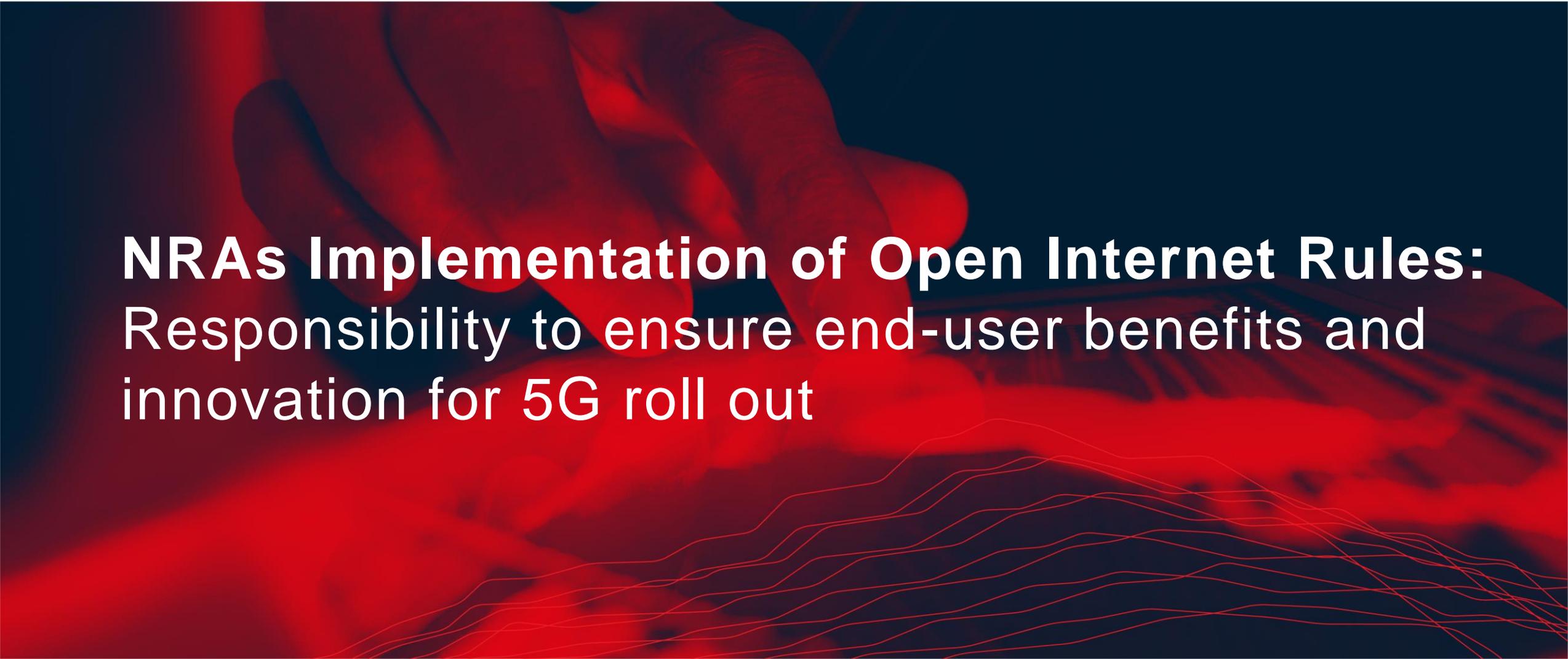




BEREC Workshop on the update of its Net Neutrality Guidelines

29 May 2019, Brussels

The background of the slide is a dark blue image showing a close-up of hands typing on a keyboard. A semi-transparent red overlay covers the entire image. At the bottom, there are several thin, white, wavy lines that resemble a network or data flow.

**NRAs Implementation of Open Internet Rules:
Responsibility to ensure end-user benefits and
innovation for 5G roll out**



Agenda

- Points on 5G

- ✓ **What** is our mission in terms of 5G?
- ✓ **Where** is 5G happening?
- ✓ **Who** is active with 5G?
- ✓ **Why** do we need 5G?

- Points on Net Neutrality in the context of 5G

- ✓ **Why** do we need updating BEREC NN Guidelines?
- ✓ **Which issues** and **how** to address them?



