CableCo's Customers

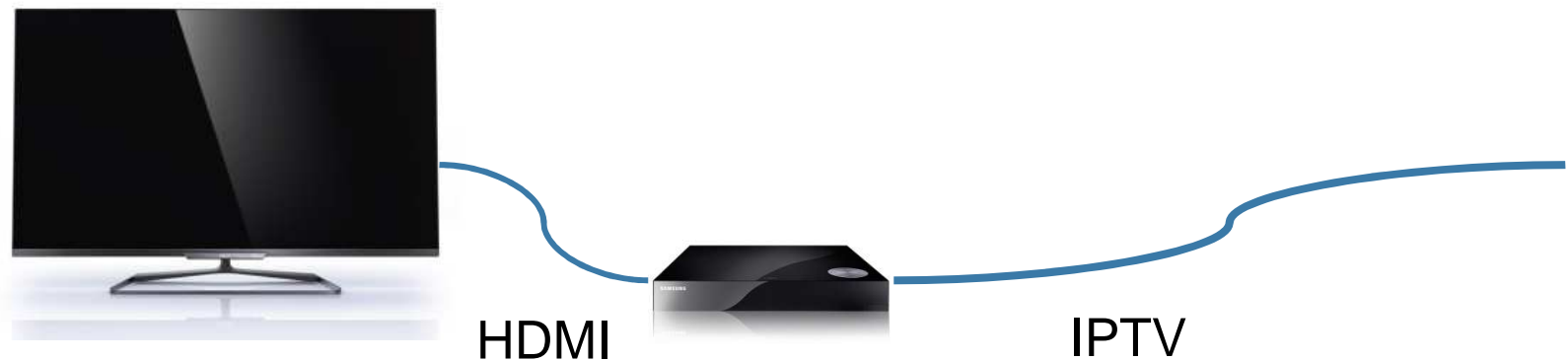
CO₂

- Decrease energy consumption
- Corporate social responsibility

Content threats

- Less AV connectors

Standardised approach is key if you want to reach CE devices.

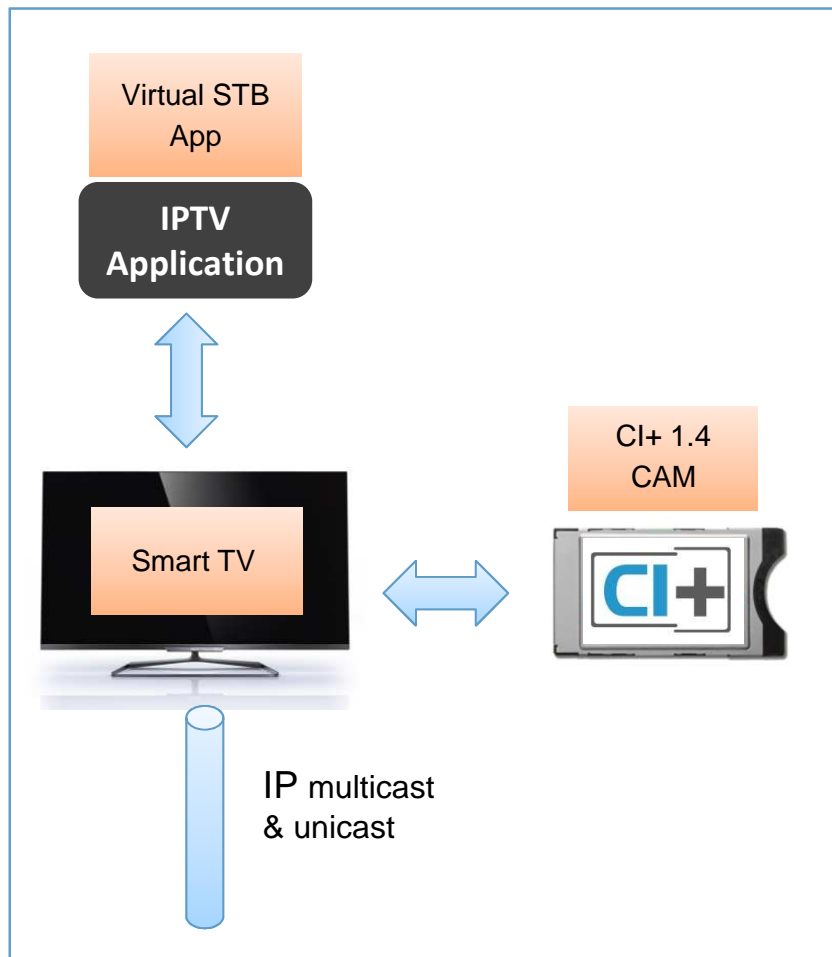


- › Many unused standards for IPTV
- › Probably oke if you terminate your IPTV platform on a STB
- › But you don't want to adjust for every brand and type of TV set.

