HD+ Integrated in TV Sets
HbbTV Operator Application – Best practice report by HD+

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HD +

HD+ & SES
A short reminder

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The SES Video challenge:

DTH needs to stay competitive concerning attractiveness for the end consumer
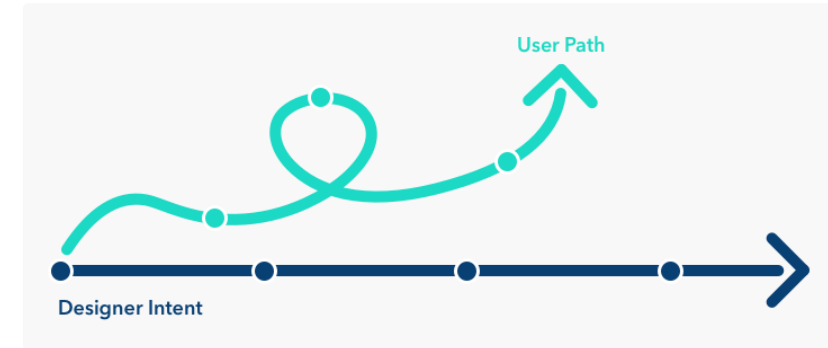
Webinar: HbbTV OpApp – Best practice report of HD+

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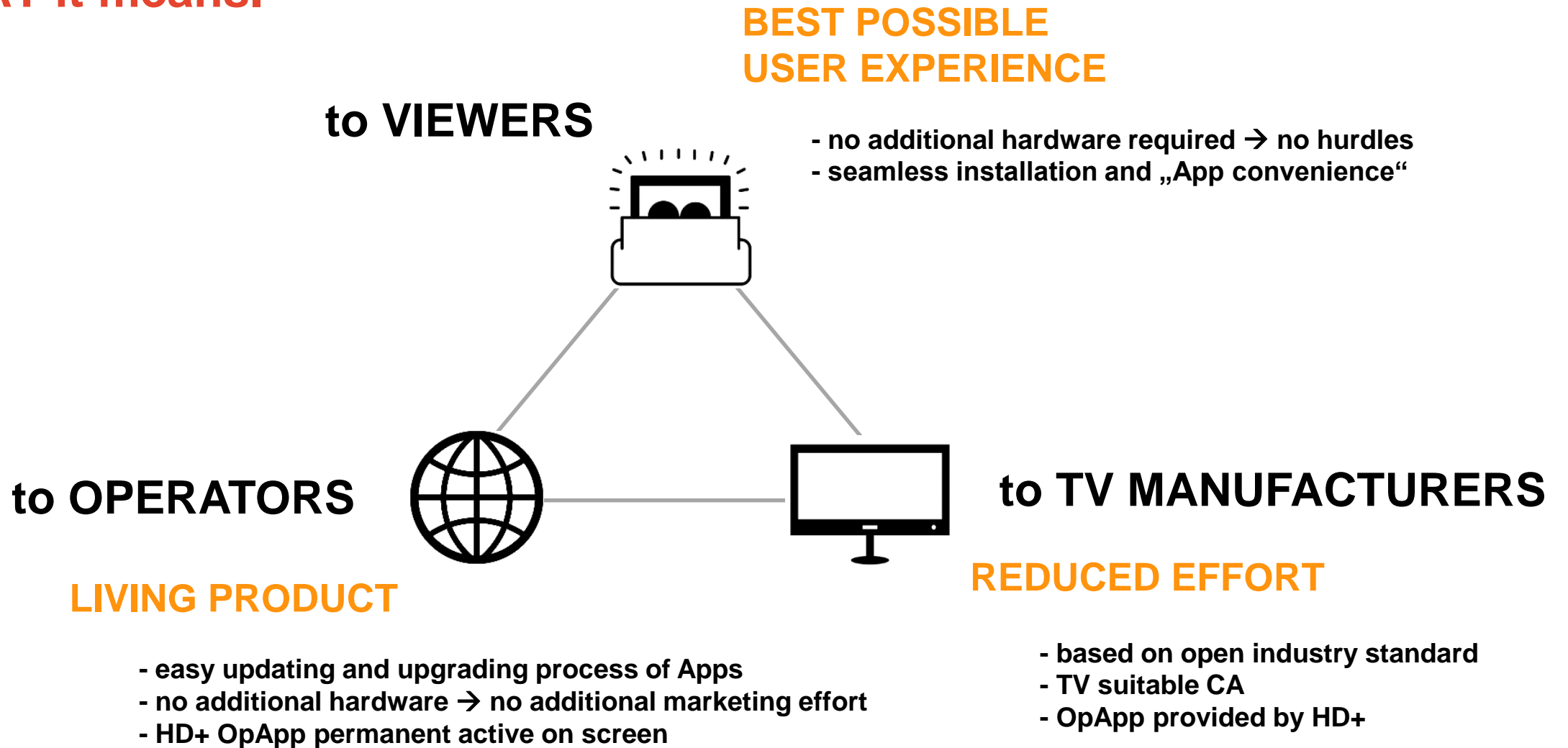# Why launching a HD+ HbbTV Operator App

We believe it's GAME CHANGING.

