

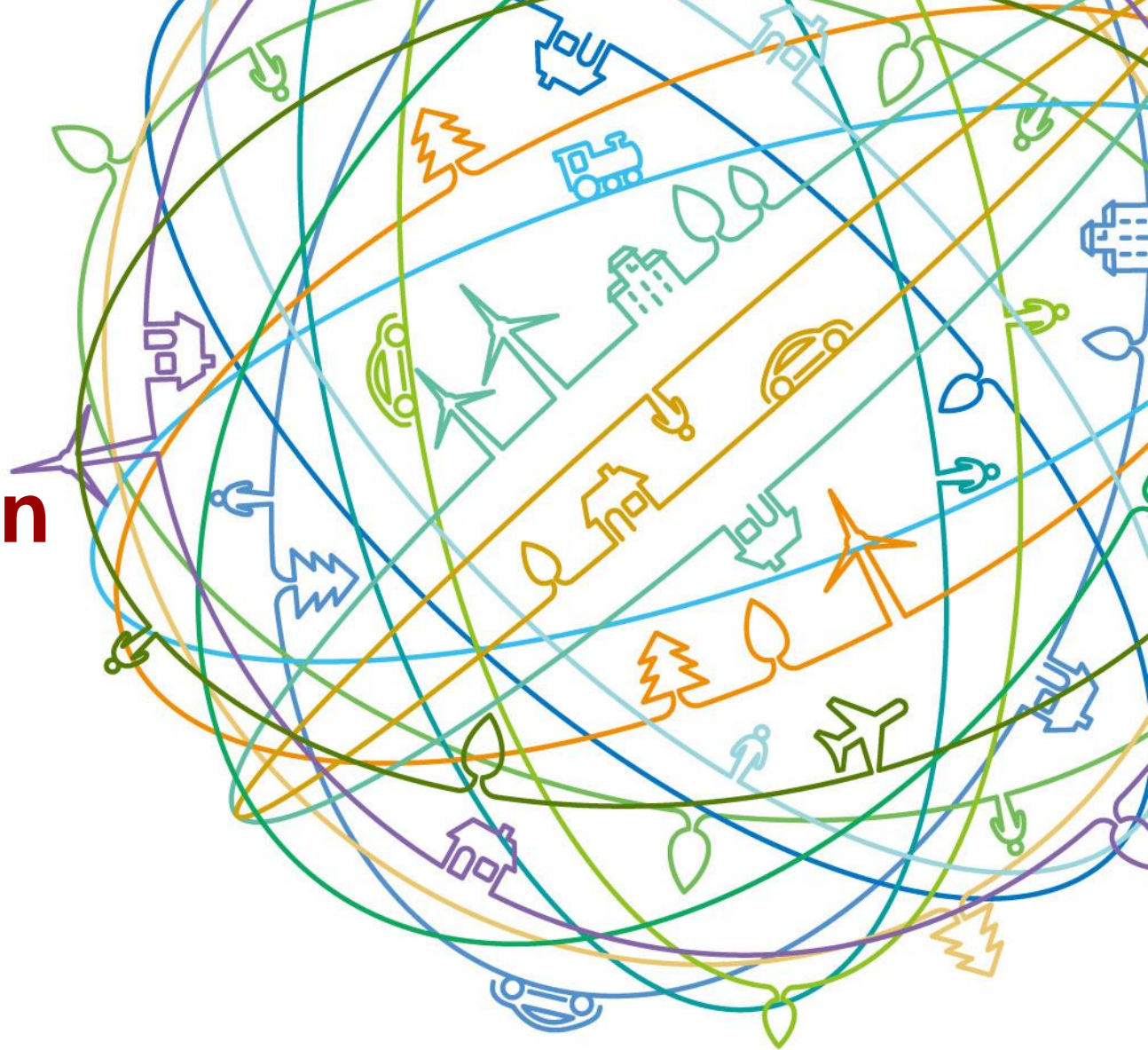
# 5G Phase 1 Standardisation Reality Check

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**IEEE 5G Summit**

July 11<sup>th</sup>, 2017, Thessaloniki, Greece



# Why this presentation?

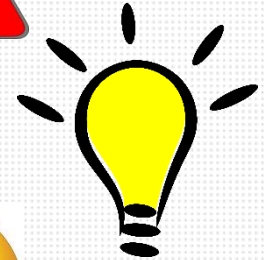
5G Phase 1 standardisation is progressing with a fast pace towards its completion



Huge effort has been spent in several relevant standardisation bodies



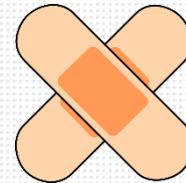
Several radical changes and innovative features have been introduced



However, from several sides, voices of discontent are raising... why?