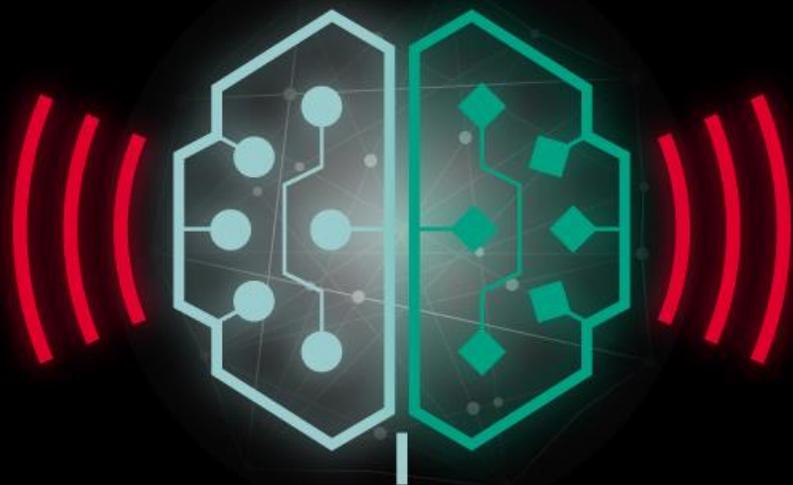


INTELLIGENT CONNECTIVITY

The Fusion of 5G, AI and IoT

INTELLIGENTLY CONNECTING EVERYONE AND EVERYTHING TO A BETTER FUTURE

T O M O R R O W



5G ERA: INTEROPERABLE NETWORKS

5G / 4G / 3G / MOBILE IoT / WIFI / FIXED BROADBAND / SATELLITE



ARTIFICIAL INTELLIGENCE
COMPUTER IQ: 10,000+



INTERNET OF THINGS
25 BILLION CONNECTED DEVICES



Flexible, reliable, high-speed, low latency, high capacity networks

Smarter platforms for enhanced decision making & automation