Gameplan

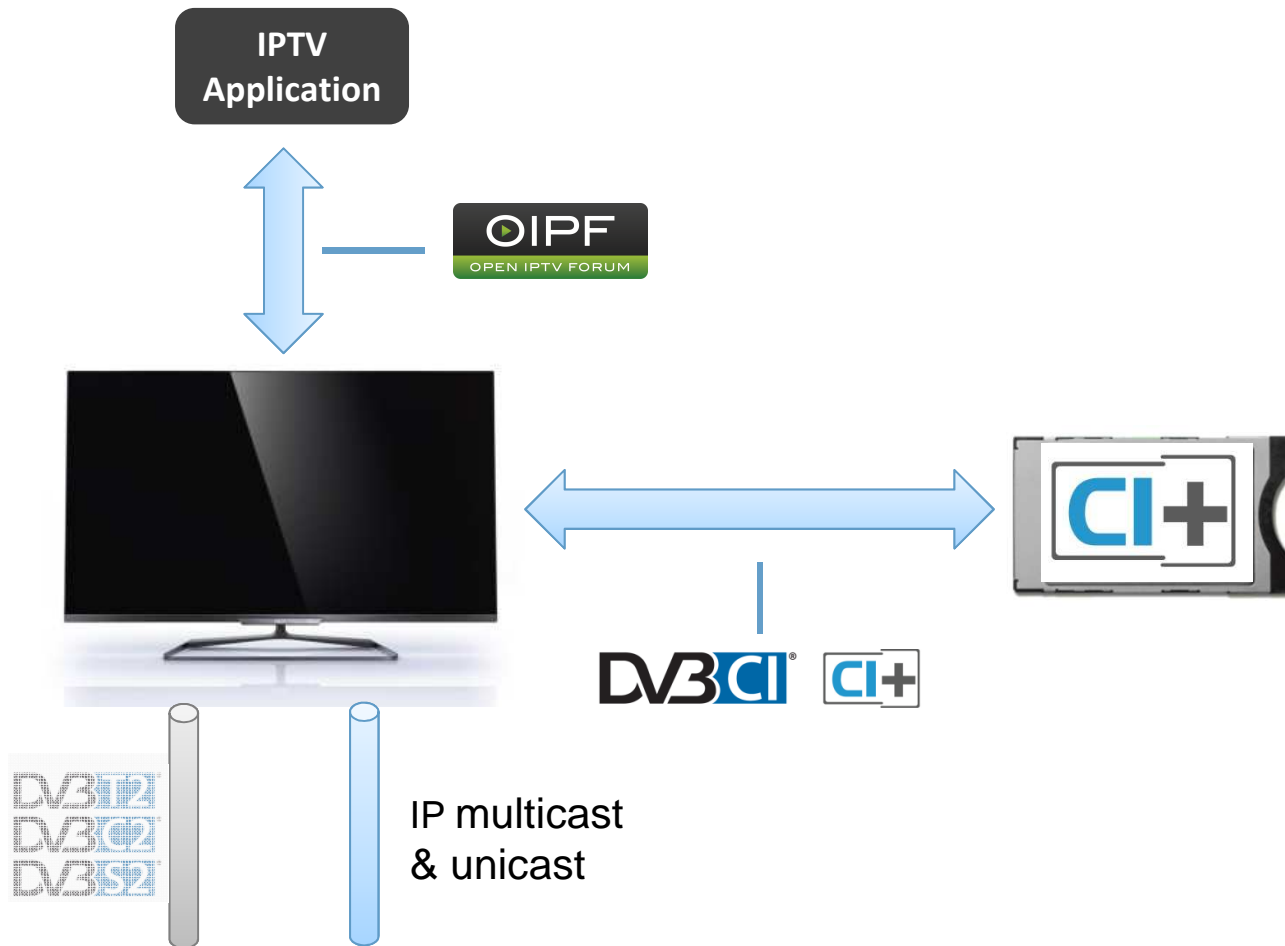
- › Check feasibility
- › Reach out to Industry
- › Standardise in DVB
- › Build a PoC