PROVIDE a persistent and consistent USER JOURNEY on TV

ACTIVATE the unutilized COOPERATION POTENTIAL between Operator and TV Manufacturer
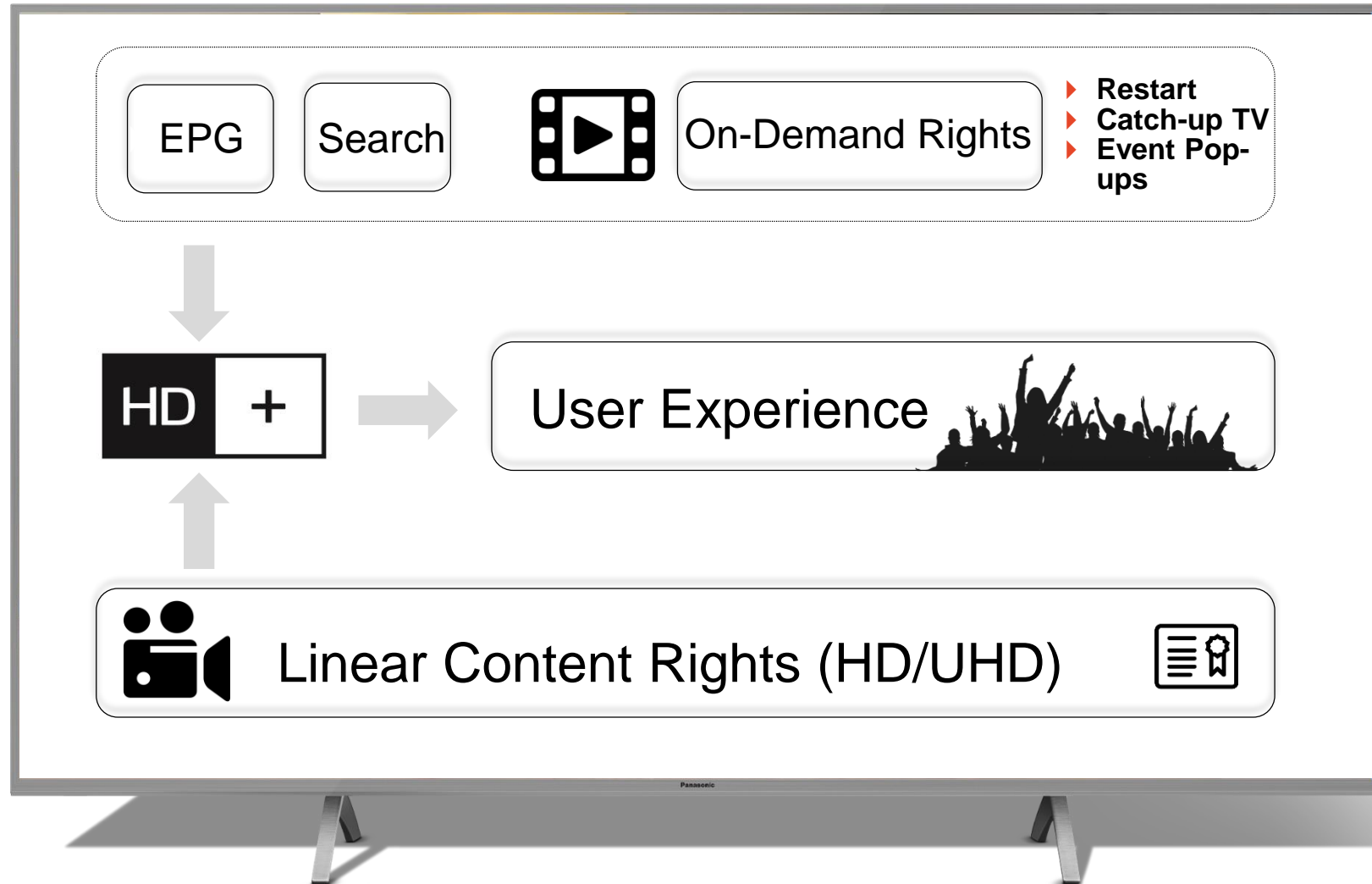
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HD+ integrated TV
WHAT it means.