Everything will be securely connected enabling rich new products & services

T O D A Y

4G / 3G / MOBILE IoT



HUMAN GENIUS IQ: 140+

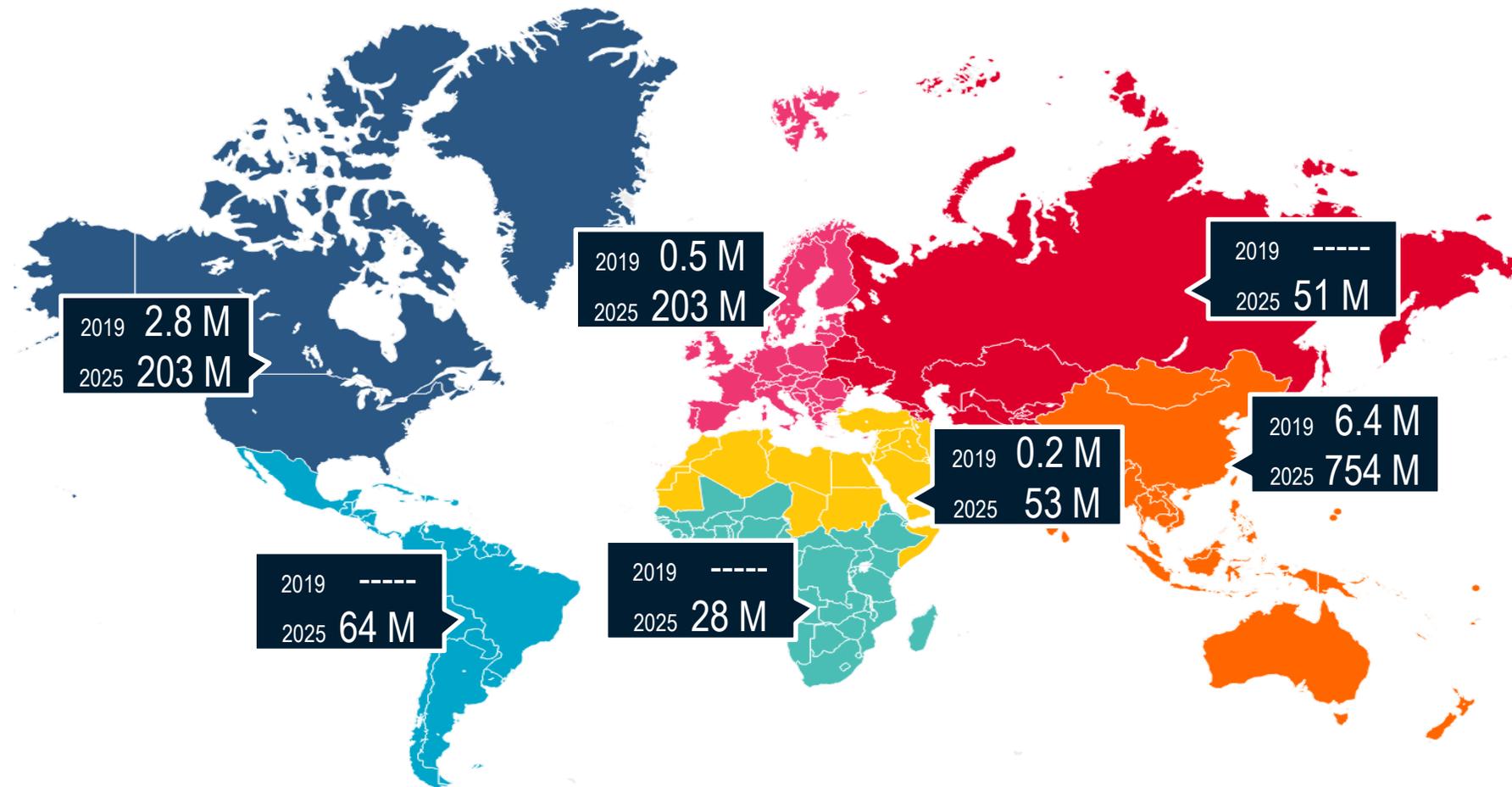


9 BILLION CONNECTED DEVICES





5G connections* will reach nearly to 1.4 billion by 2025

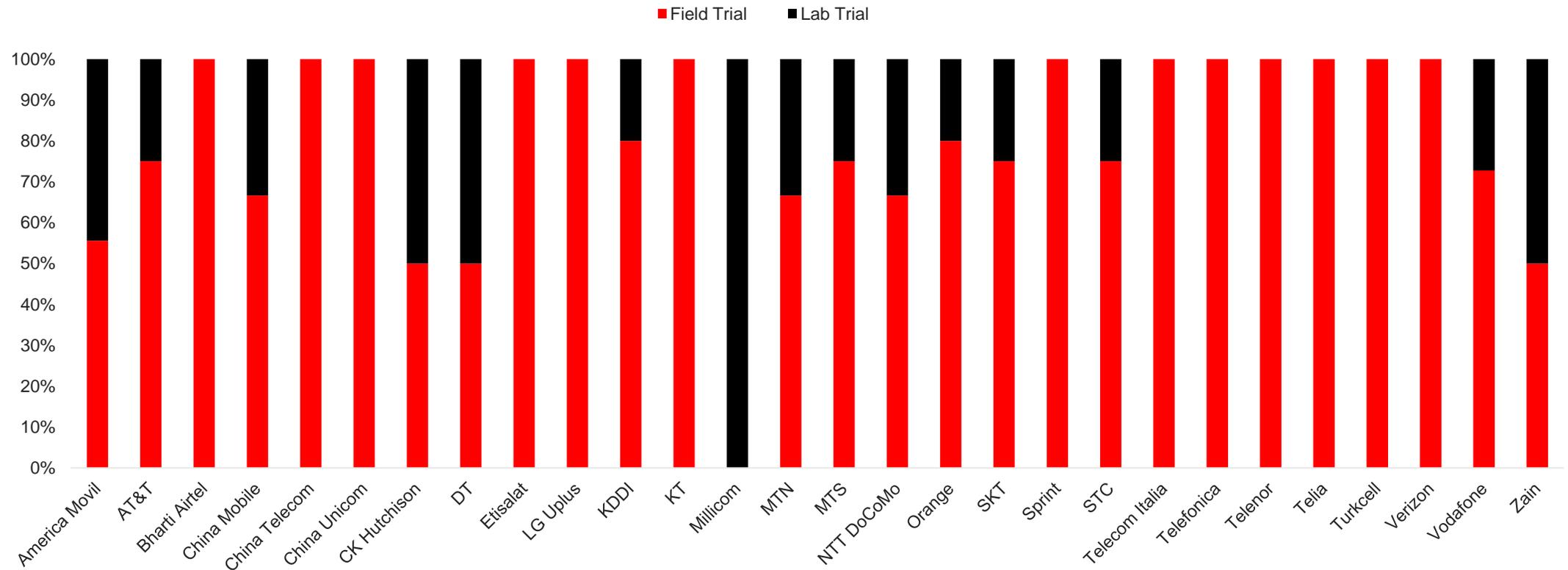




All the leading operators are conducting field and lab trials

NOTES

- Best effort data collection based on 110 publicly verifiable trials as of May 2018
- The trials include both group and individual level.

