



DVB-T2 Impact on Business Models

*System choices can impact
the environment and your bottom line*

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Featuring
GatesAir's



Rich Redmond
Chief Product Officer

DVB-T2 IMPACT ON BUSINESS MODELS

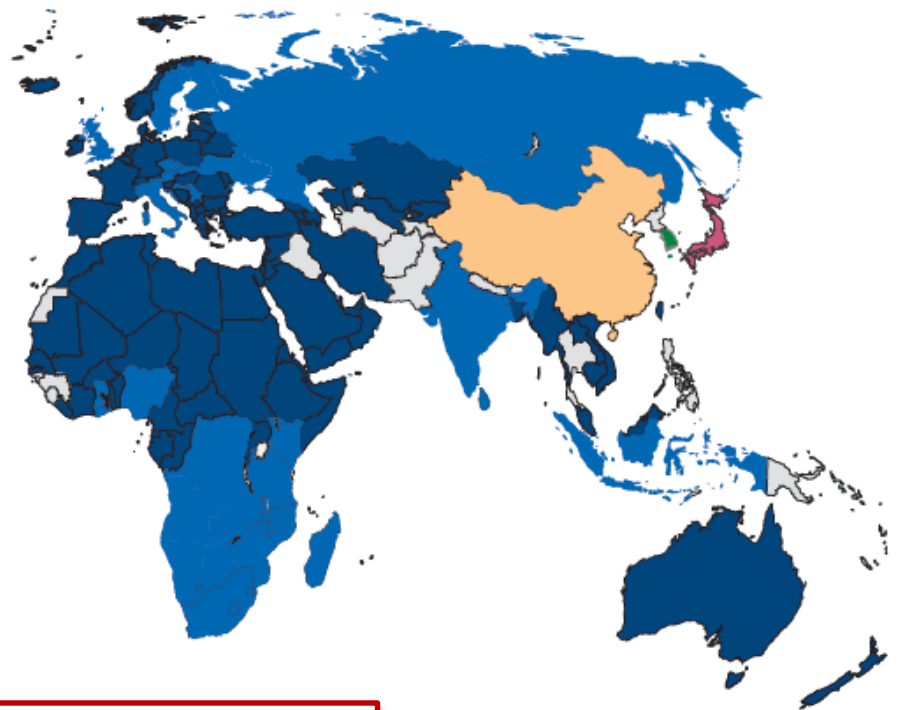
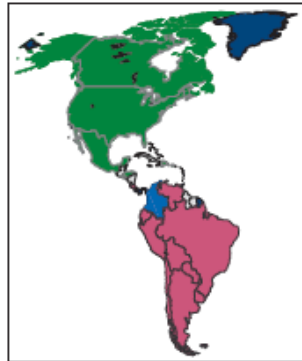
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*RICHARD REDMOND
VP, Product Management & Strategy
Harris Broadcast Communications*

DVB-T2 Market Development

Reality – not experiment

Deployed (8)	Colombia	
UK	Croatia	<i>HARRIS</i>
Italy	Czech Republic	
Sweden	Denmark	
Finland	DR Congo	
Zambia	Ghana	
Nigeria	India	
Kenya	Indonesia	
Uganda	Lesotho	
	Madagascar	
Trials (10)	Malawi	
Belarus	Mauritius	
France	Mongolia	
Germany	Mozambique	<i>HARRIS</i>
Kazakhstan	Namibia	<i>HARRIS</i>
Malaysia	Russia	<i>HARRIS</i>
Myanmar	Serbia	<i>HARRIS</i>
Slovenia	Seychelles	
Spain	Singapore	
Switzerland	Slovakia	
Thailand	South Africa	<i>HARRIS</i>
	Sri Lanka	<i>HARRIS</i>
Adopted (29)	Swaziland	
Angola	Tanzania	<i>HARRIS</i>
Austria	Ukraine	<i>HARRIS</i>
Botswana	Zimbabwe	<i>HARRIS</i>



Missing on list from DVB-T2:
 New Zealand *HARRIS*
 Vietnam *HARRIS*
 Turkey *HARRIS*