**BEST POSSIBLE
USER EXPERIENCE**

to VIEWERS

- no additional hardware required → no hurdles
- seamless installation and „App convenience"

to OPERATORS

to TV MANUFACTURERS

REDUCED EFFORT

LIVING PRODUCT

- easy updating and upgrading process of Apps
- no additional hardware → no additional marketing effort
- HD+ OpApp permanent active on screen

- based on open industry standard
- TV suitable CA
- OpApp provided by HD+

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HD+ Integrated TV
The product ingredients

EPG | Search | On-Demand Rights
- Restart
- Catch-up TV
- Event Pop-ups

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User Experience

Linear Content Rights (HD/UHD)

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HD+ Integrated Product

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The HD+ Product

The best HD+ of all time: HD+ Integrated in TVs

Das beste HD+ aller Zeiten.

HD+ Sender-Paket

24 Private HD-Sender

2 Ultra HD-Sender

HD+ Komfort-Funktion

- Neustart
- Mediatheken
- TV-Guide

40 Freie HD-Sender

HbbTV Operator APP

HD +

6 Monate gratis
für Kunden
in Deutschland

What we had already!

▸ 24 of the largest private broadcasters in HD quality

▸ 2 exclusive channels in UHD quality such as RTL UHD

▸ Free 6-month trial of HD+ without registration

The new functions integrated in the HD+ Op App!

▸ Integrated CA → no extra hardware

▸ HD+ "Komfort-Funktion" **at no extra charge**

- Instant Restart ("Neustart")

- Catchup („Mediatheken")

- integrated EPG („TV-Guide")

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Integrated Conditional Access System
Rational

Integrating a CA system

▸ CA system essential to maintain the business model

▸ "STB in a TV approach": no additional hardware: same must apply for the CA system

▸ Same functionality as a Smart Card based Set-Top-Box or a CI+ Module, but **Internet access is required**

▸ **The integrated CA system needs an Op App to work and vice versa**

Lessons learned

▸ Using standard APIs (like "sendDRMMessage" or "onDRMSystemMessage")

▸ Communication APIs candidate for deprecation

TV

Internet

Operator Application

UI for customer, including UI to prolong (buy!) the product

Steering

UI

CA Client

Essential for business model

HD+ Backend

CA Headend

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User experience with HD+ integration
First Time Installation

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HD+ integrated in TVs – Installation
TV First Time Installation

"Two clicks"

Installation of HD+ after
internet setup and
channel search

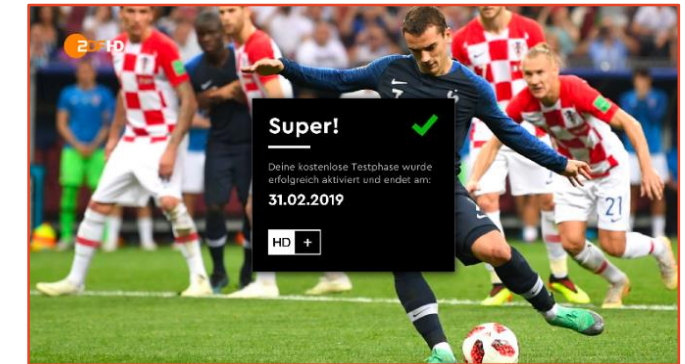**①** First hint for HD+ when selecting the reception method
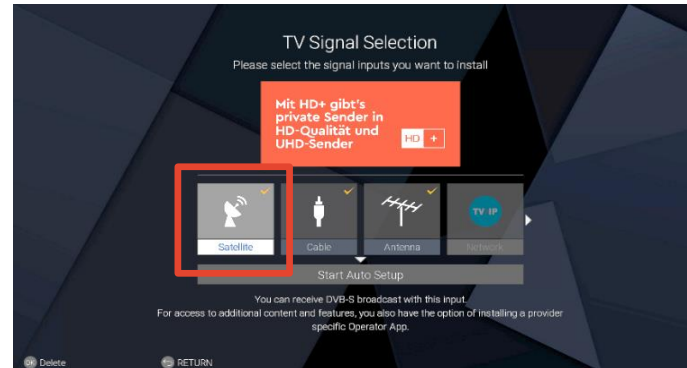
② Option for installation after channel search

③ Activation of HD+ after first time installation

④ Starting of the six month free period

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HD+ integrated in TVs – Installation
Later Installation via Home-Bar or App Store

Later installation

via Home Bar and App Store
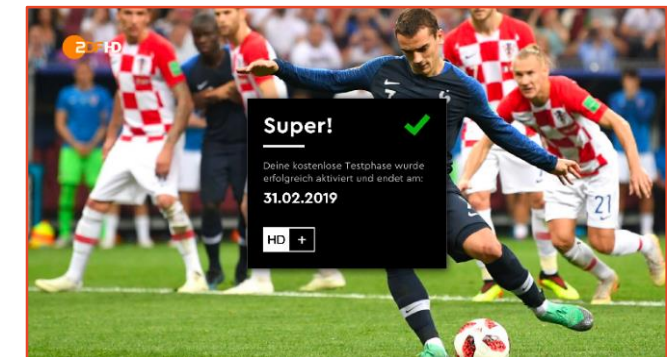
1 Via Home Bar or App Store