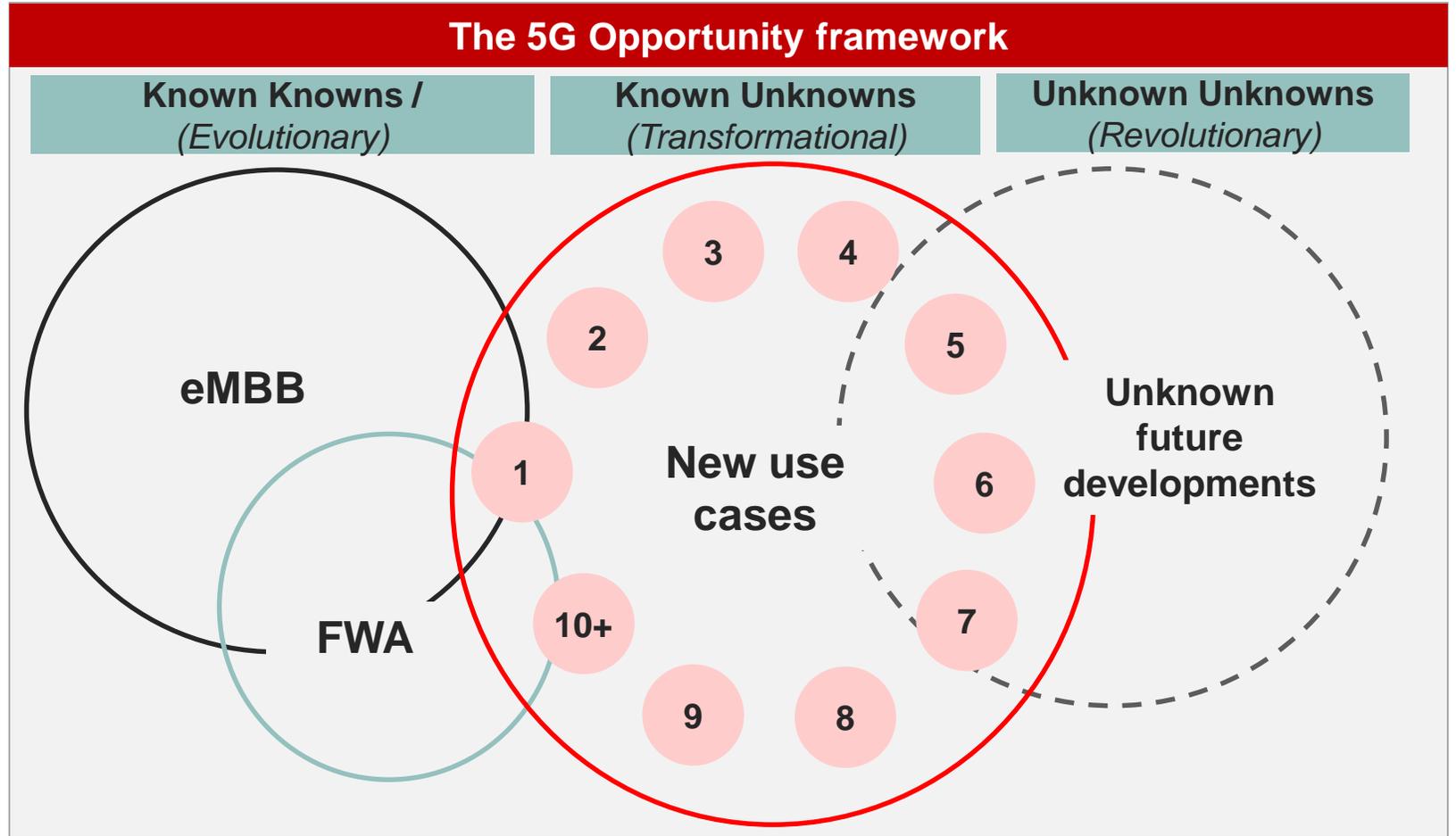




5G is an inevitable network evolution, and will create huge opportunities if the right conditions are in place

