Transcending the Limits of Broadcasting

Integrated Services and Transparent Distribution

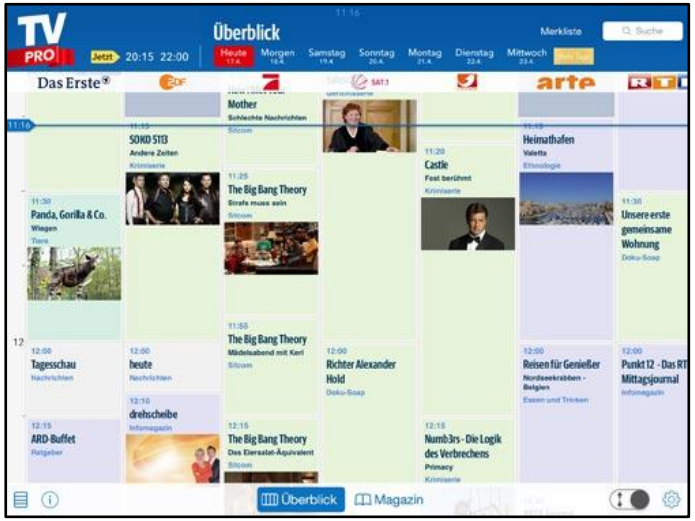
Roland Beutler

Broadcast Service Evolution

Once upon a time ...

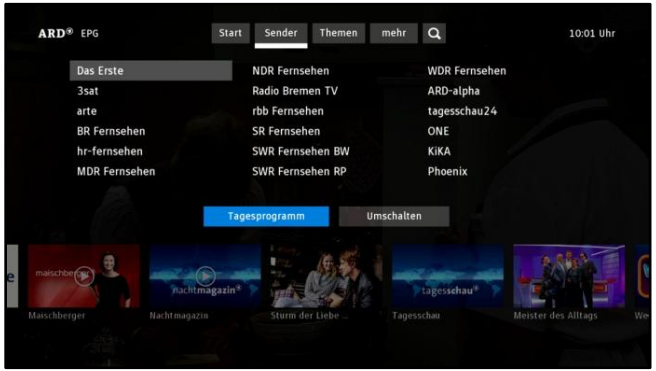
Broadcast Service Evolution

24/7 TV and Radio ...



Broadcast Service Evolution

Adding nonlinear content ...



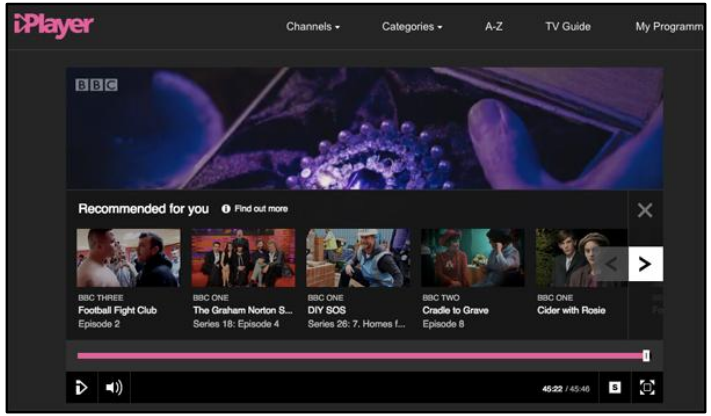
streaming embedded (ILS)