DVB[®]T2

- Focus on power efficiency – Green broadcasting
- DVB-T2 impacts network planning
- Shared resources
- New service offerings



Higher Payload

- Increases bandwidth by 66% compared to DVB-T
- Typical DVB-T mux = 24Mbps
- Typical DVB-T2 mux = 40Mbps
- Max DVB-T2 mux = 50Mbps

Increase robustness

- Reduce transmitter power
- Increase coverage
- Improve SFN capability
- Increase transmitter efficiency

Evolving Economy

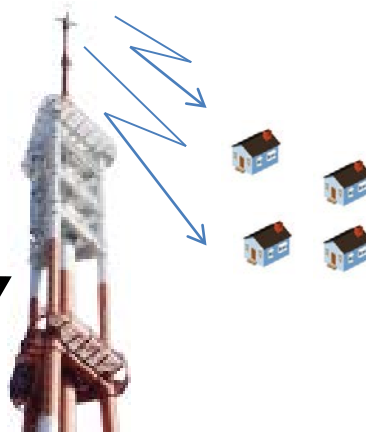
- In analogue television systems of the past, power consumption was rarely considered key to the choice of technology or vendor
 - neither from the perspective of overall, end-to-end efficiency, nor for any single component of the broadcasting chain
- Skyrocketing energy prices impact the economic balance
- Many broadcasters find they are in the top energy consumers in a country and face possible “carbon taxes” in the future
- Green becomes more than a statement in social responsibility - it impacts the bottom line