2 Installation after overview about advantages

3 Activation
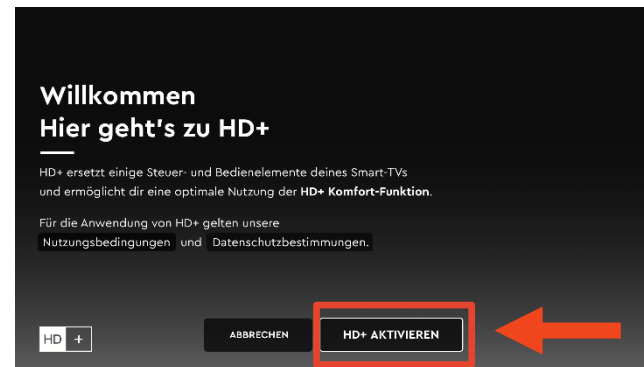
4 Starting of the six month of free period

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Installation of Operator Application
Details

Technical background

▶ Download and discovery according to specification (via URI_linkage_descriptor in BAT with FQDN)

Challenges

▶ Distribution of certain app versions for dedicated models based on own release/distribution system

▶ Based on User Agent String (UAS)

Out of the specification

▶ Agreement with manufacturer where/how in first time installation the Operator Application is offered

▶ Agreement with Manufacturer where/how a later installation of Operator Application is offered

