



OUR STRATEGY FOR STB-LESS IPTV

Dr. Oliver Friedrich,



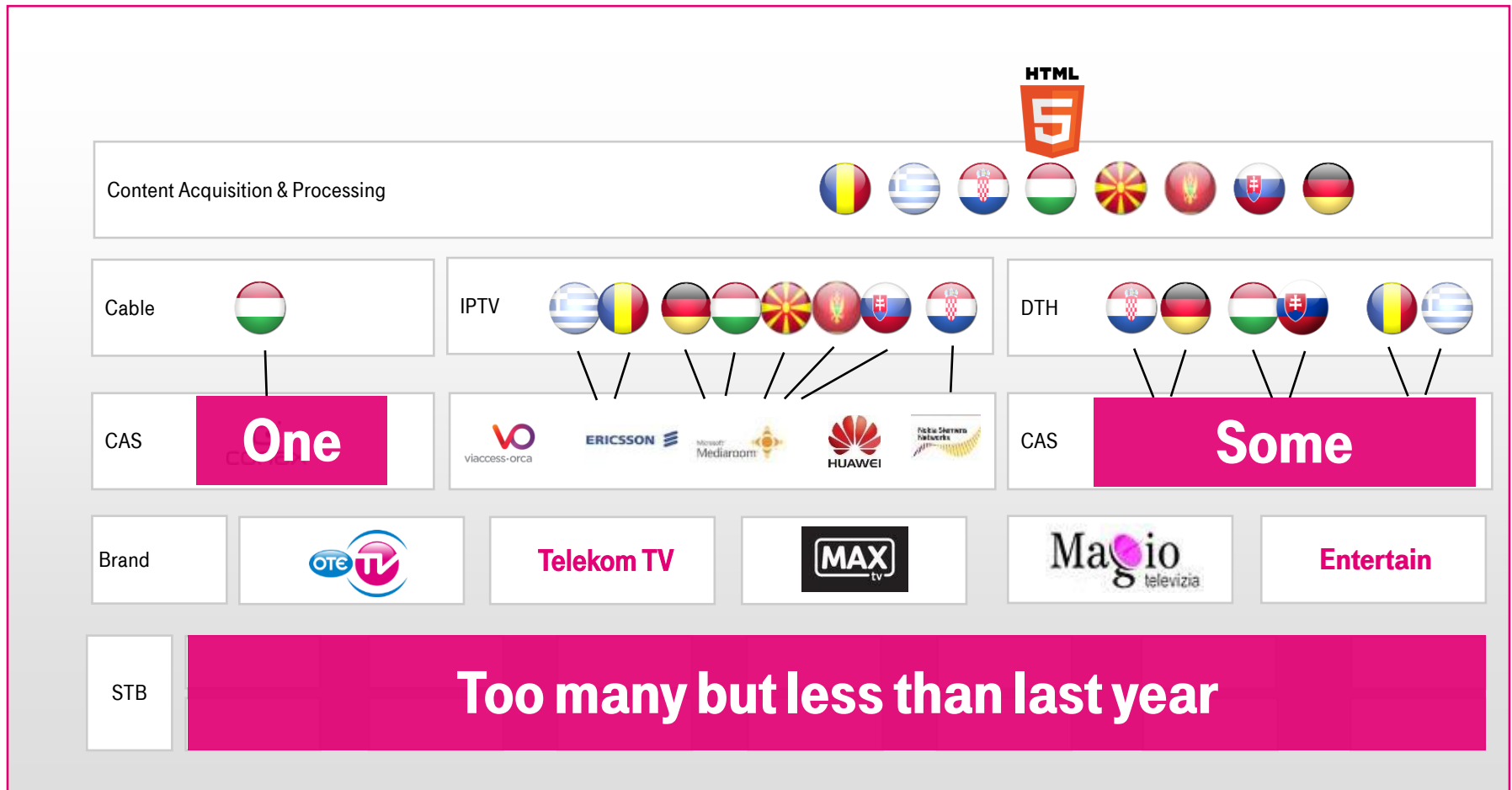
2014, The Hague

ONE YEAR LATER

- **General platform strategy & new deployments inside Deutsche Telekom**
 - HTML5, De-coupling, Partnering, Standards
- **Evolution of STB-less approach in 2014**
 - From “operator as an app” to STB-less with help of TNO, HbbTV, OIPF, DVB, CI+
- **Deployments of Virtual STB (Cloud Browser) technology in Europe and further preparations to do so**
 - Cloud-browser deployed by CableCos, OTTs and ongoing trials by T-Labs
- **Consolidation in standardization landscape**
 - HbbTV/OIPF merger, STB-less, new star RDK?
- **Release of „Dongle“ devices by Google and Amazon**
 - The new STB-less?