Traditional 4 Channel Analogue System

Playout
4 Channel



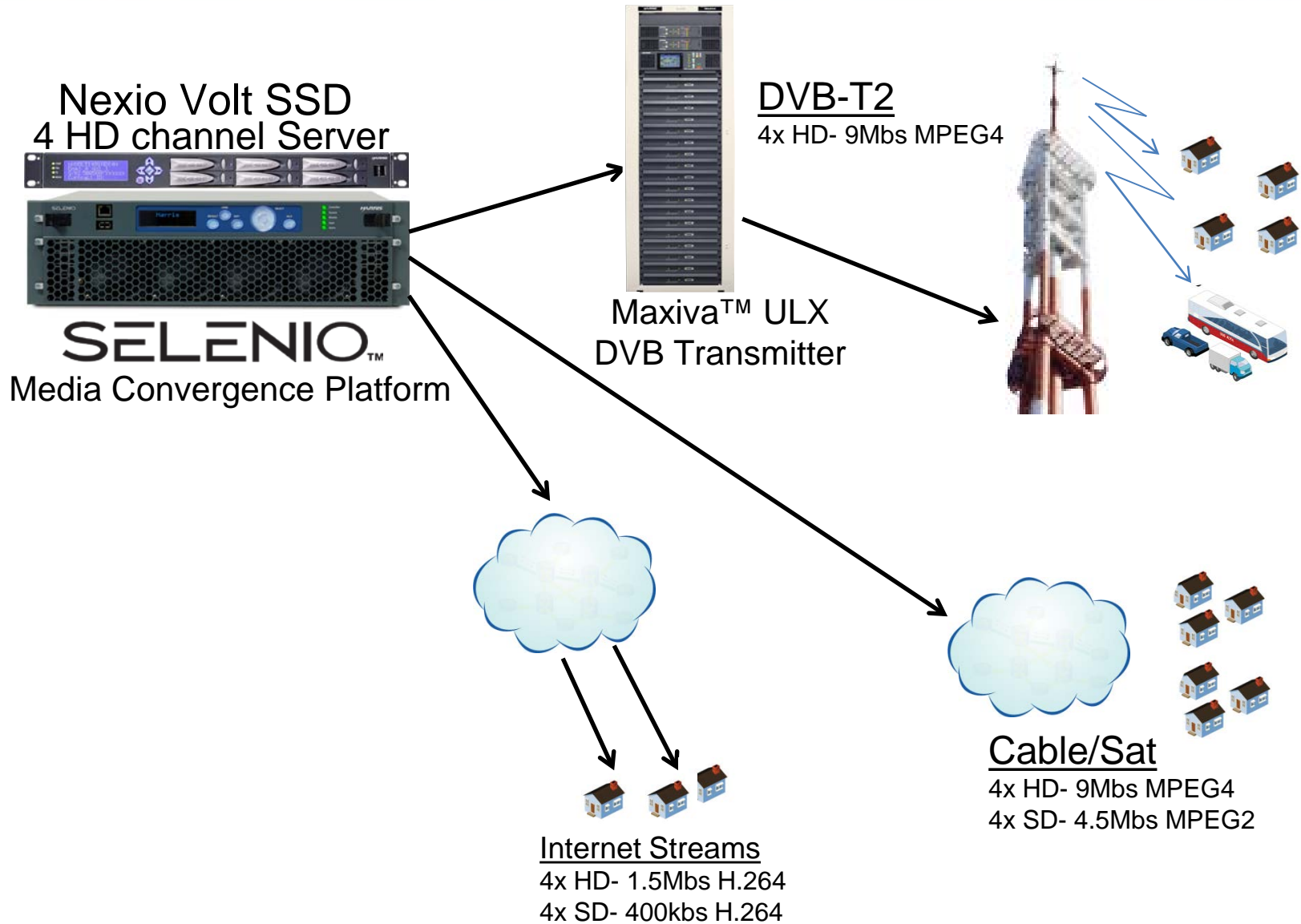
Terrestrial