Let's fix it, before Phase 2 standardization starts!

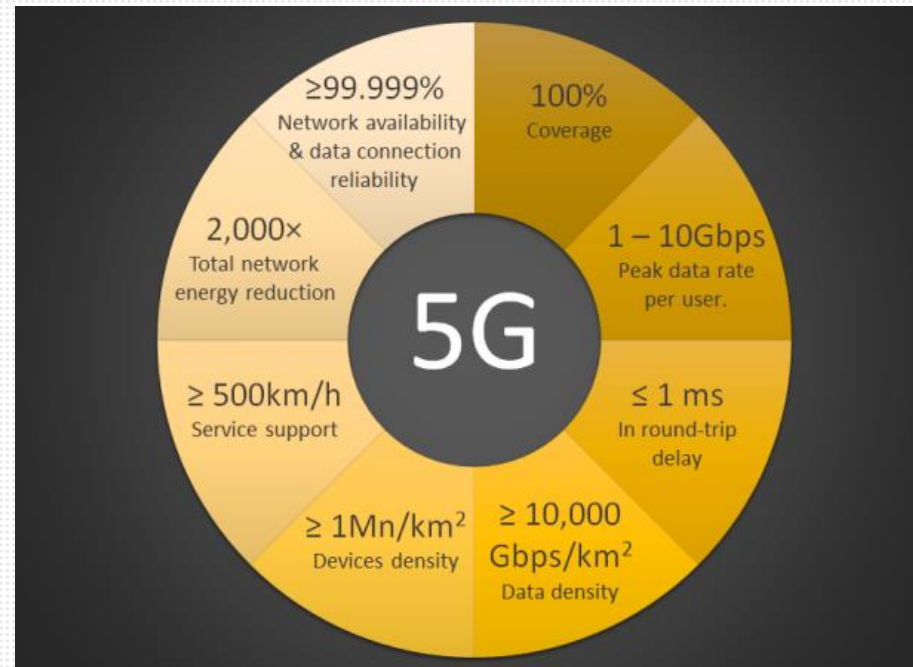


# Where did it start from?

Back to 2015, definition of 5G requirements (\*, \*\*):

*“5G is an **end-to-end** ecosystem to enable a **fully mobile** and connected society. It empowers value creation towards customers and partners, through existing and emerging use cases, delivered with consistent experience, and enabled by **sustainable business models**”*

NGMN 5G Vision



(\*\*) Dr. Kim, Technoeconomyblog,  
“5G Economics – The Numbers (Appendix X)”