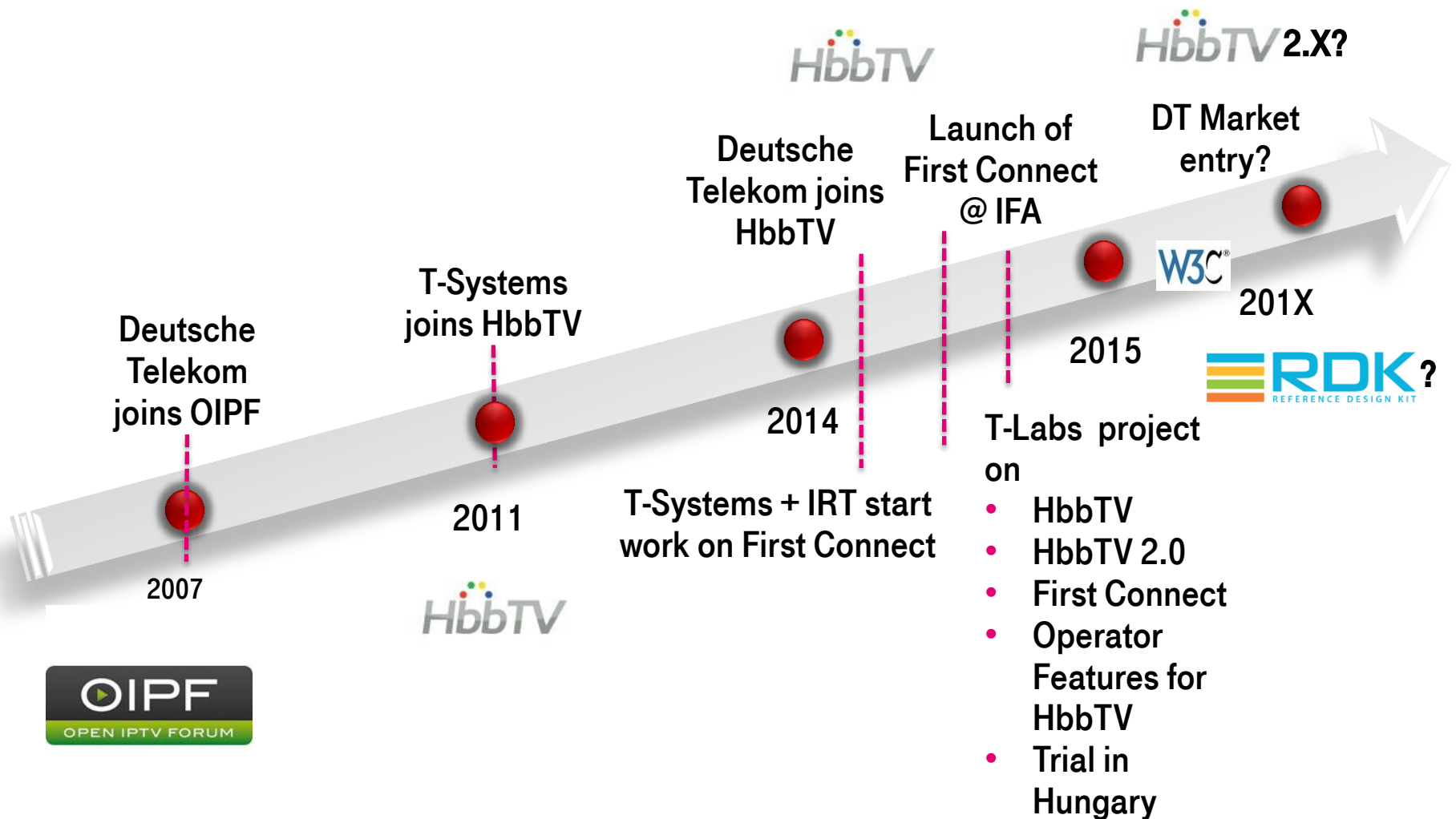
DEUTSCHE TELEKOM'S EUROPEAN TV FOOTPRINT