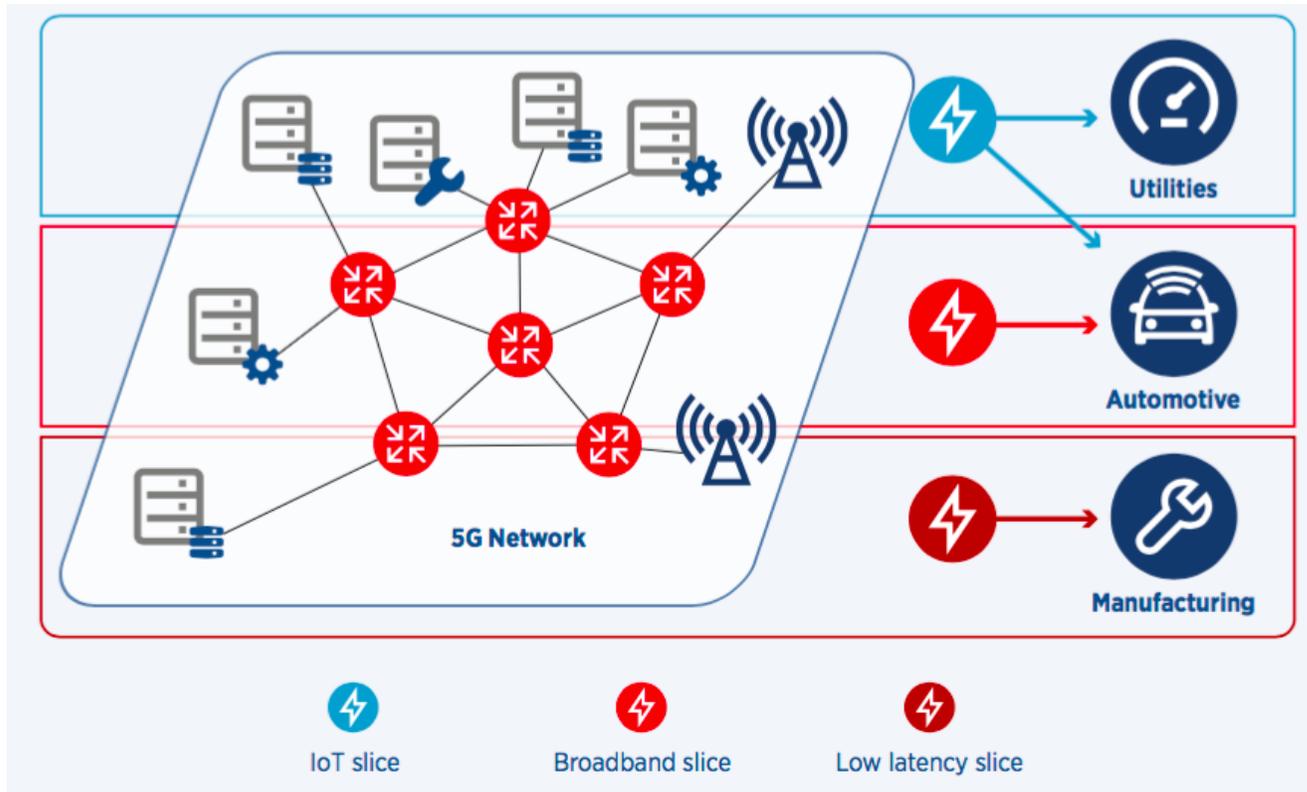
...deployment will depend on ...

1. Enabling market conditions and triggers
2. Supportive policy framework
3. Technology readiness



Regulatory flexibility should support innovative propositions

Servers, databases, transport and radio nodes are configured to create an optimised network for each use case