Recipe is based on minimising standardisation

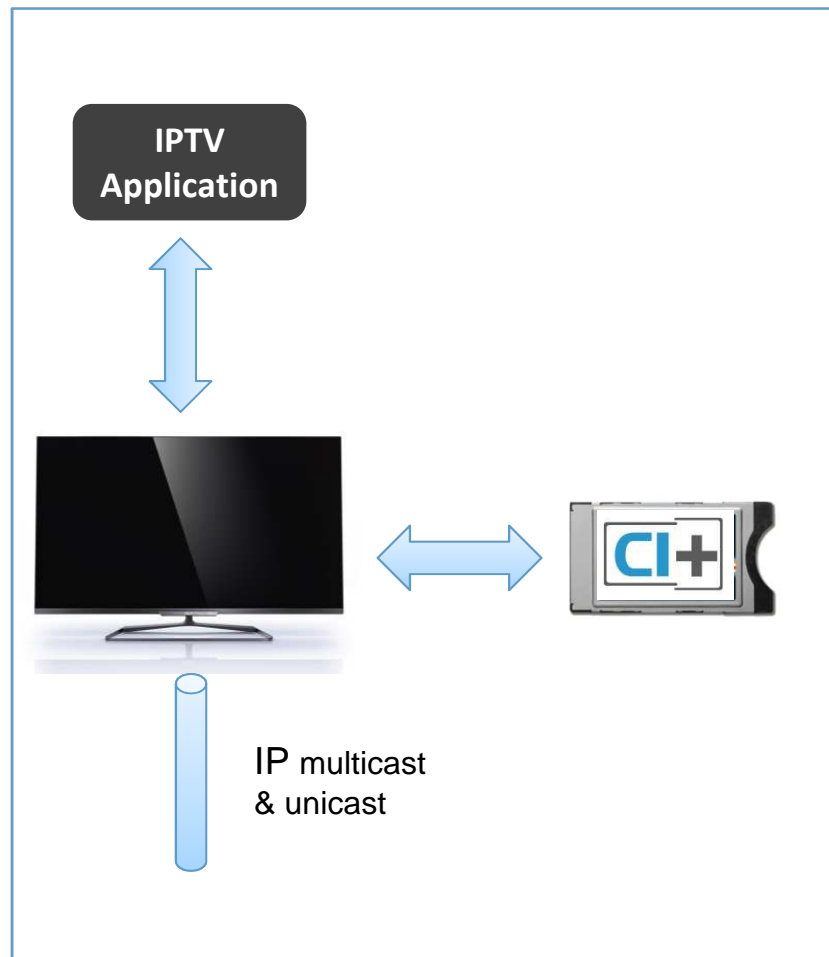


- › **The App** handles everything that can be put into an app and (therefore) doesn't require standardization
- › **The TV** contains all elements that can be standardized
- › **The CAM** contains all elements that cannot be standardized and/or are proprietary to the operator

STB-less IPTV based on DVB and OIPF standards



Breakdown of features for STB-less IPTV



Virtual Set-top Box App

- › EPG, GUI
- › User/Subscription management
- › Authentication with operator back-end
- › nPVR

TV:

- › Application Discovery
- › Channel list
- › Streaming for On-Demand content
- › Fast Channel Change technology

CAM:

- › Bootstrapping
- › Conditional Access
- › Fast Channel Change technology solutions
- › Streaming technologies not supported by TV

The solution can provide feature parity with the STB

Covered service aspects in current design

- Linear TV
- EPG/channel list
- nPVR
- On-demand TV (VoD, Catch-up)
- User and subscription management
- Bootstrapping, authentication
- CA/DRM

To be done/discussed

- Local timeshifting and recording
- Operator apps (such as weather, news etc that run now on STB platform)
- App lifecycle

Next steps in the project

- › Standardising e2e solution in OIPF
- › Continue industry outreach
- › Market trial
- › Establishing ecosystem enablers
 - › Certification

CI+ timeline

TVs expected to have mandatory CI+ v1.4 implementation from 2015 and onwards.

- › DVB has approved CI+ v1.4
- › Approval by Steering Board and publication by ETSI expected before EOY2013
- › OIPF specification work expected to finalise EOY2013
- › CI+ LLP expected to adopt DVB CI+ v1.4 specification
- › CI+ LLP works with 18 months sunrise period for enforcing CI+ v1.4

So what did we learn so far?

Cooperation between Industry partners

- › TV vendors are open to cooperate with operators
- › Helpful to bring different partners together and share requirements and constraints
- › First check feasibility of features then standardise
- › Don't overload standards

Easy

- › GUI
- › EPG
- › Multicast support
- › Codecs
- › Interaction with Back-end
- › Channel concept (OSDT)
- › Look 'n feel of OnDemand

Essential

- › Operator as a Source
- › One remote
- › One IP connection

Most complicated

- › Fast Channel Change – Retransmission
 - › Make it downloadable
 - › Standardise on client
 - › Consensus on 2-3 client solution

- › Monitoring

- › On-demand streaming

Discussion items

- › Buttons on the remote control
 - › Menu, EPG, Back buttons

- › Coexistence with other app environments on the TV.

- › Upgrade path

Conclusion

- › SmartTVs are here to stay
- › Standardised STB-less IPTV on the SmartTV is entirely doable
- › Commercial relation between operators and TV makers still required
- › Building an ecosystem is the way forward

Contact information

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