▶ The prominent offering of the Operator Application is essential for good installation rates
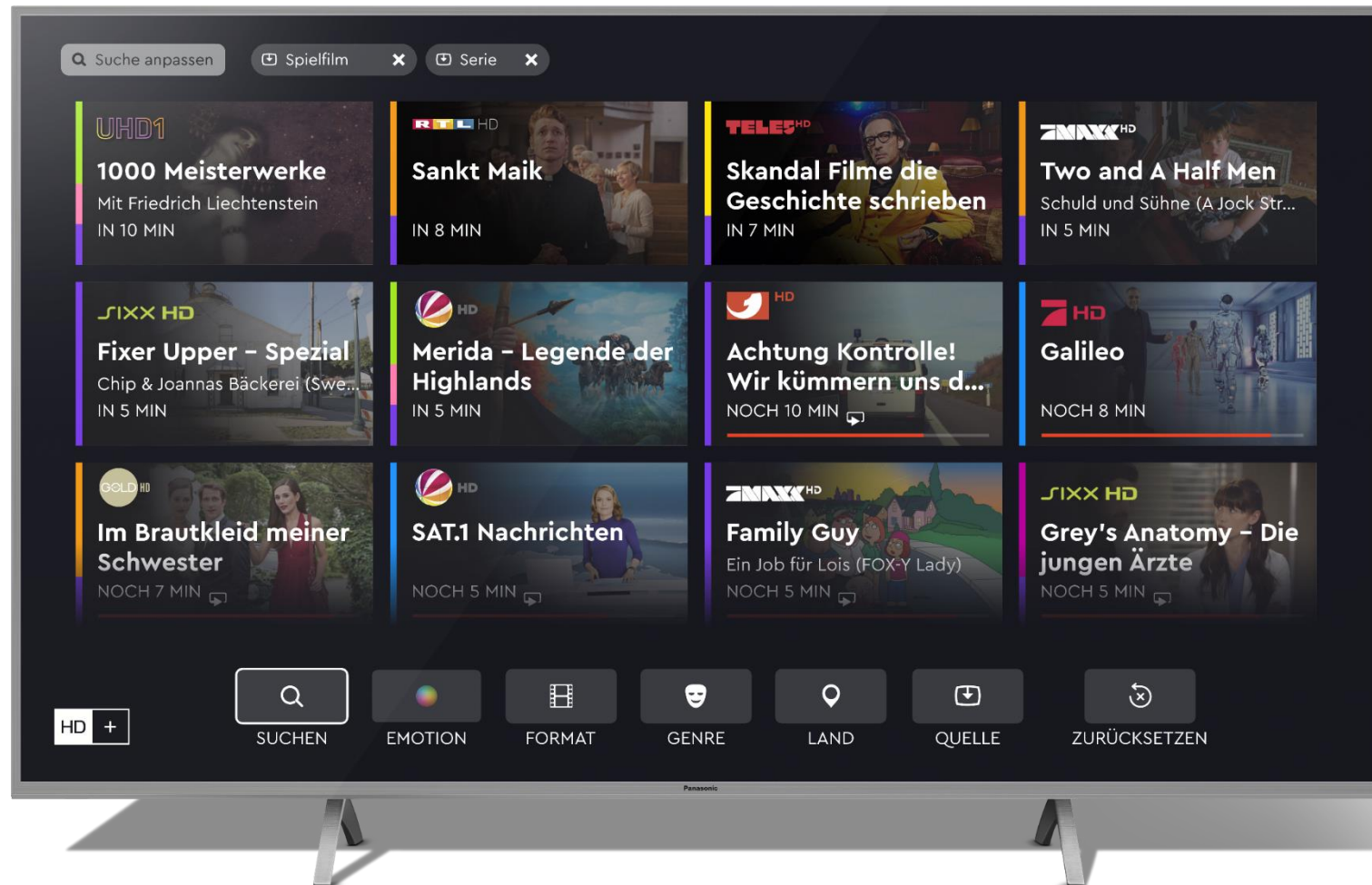
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HD+ Integrated
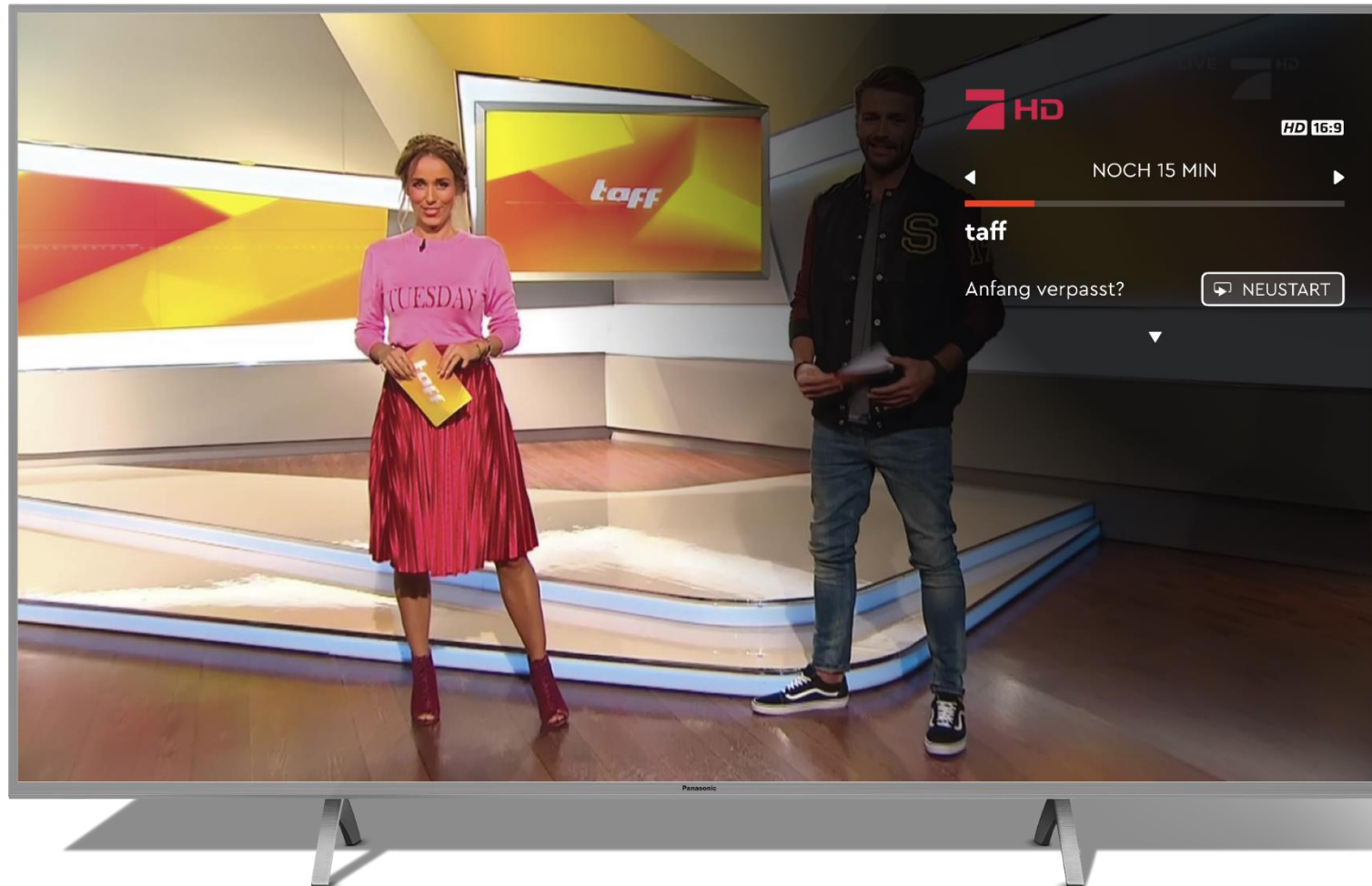# User Experience