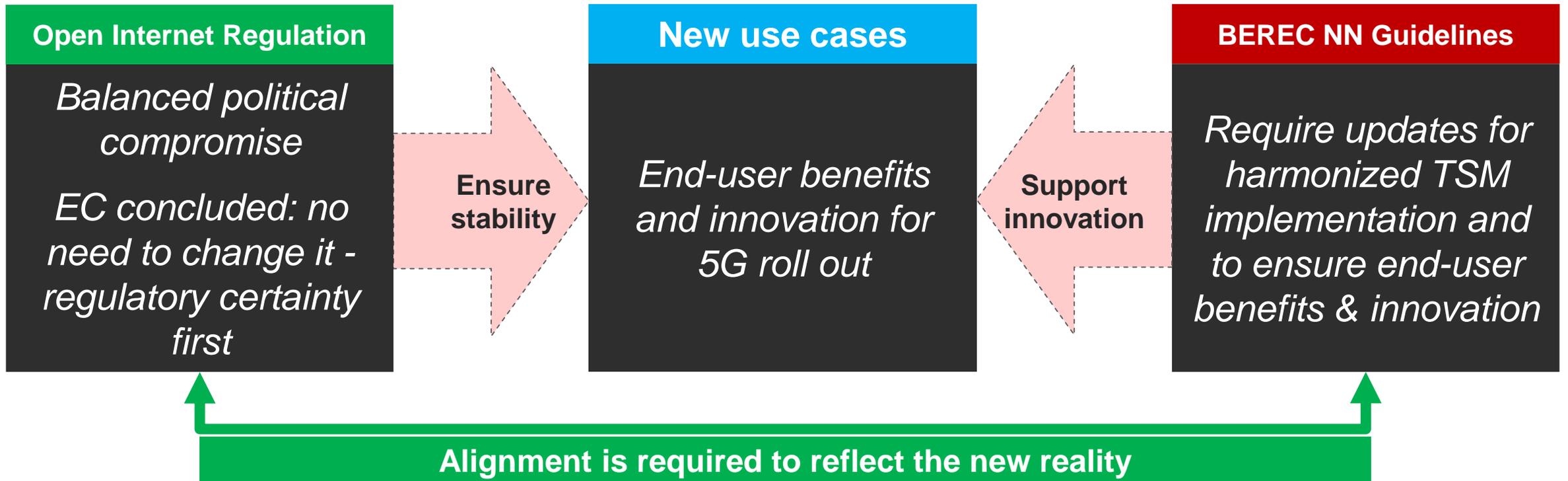


Network slicing

- Network slicing technology allows an operator to create dynamically a network configuration optimized for the intended usage
- The same physical network can therefore serve simultaneously users with different demands
- Unlike previous generations that were built around a specific use case, the 5G system will adapt to its users



Alignment of the BEREC NN Guidelines with the Regulation





Key observations about 5G in the context of BEREC NN Guidelines

5G needs legal certainty to enable investment and innovation. Hence, the focus of BEREC and NRAs should be on removing uncertainty from the Guidelines, thus ensuring a consistent and innovation-friendly application of the Regulation. This would allow network operators to benefit from “permission-less innovation” and investment-conducive environment.

1

In particular, the Guidelines imply that SolAS cannot fulfil the requirement of necessity if they work on the “best efforts” internet – but this would prohibit ISPs offering the specific level of quality needed for specific services, which may be lower network performance quality than IAS, or which may take into account other objective factors.

- **The test of necessity should be based on the objective needs of the service and consequently the service provider, which are varied.**

2

BEREC should ensure that the wording of the Guidelines does not hinder 5G and other technology evolution or innovative services, like the delivery of voice over Wi-Fi, IoT or virtual reality. Current Guidelines introduce unnecessary additional criteria and requirements in the assessment of these types of services.

- **BEREC Guidelines should be aligned with the Regulation, which sets out the requirements on IAS and allows operators to offer SolAS subject to not impairing the IAS aspects of the Regulation.**



Key observations about 5G in the context of BEREC NN Guidelines

3

What matters for the compliance with net neutrality rules is how the technology is used, rather than the technology itself (e.g. whether SolAS negatively impact IAS). NRAs / BEREC should not become ISP services designers. Uncertainty about regulatory approval for QoS differentiation negatively affects end user choice and investments.

- **Since the objective of the Open Internet Regulation is to protect IAS, there should not be over prescriptive and detailed assessments of every service other than IAS, as long as the impairment rule is respected.**

4

The Guidelines may cause operators to restrict specific capacity to SolAS only, which would be inefficient and reduce the opportunity to improve quality for all. It is impractical to measure the impact of SolAS on the general quality of IAS in the ways suggested by the Guidelines.

- **Ensure that the Guidelines do not cause the operators to reserve capacity for SolAS in inefficient ways but instead encourage dynamic sharing of resources across network slices where this leads to increased efficiency in the use of the network and better overall quality for all end users.**



Thank you