4 x PAL



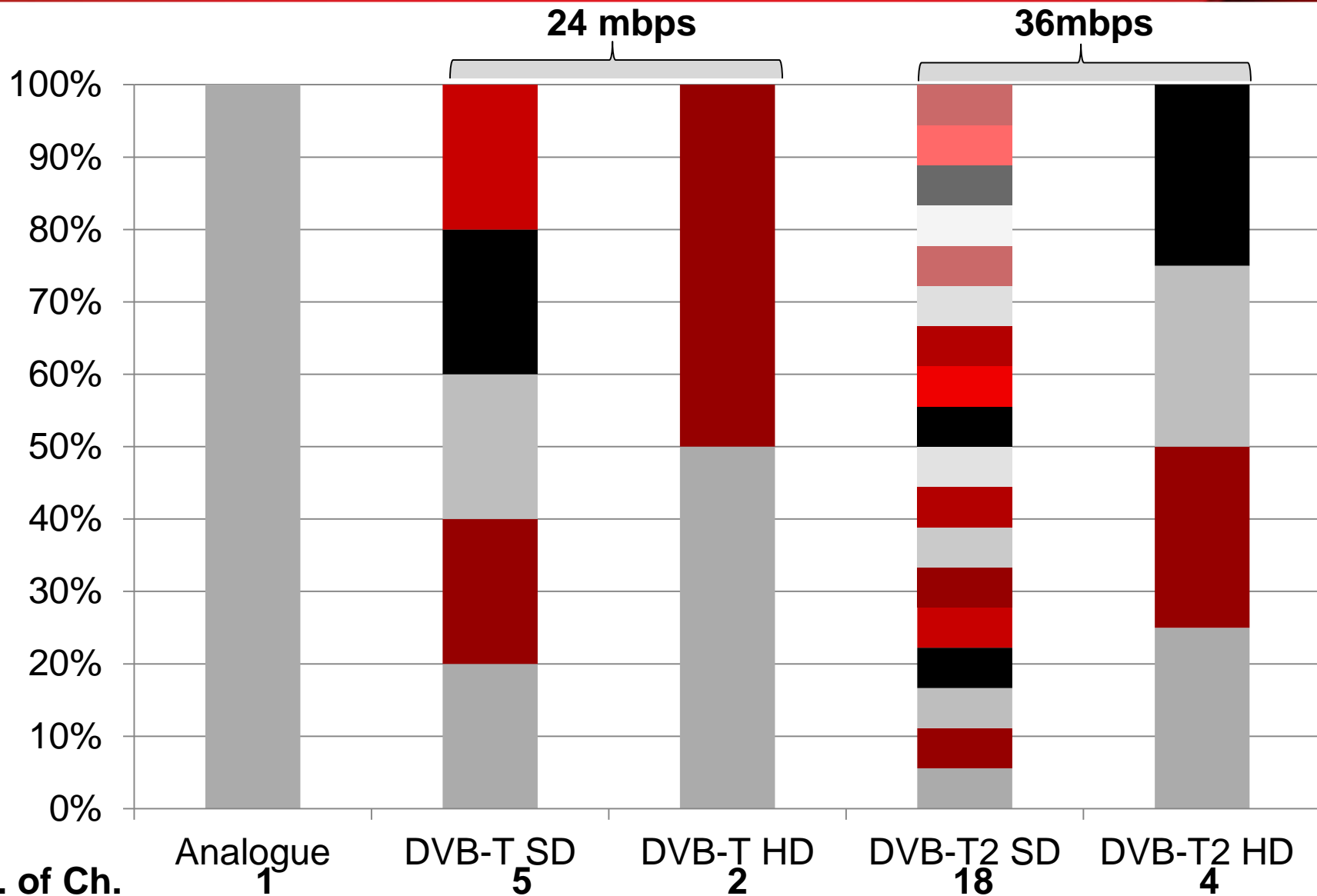
Cable/Sat
4x 4.5Mbs MPEG2



DVB-T2 4 Channel System with New Media