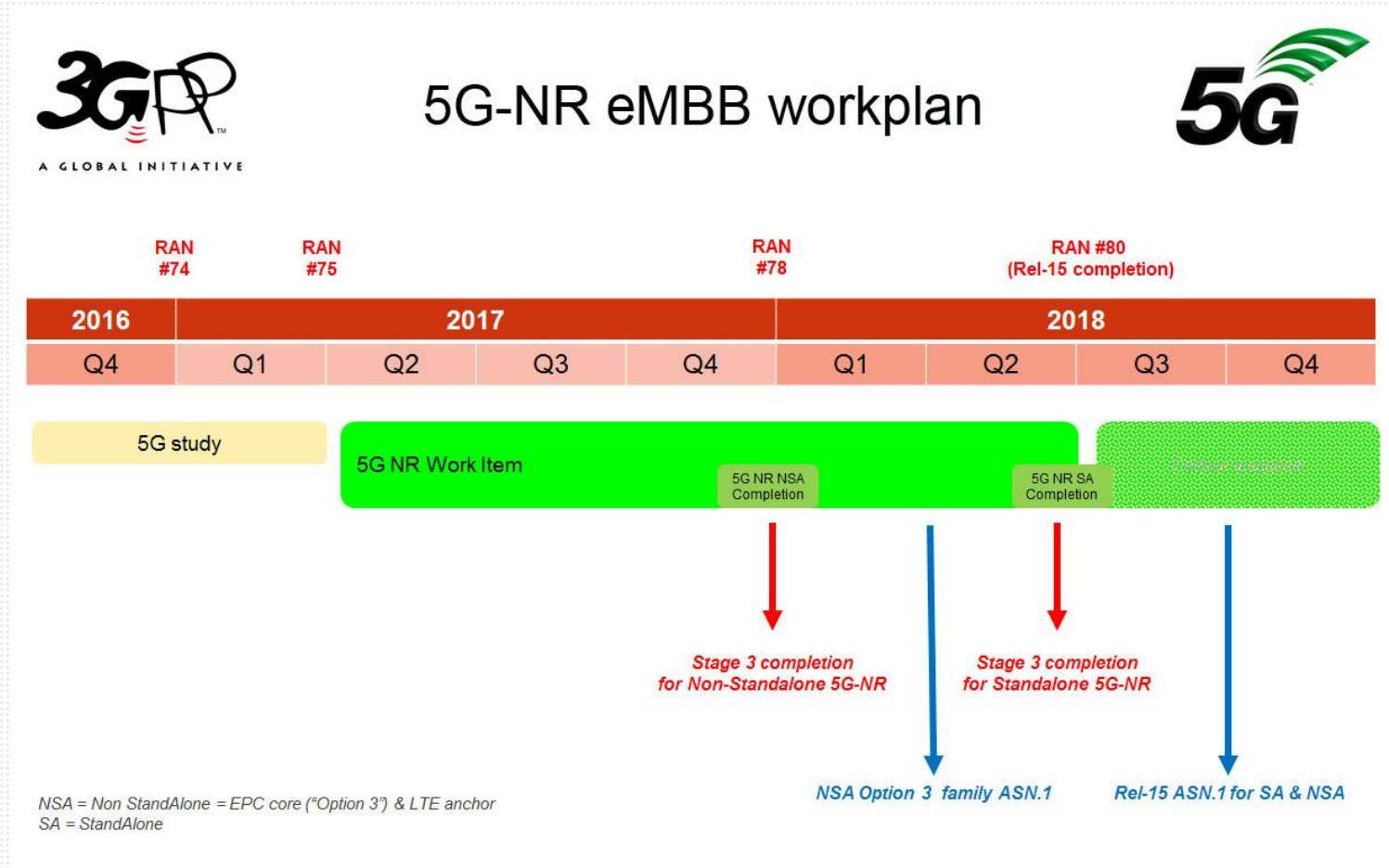
# Where Do We Stand?