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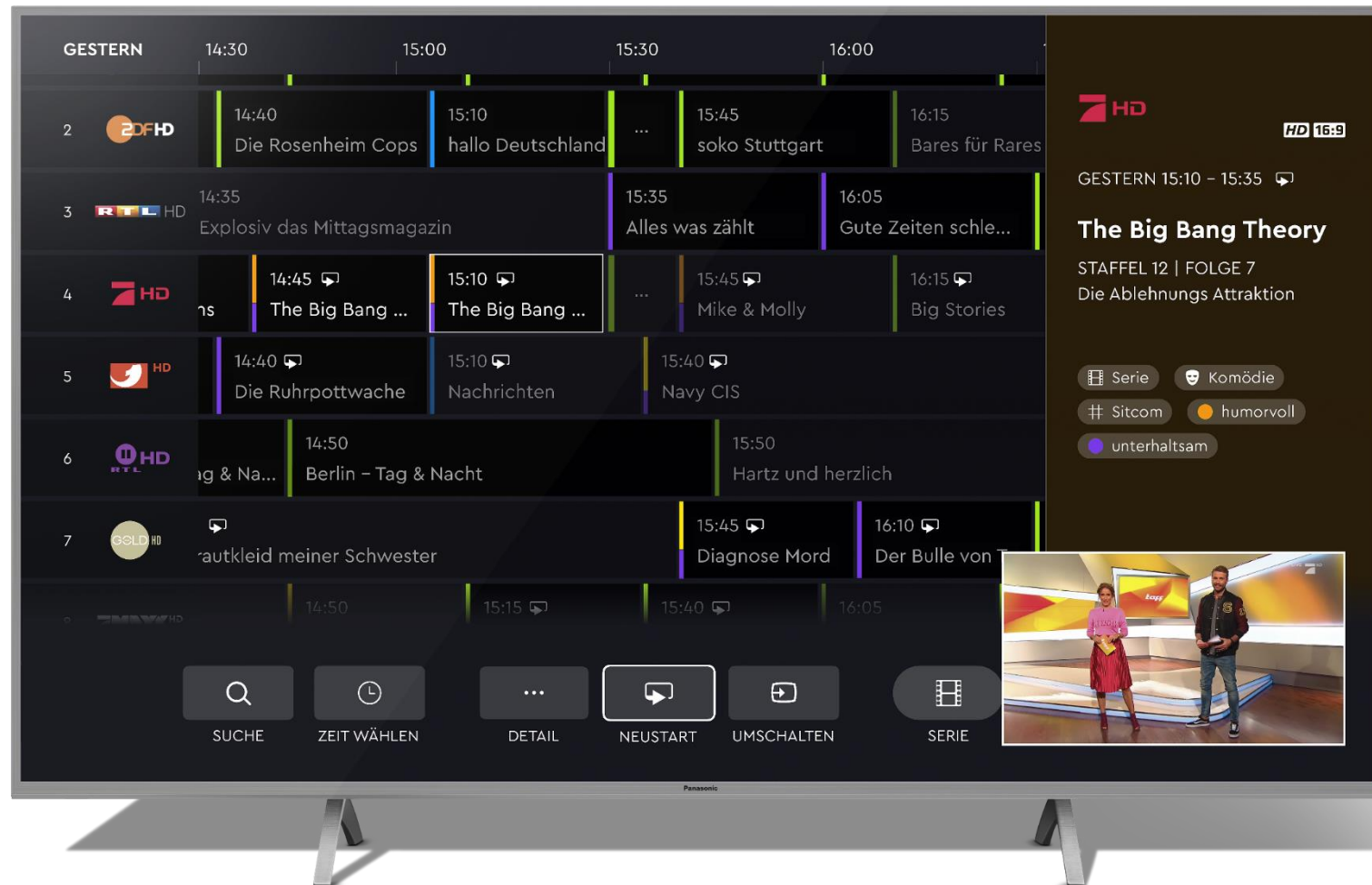
UI/UX Overview
EPG

UI/UX Overview
Search

UI/UX Overview
SI Banner

UI/UX Overview
Home Bar

"HD+ Komfort-Funktion" – Product
Switch to UHD version at UHD parallel broadcast

▶ If a programme is broadcasted in parallel in UHD quality,
a popup message is displayed that programme is available
in UHD quality.

▶ TV viewer can switch to UHD version by simply pressing
OK button.

This content is also available in UHD quality

Do you want to switch to UHD quality?