HbbTV

on-demand

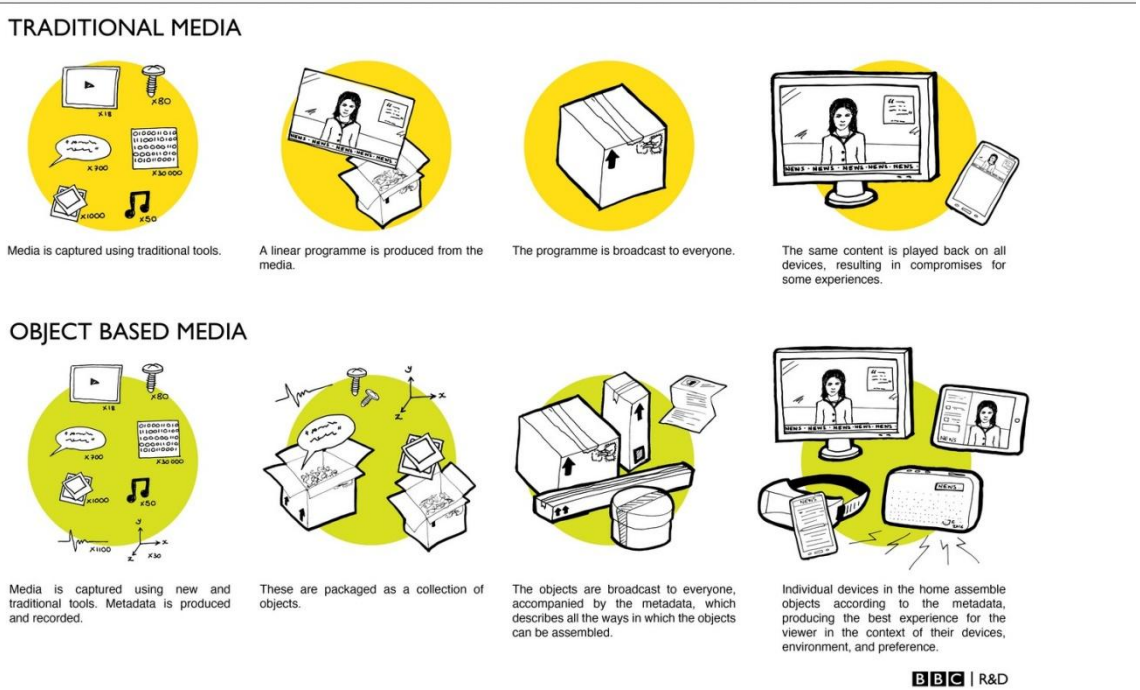
Broadcast Service Evolution

Recommendations ...



Broadcast Service Evolution

Context awareness ...



Broadcast Service Evolution

Personalized ...

...

...

Broadcast Service Evolution

Personalized ...

Replacement

...

Replacement

...

Broadcast Service Evolution

Personalized ...

...

17:40 19:10 19:15

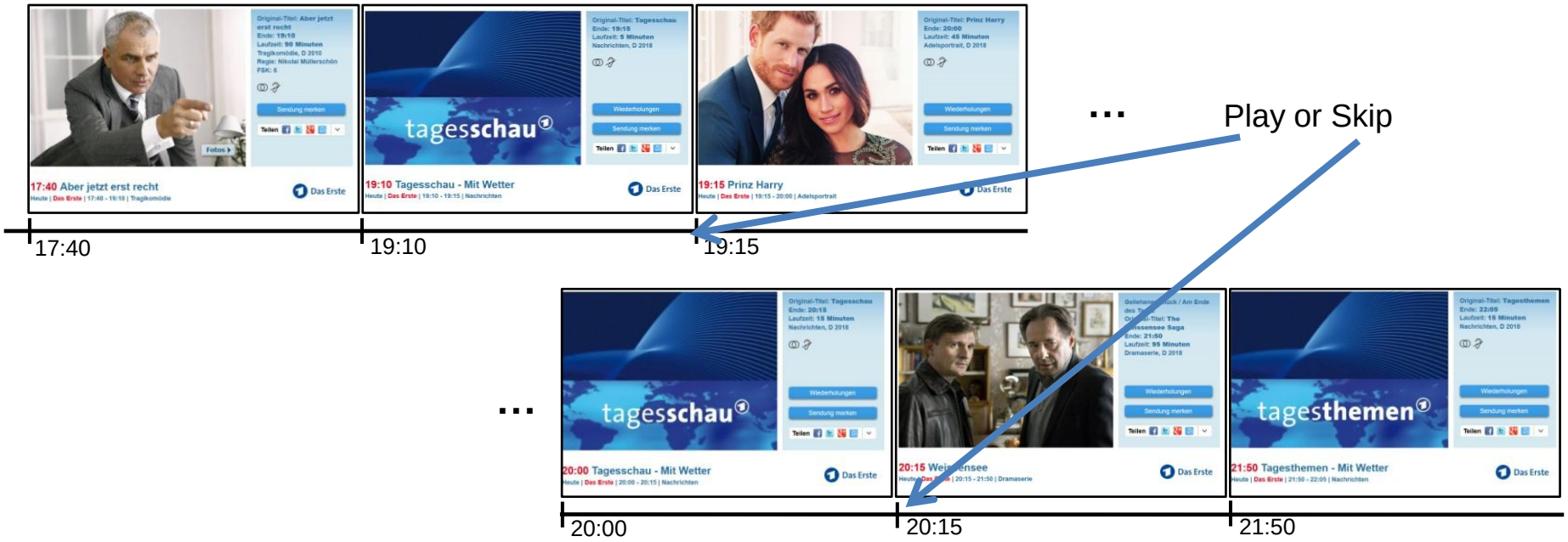
Pause & Cache

...