# 5G Access – 3GPP 5G-NR (from RAN Plenary, June '17)



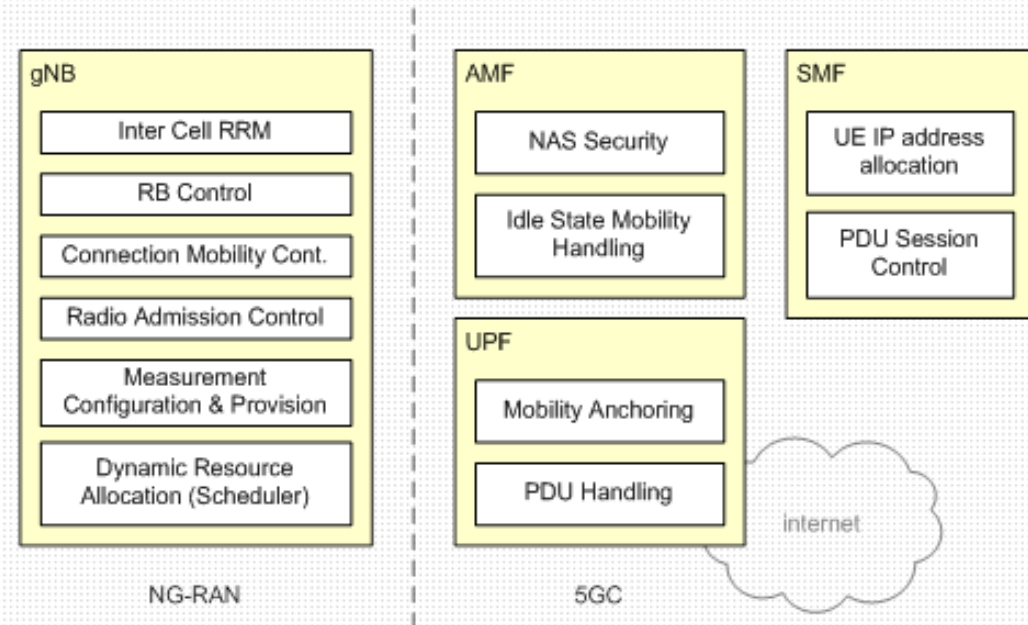
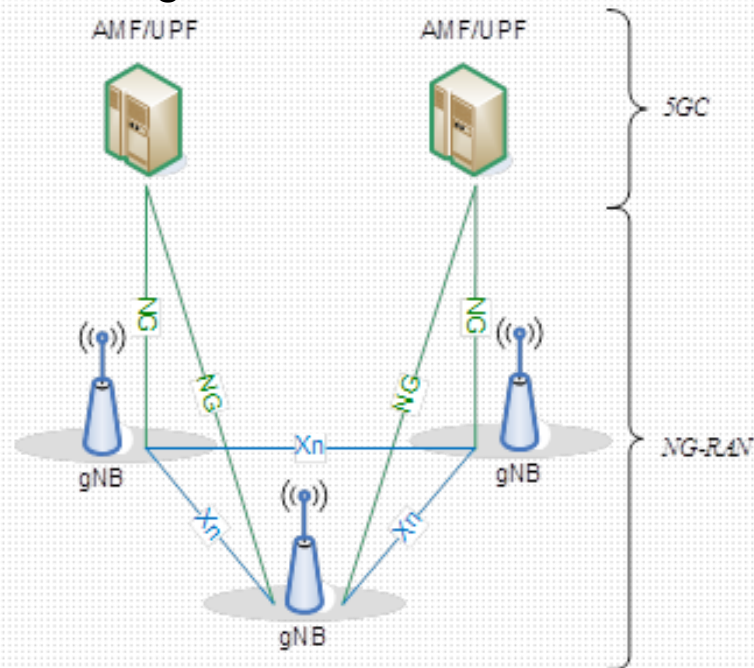
- **Early drop by 12/17:** complete Stage 3 for **Non-Standalone 5G-NR eMBB** (incl. low latency support), Option 3
- Ensure commonality with Standalone eMBB (incl. low latency support), as well as forward compatibility
- **Full 5G NR, by 06/18:** complete stage 3 for **Standalone 5G-NR**, supporting **Network Slicing**