✓ YES, SWITCH   ✕ CANCEL

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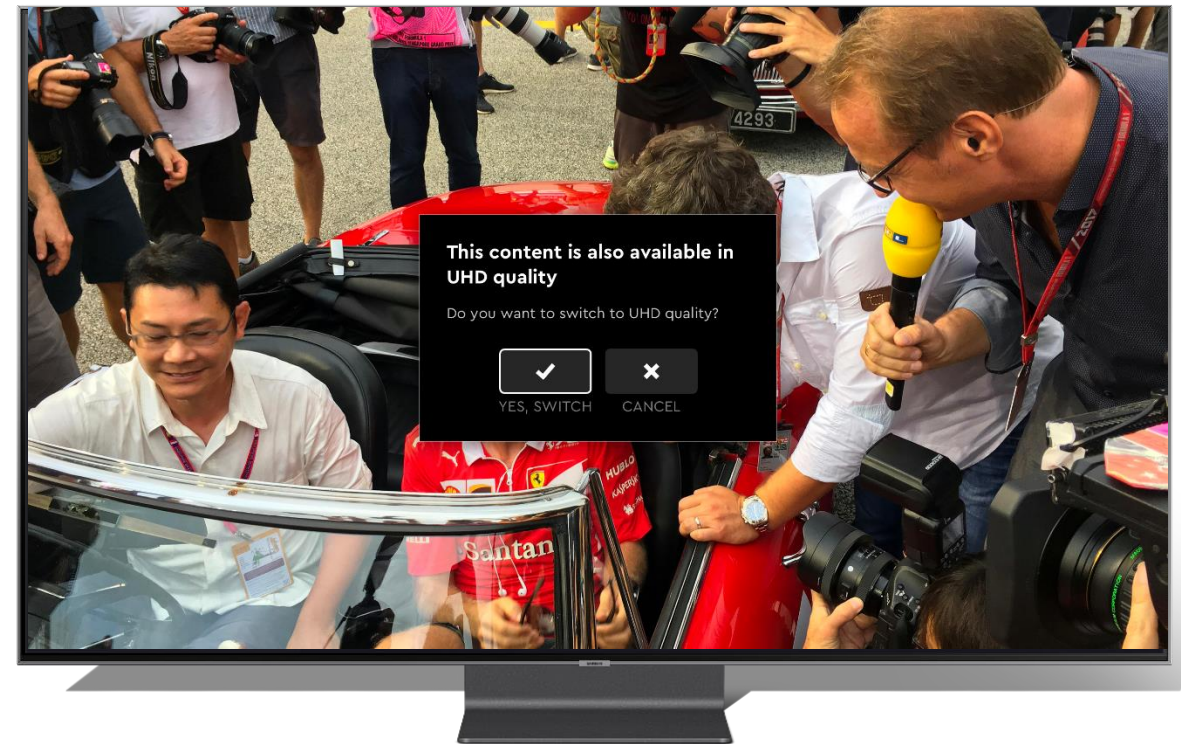
EPG
Background

Electronic Programme Guide and SI Banner
- ▶ Replacing the native TV UI elements
- ▶ Information source:
  - Internet database (aggregated HD+)
  - DVB-SI (EIT) as fall-back

Recordings
- ▶ Scheduling of recordings via EPG

Search
- ▶ Search over all contents (future, now, restart, on-demand)
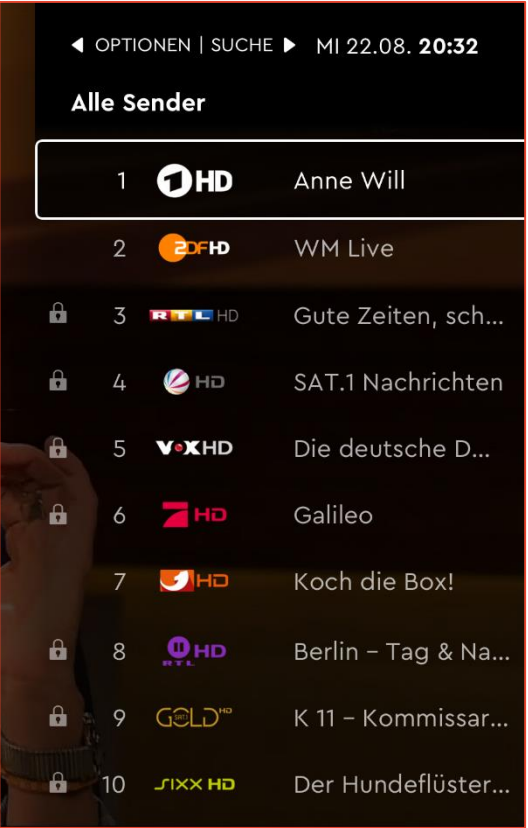- ▶ Backend driven

Conclusion
- ▶ No big issues on specification side
- ▶ Implementing of recordings scheduling quite complex

Main UI elements of the Op App	Replacing	New
EPG	X	
Channel list	X	
SI banner	X	
Home bar		X
Search		X
Player UI (OTT)		X
App settings		X