WHERE DO WE COME FROM + RECENT DEVELOPMENTS



BROWSER-BASED TV HISTORY IN DEUTSCHE TELEKOM

FROM OIPF TO HbbTV



T-LABS MISSION STATEMENT FOR FUTURE IPTV & HYBRID TV DEPLOYMENTS

DE-COUPLING:

- STB-less clients as well as our own STB will only be loosely coupled to the IPTV middleware

TIME IS UP FOR END-TO-END IPTV SILOS

HTML5++ ENVIRONMENT

- HTML5 runtime for portal and apps, open standards.



W3C +
HbbTV + RDK

Impact on
HbbTV?

PARTNERING & EASY SERVICE INTEGRATION

- Direct integration with third party Browser-based services. "Steckerleiste"

STB-LESS + OWN STB

- Both our own browser-based STB and third party cTVs should become end-devices for all our services

VIRTUAL STB & CLOUD BROWSER:

- A virtualized services and app execution environment, will help to speed up the innovation life cycle and help to reduce OPEX + CAPEX



VIRTUAL STB VS. STB-LESS

PERFECT MATCH?



Move STB functionality into the Cloud

Virtual Set-Top-Box



Move STB functionality into Connected TVs

STB-less



- Service and App execution is moved to the Cloud
 - “Cloud Browser”
 - Best in class scenario for legacy STB population
- Simpler end-device (video player, DRM)
- Service quality and richness are not depended on end device or local SDK anymore
- Services launched also in Europe
- Room for setting standards (HTML5 EME, HbbTV)

- No room for TV-vendor specific SDKs
- Original OIPF mission nearly accomplished
- HbbTV 2.X might play the key role
- Partly also re-usable for operator STBs
 - Provider Discovery, CI+ extensions, browser

Combination of both in Connected TVs?

EVOLUTION OF STB-LESS & CORRESPONDING STANDARDS

THE ROAD TO CONNECTED TV OPERATOR INTEGRATION

NEARLY MARKET READY



- Common browser environment across Connected TV platforms. At least common API based on HTML5
 - Role of RDK browser ?
 - Second Screen? Google/W3C/HbbTV?
- The glue “STB-less approach”
 - IP Multicast support (IP tuner) and access to metadata from live TV
 - Service Provider Discovery – How does the TV find the IPTV platform?
 - Extended Application Lifecycle Model
 - Multi-application handling
- CA/DRM support
 - HTML5 EME solving all problems?

STANDARDS UPDATE FOR STB-LESS AND VSTB

W3C:



- Web + TV working group defining TV specific HTML5 extension
 - TV Control API
 - Second Screen WG
 - Cloud Browser?
- HTML working group driving HTML5 Premium Video Extensions (EME/MSE)
 - DRM in the (STB)browser
 - Common encryption
 - Ad-insertion

HbbTV:



- HbbTV 2.0 is ready for release
- The operators are back
- Use market momentum to solve STB-less based on standards!
- Second Screen approach questionable. Harmonization with W3C and others required

STB-LESS INITIATIVE



- STB-less based on open standards
- CA-less approach of big interest for us

RDK



- Potentially the holy grail to solve issues like
 - SoC abstraction (HAL, drivers)
 - Media playback
 - browser

SUMMARY, OUTLOOK & KEY TAKE AWAYS

STB-less cTV integration
must be harmonized to
become successful.
HbbTV!

DT will
push forward
vSTB technology to
de-couple service and app
production from end device
and reach out to legacy STBs

How will dongle-based
devices drive the future of
Connected TVs?

Combination of vSTB + STB-less
might be the key to success
(even in TV sets...)

Browser is king

Mission on
browser-based TV is partly
accomplished

**THANK YOU FOR YOUR
ATTENTION!**



ERLEBEN, WAS VERBINDET.

CONTACTS



T

Dr. Oliver Friedrich
Senior Expert New Media
Telekom Innovation Laboratories

Deutsche Telekom AG
Address Ernst-Reuter-Platz 7
10587 Berlin, Germany
Contacts Phone: +49 151 17491449
E-Mail: oliver.friedrich@telekom.de
Twitter: #T-Labs