20:00 20:15 21:50

Broadcast Service Evolution

Personalized ...

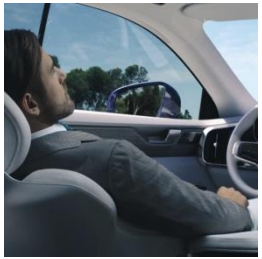


THE (!) Future Use Case for Media Consumption:

Automated Driving

Media Consumption

Exchange of Information



Recreation

Work

Features of Integrated Services

- everywhere, on every device, at any time
- completely transparent for user
- transcending the boundary between linear and nonlinear
- fully personalized
- unique enty point for users

Features of Integrated Services

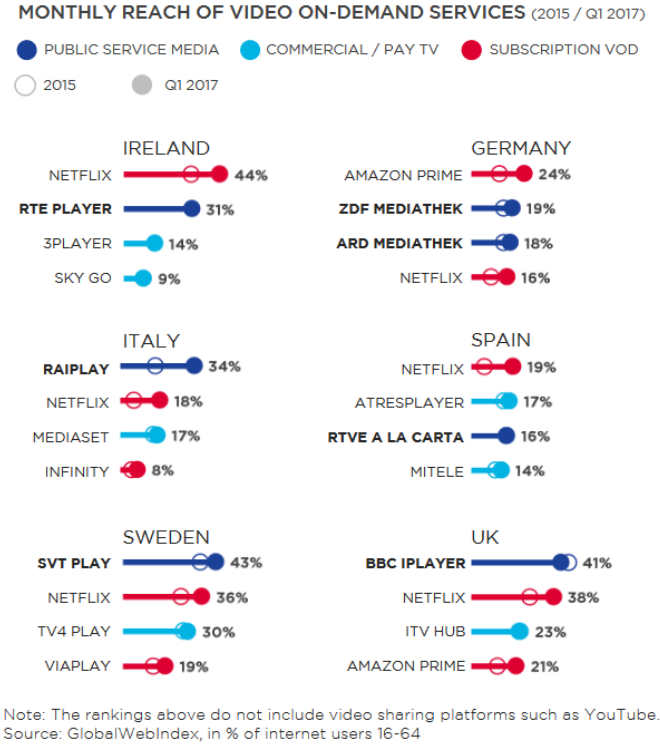
- everywhere, on every device, at any time
  - network capabilities, coverage, distribution technologies, caching
- completely transparent for user
  - smart devices, access to networks, cost control
- transcending the boundary between linear and nonlinear
  - consistent production, metadata
- fully personalized
  - recommendations, data collection, context awareness
- unique enty point for users
  - branding issue, business policy

Back to Earth: Reality Check

Back to Earth: Reality Check

- changing user habits and expectations
- on-demand usage rising

Public service media are among the leading providers of on-demand services



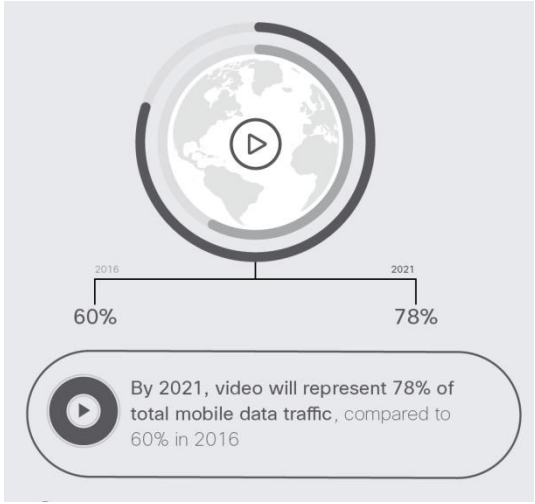
Source: EBU Media Intelligence Service - Media Consumer Trends 2017

Back to Earth: Reality Check

- changing user habits and expectations
- on-demand usage rising
- relevance of mobile / personal devices increasing for consumption of AV services

More Users

More Video



Source: Cisco Visual Networking Index, 2017

Mobile TV on Smartphones

Data volume per month:	5 Gbyte = 40 Gbits
Data rate linear TV streams:	3.5 Mbits/s
Total usage time per month:	40*10^9 bits / 3.5*10^6 bits/s
	= 11.43*10^3 s = 3.17 h

How to enable the distribution of integrated servies?