8mHz Channel Utilization Example

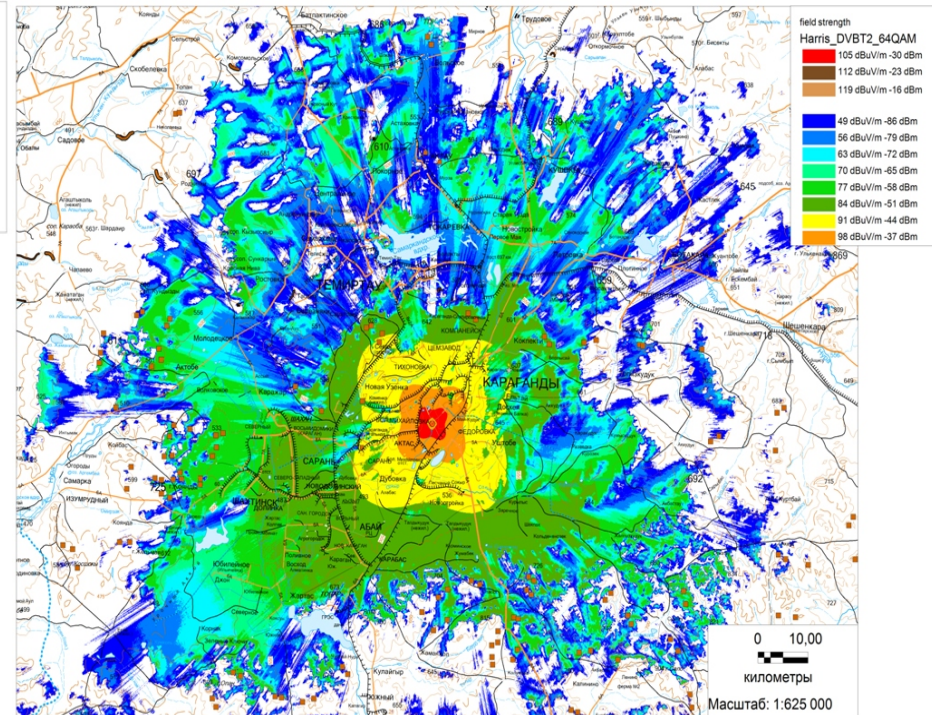
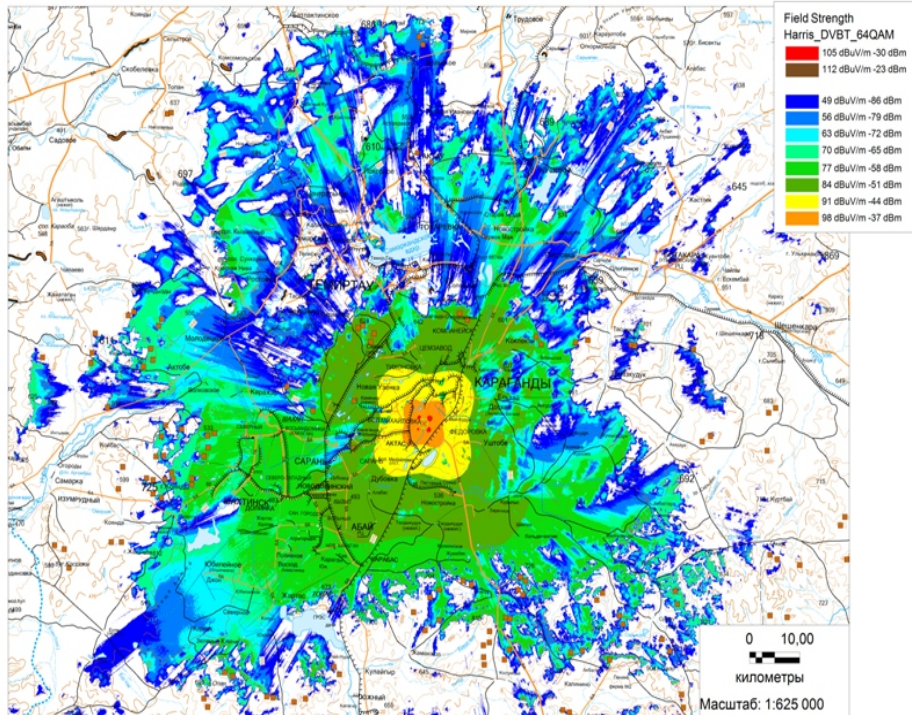