# 5G Access – 3GPP 5G-NR

## What 5G-NR (gNB) will support (TS38.300):

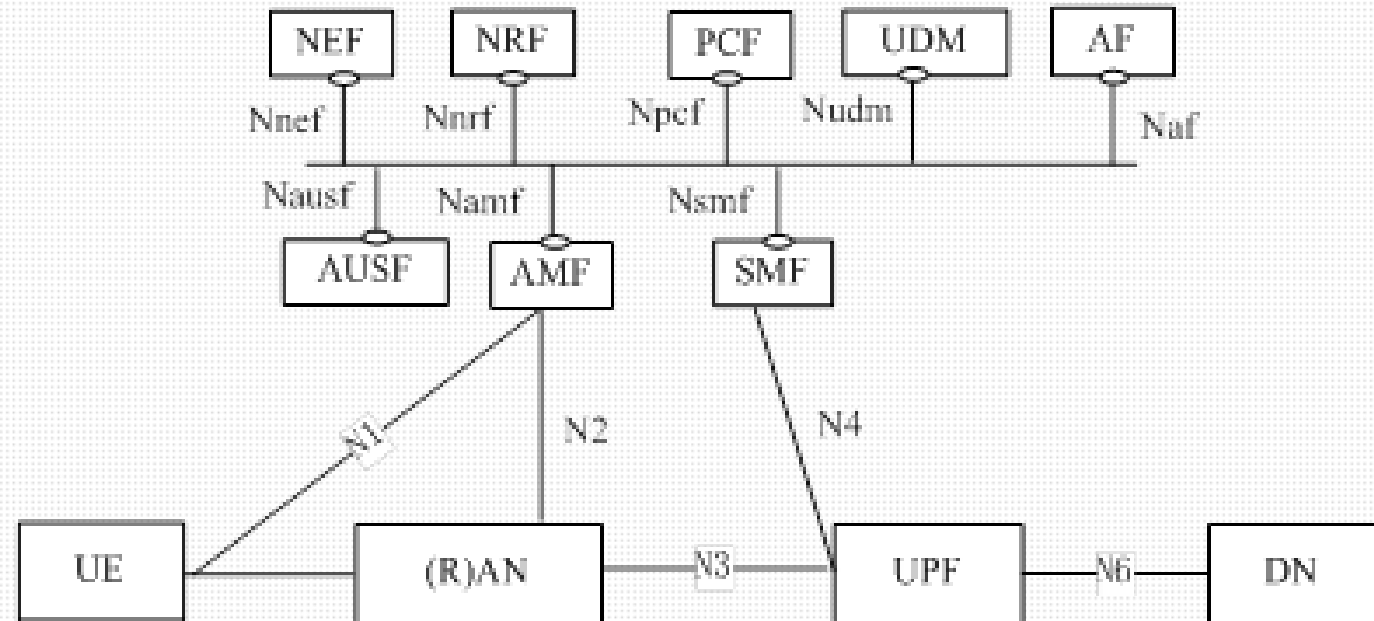
- Common design covering **Sub-6GHz** to **~40GHz**
- Support **eMBB** with **forward compatibility** towards mMTC and URLLC (Rel 16)
- Delivering Peak Rates of **20Gbps+**
- LTE-assisted and standalone operations
- OFDM-based waveforms, scalable numerology
- licensed, shared licensed and unlicensed spectrum
- Network Slicing



# 5G Core – 3GPP 5GC (from SA plenary, June '17)

## 5GC key Concepts (TS23.501):

- Architecture Modularisation
- Support of E2E Network Slicing
- Access Convergence
- Service Based Interface
- 3<sup>rd</sup> Parties Network Functions



BBF started at 2017Q1 the “5G Convergent Architecture and Functional Specifications” study work, as part of BBF 5G project stream

- Study of the architectural and functional impact on the **fixed broadband system** of wireline access integration, incl. **N1, N2, N3 reference points**, and other aspects, such as slicing/multi-tenancy, CPE management and configuration, and QoS.
- **Sharing of access facilities** between 5G and existing fixed subscribers, and migration strategies.
- Definition of an **Access Gateway Function (AGF)**, addressing the support of **N2/N3** by a BBF-specified wireline access network.
- We will focus **on trusted Non-3GPP access**.
- The timeline of our studies will align with the 3GPP roadmap **for Rel.15 (study) and Rel.16 (normative)**.

# Conclusions from this quick assessment

*... a congruous bunch of 5G requirements will be satisfied from 5G Ph1 systems, albeit the scope being restricted to eMBB, and the missing elements (e.g. URLLC, mMTC) will be addressed by 5G Ph2 in Release 16...*

## What's the problem, then?

# Voices of Discontent

Some samples of concerns collected from world class operators

- **Operator A:** *“we are concerned about the actual capability to expose NF services to functions not belonging to the traditional 3GPP realm”*
- **Operator B:** *“we are concerned about the NF centric architecture, which limits the actual reach of the Service Based approach”*
- **Operator C:** *“We are concerned for the level of complexity relating to the Network Slicing concept.”*

**Any opinion or concern from the audience?**

*...let's list them all before 5G Ph2 standardization begins!*

# Thank you

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