How to enable the distribution of integrated servies?

needed:

- return channel
- unicast, multicast & broadcast modes
- network sharing
- seamless, dynamical re-routing
- terminals allowing access to networks
- caching solutions
- cloud services

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needed:

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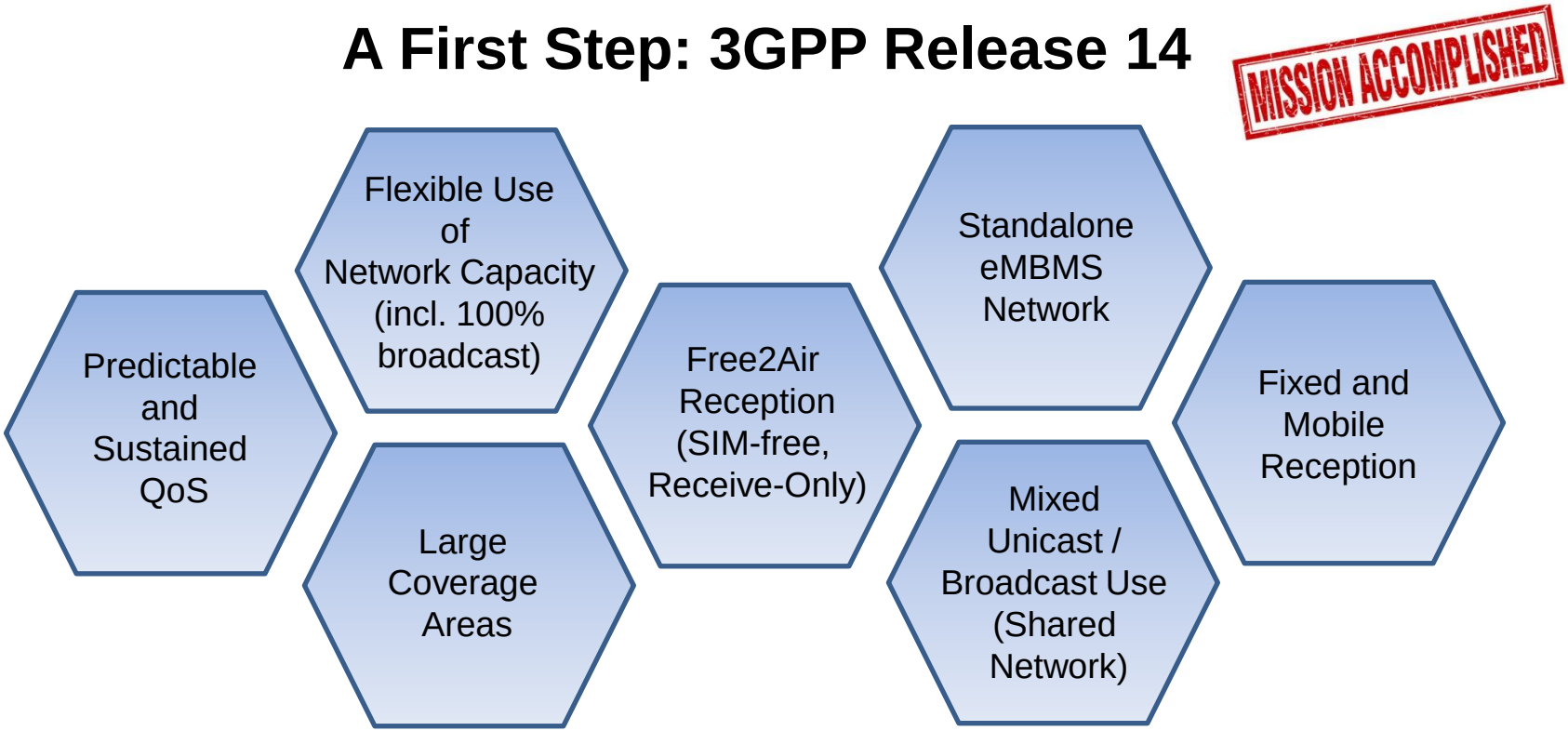
issues:

- broadcast technology not sufficient
- advanced wireless technology not ready
- roll-out of fixed broadband unclear
- rights issues for caching and cloud applications

A First Step: 3GPP Release 14



A First Step: 3GPP Release 14

- Release 14 was published summer 2017
- Release 14 refers to LTE
- Broadcaster‘s requirements incorporated
- Some gaps need to be closed
- Further LTE enhancements envisaged for Release 16

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Great Success!