DVB-T2 multichannel operation reduces delivery costs

- Digitisation brought significant power advantages by enabling far higher channel density over similar spectrum
- DVB-T2 digital terrestrial transmission standard, offers dramatically improved modulation schemes that give users a choice between signal robustness (choice of constellations, number of carriers, error correction choices, etc.) or data capacity (payload)
- DVB-T2 transmitter consumes approximately 35% less power than an analogue transmitter for the same coverage area
 - four analogue transmitters can be replaced with one DVB-T2 system; with a single transmitter, you can now encompass the same coverage area with four high-definition programs
- Power consumption drops 84%
 - using four 20 kW analogue transmitters consumes 144kW of power versus a single 5.0 kW DVB-T2 transmitter that consumes 22.5kW)
- Infrastructure requirements are reduced

More coverage reduces network costs

Coverage Plot Comparison

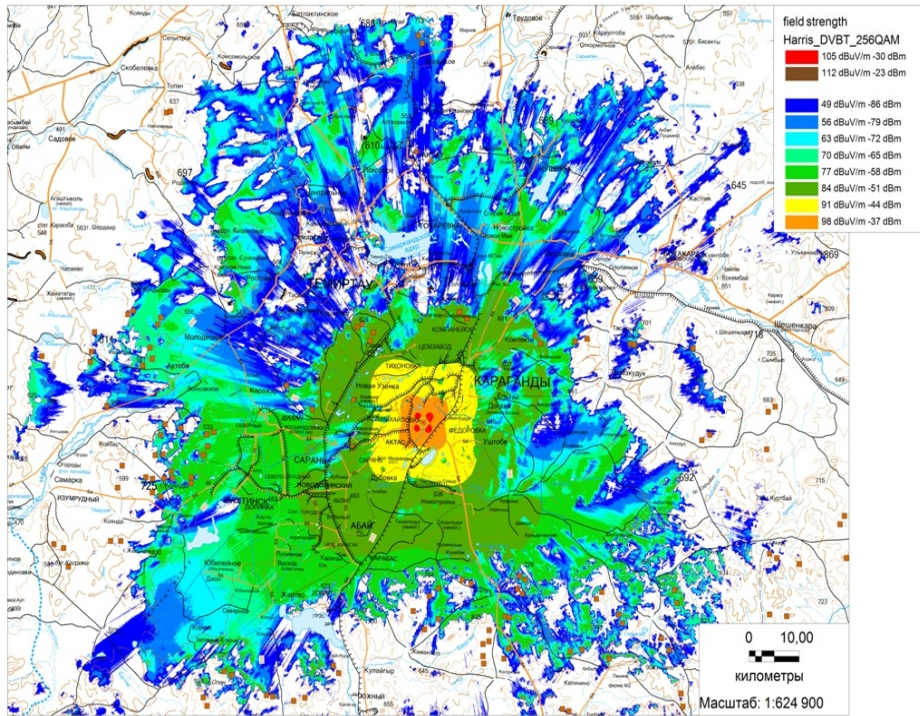
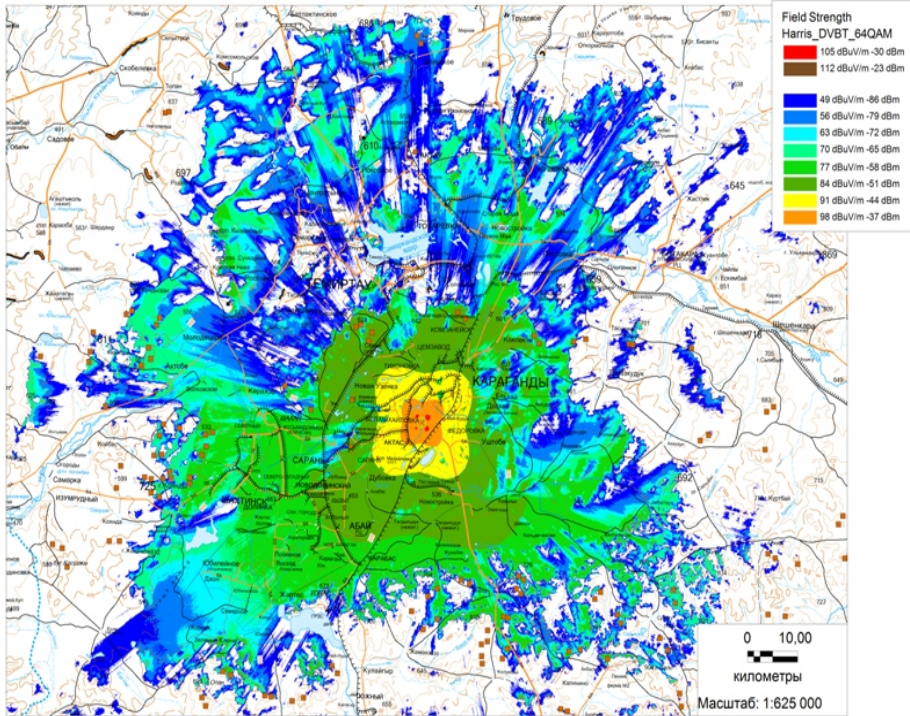