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Channel List Management
A Challenge…

	Case 1	Case 2	Case 3
Problem	‣ User deselects "encrypted channels" in first time installation	‣ A new channel is added by the operator	‣ User wants to reorder the channel list
Result	‣ Channels are missing in Operator Application ‣ No "easy" way to add them	‣ Channel is missing in the channel list ‣ No "easy" way to add the channel	‣ Inconsistency between native list and operator's list or ‣ "Broken" UX (reordering via native TV UI)

◀ OPTIONEN | SUCHE ▶ MI 22.08. 20:32

Alle Sender

|			
	1	❶ HD	Anne Will
	2	ZDF HD	WM Live
🔒	3	RTL HD	Gute Zeiten, sch…
🔒	4	SAT.1 HD	SAT.1 Nachrichten
🔒	5	VOX HD	Die deutsche D…
🔒	6	▰ HD	Galileo
	7	⬭ HD	Koch die Box!
🔒	8	ⓤ HD RTL	Berlin – Tag & Na…
🔒	9	GOLD HD	K 11 – Kommissar…
🔒	10	SIXX HD	Der Hundeflüster…

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Playback of OTT content
Working quite good out of the box

On-demand content is needed to enrich the broadcast product!

	Own streams	Linking approach
Approach	▸ For channels of the HD+ channel package: streams by HD+	▸ For public broadcasters: linking approach
Details	▸ MPEG-DASH ▸ DRM protected	▸ Linking to existing HbbTV apps ▸ Deep link to the content detail page
Learnings	▸ DRM & MPEG-DASH worked quite well "out of the box" ▸ Lifecycle management ▸ Own player UI/UX	▸ Implementation with only little effort ▸ "Broken" UX (no back journey)

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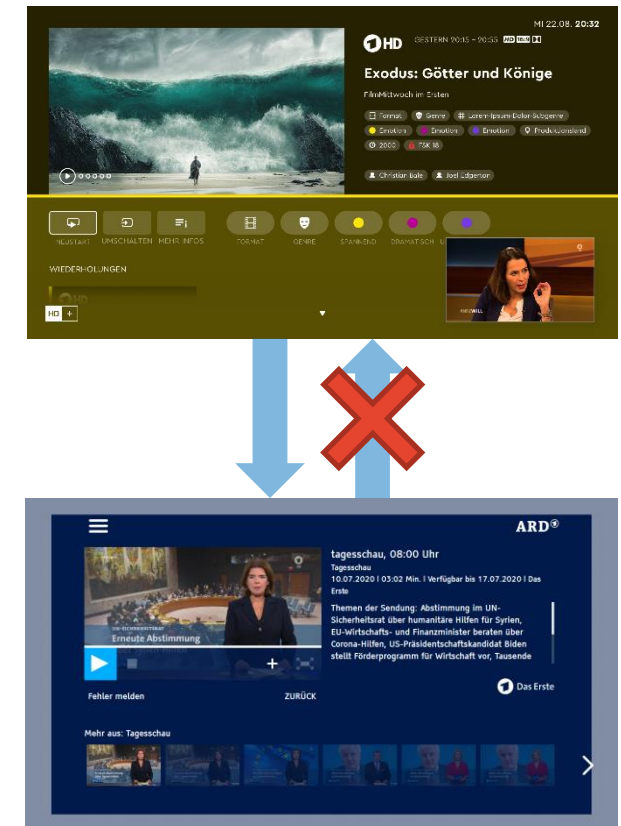
HbbTV
Next Step and Conclusion

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HD+ Operator Application
Conclusions

The HbbTV Operator Application is a great success for HD+

▶ The HbbTV Operator App is definitely a great success for HD+ and **stable in daily operation**!

▶ HbbTV Operator App specification is comprehensible and well thought through

Nevertheless there are challenges:

▶ The integration of an Operator Application is still a challenges for both, the manufacturer and the operator

▶ Deprecations of APIs need to be considered carefully in the future

▶ Channel List Management is "a challenge"

▶ User journey for linking from the Operator Application to other HbbTV applications

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HD+ integrated TV

WHAT happens NEXT in the German TV market.

Das beste HD+ aller Zeiten.

HD+ Sender-Paket

24 Private HD-Sender

2 Ultra HD-Sender

HD+ Komfort-Funktion

▶ Neustart

▶ Mediatheken

🔍 TV-Guide

40 Freie HD-Sender

April 2019 – market launch
Panasonic UHD and OLED TVs include INTEGRATED HD+

August 2019 – market launch
Samsung UHD and QLED TVs include INTEGRATED HD+

2020/2021 ff. –
HD+ Product enrichments and innovative end consumer solutions…

2020/2021 ff. –
Market launch of further TV manufacturers and major TV brands…

Stay tuned!

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