5G the ultimate solution?

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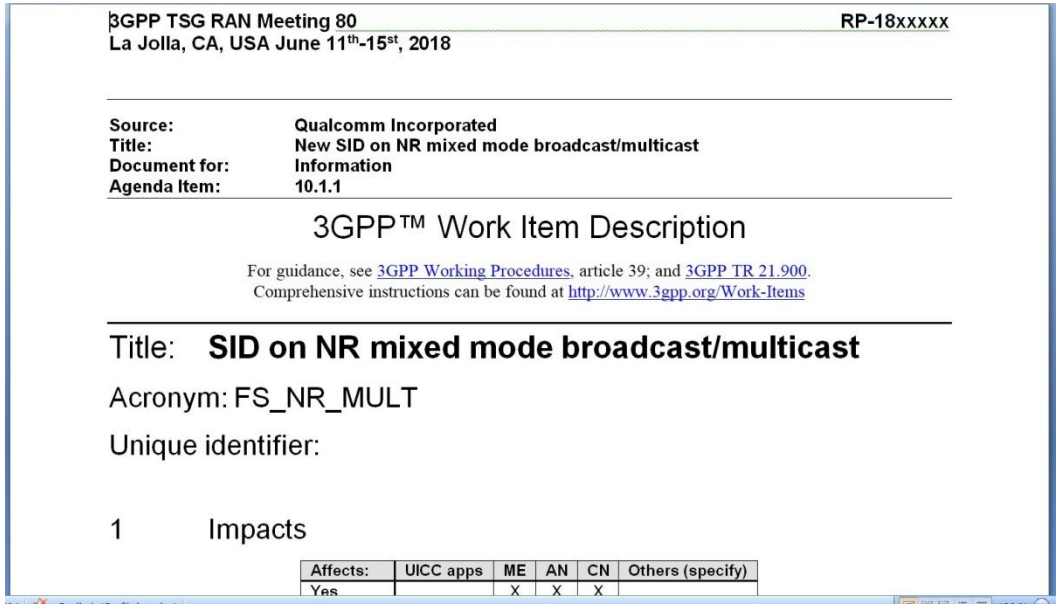
Source: https://www.youtube.com/watch?v=YJg02ivYzSs

5G the ultimate solution?

5G the ultimate solution?

- 5G is new telecommunication infrastructure
  - enhanced performance (data rate, latency, etc.)
  - new concepts (network slicing, network function virtualization, etc.)
- 5G is globally supported by industry, regulators and politics
- 5G is targeting new vertical market sector, i.e. the so-called „verticals“
- 5G‘s mass market adoption is years away

5G the ultimate solution?



3GPP TSG RAN Meeting 80 RP-18xxxxx
La Jolla, CA, USA June 11th-15st, 2018

Source: Qualcomm Incorporated
Title: New SID on NR mixed mode broadcast/multicast
Document for: Information
Agenda Item: 10.1.1

3GPP™ Work Item Description

For guidance, see 3GPP Working Procedures, article 39; and 3GPP TR 21.900.
Comprehensive instructions can be found at http://www.3gpp.org/Work-Items

Title: **SID on NR mixed mode broadcast/multicast**

Acronym: FS_NR_MULT

Unique identifier:

1 Impacts

Affects:	UICC apps	ME	AN	CN	Others (specify)
Yes		X	X	X	

NR MBMS study proposal

- cellular network
- terminals registered to base station
- dynamical switching between unicast and multicast (*and broadcast*)

5G the ultimate solution?

Open Questions

- Network coverage and how to provide it
- Where will the investments come from
- Who will operate 5G networks (i.e. only MNOs, or also other parties)
- Business models / business arrangements
- Regulatory conditions
- Costs for content / service provider and user

Business Arrangements are Key

All-embracing 5G Infrastructure means …

… new markets
→ new customers
→ new requirements
→ new business arrangements

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… new markets
→ new customers
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→ new business arrangements

→ role of stakeholders likely to change,
in particular MNOs

New Stakeholder Roles

… ermerging new players in the distribution market

… cooperation of different infrastructures

… B2C models to be replaced by B2B models

Thank you very much for your attention!

Questions?