**Software coverage estimation for
DVB-T system, Modulation 64QAM,
Data rate 27.14 Mbps**

**Software coverage estimation for
DVB-T2 system, Modulation 64QAM,
Data rate 32.54Mbps**

More payload reduces number of muxes

Coverage Plot Comparison

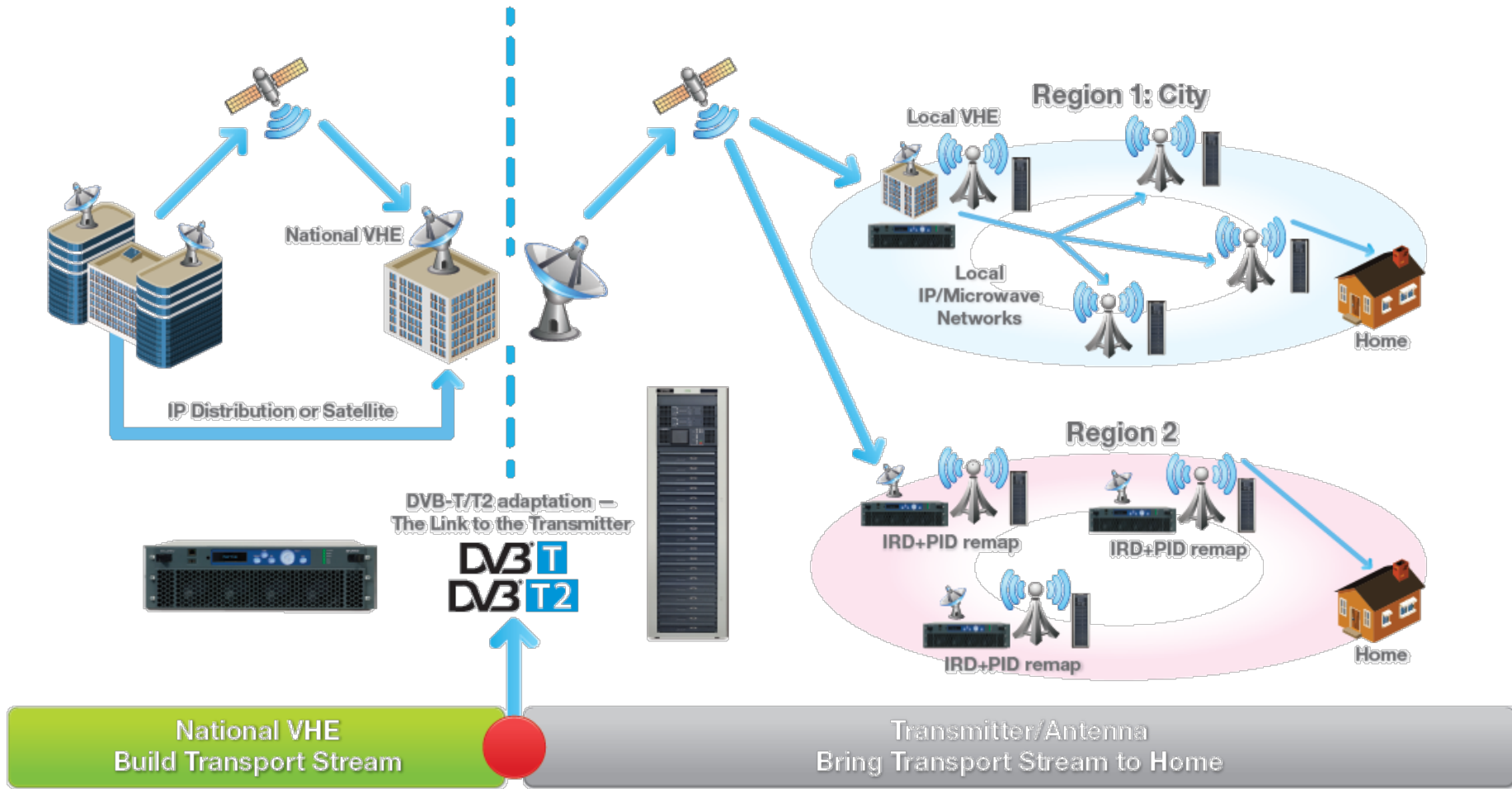


Software coverage estimation for
DVB-T system, Modulation 64QAM,
Data rate 27.14 Mbps

Software coverage estimation for
DVB-T2 system, Modulation 256QAM,
Data rate 40.22 Mbps

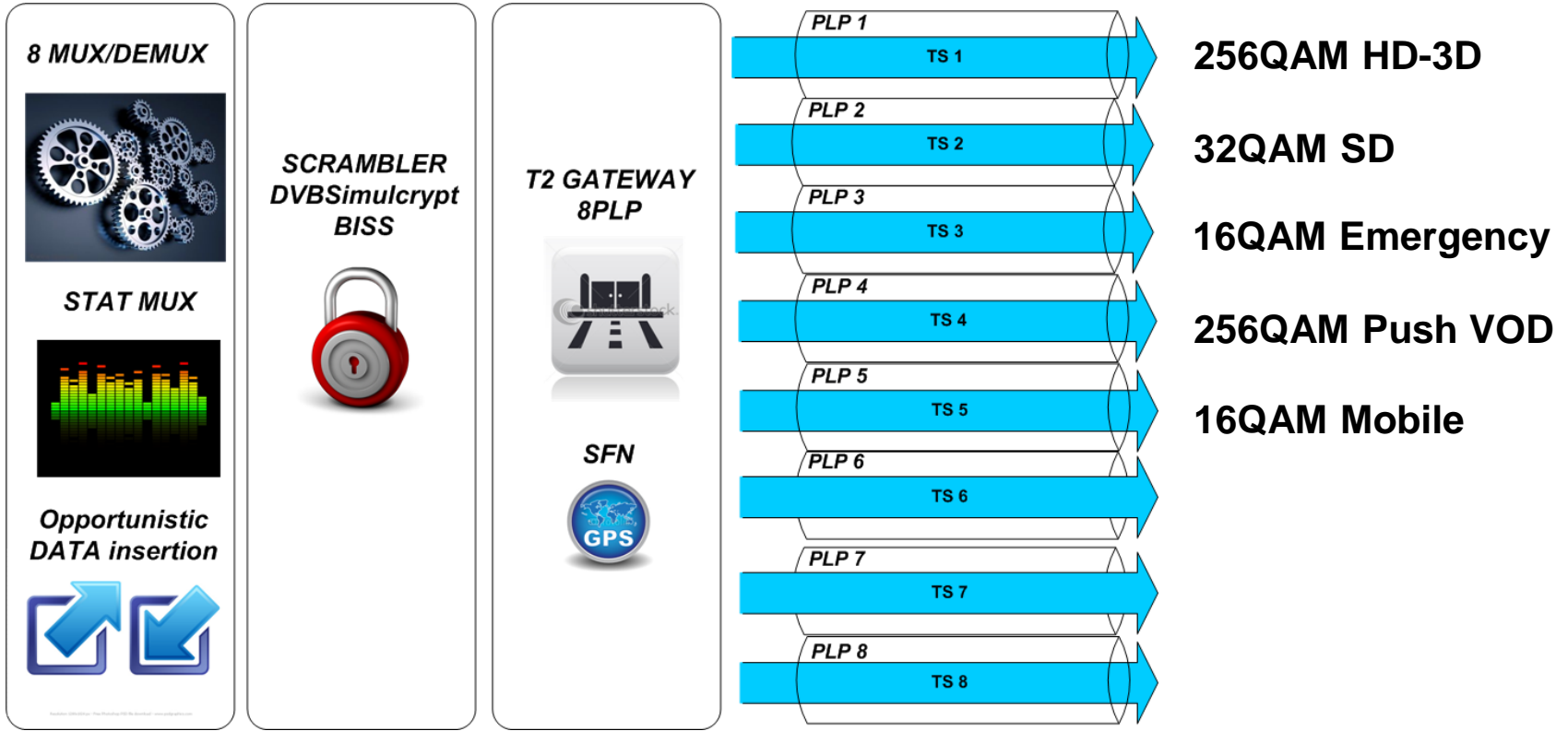
Reduce distribution costs - regionalization

DVB-T/T2 Infrastructure



Multi-PLP shared resources for different applications

- Mixed level of service robustness – same network
- Shared muxes – different content providers
- Enable new services
- Ensure emergency alerts reach maximum service area



Summary

- DVB-T2 is a reality today
 - Infrastructure and consumer product availability
- DVB-T2 impacts planning and operations
 - Increase robustness reduces network costs
 - Increased payload increase services/reduces #muxes
- DVB-T2 Multiple-PLP enables new services and reduces costs
 - Flexible service combinations
 - Regionalization of content
 - Multiple operator share infrastructure
- Most efficient use of spectrum set you up for best monetization

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