

tsds
India's Telecom SDO

Telecommunications
Standards Development
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TECH DEEP DIVE

TTDD 2023 CONFERENCE (6th EDITION)

**6G HORIZONS: CONVERGING TECHNOLOGIES
FOR A CONNECTED SOCIETY**

 **Date: 3-6 October 2023**

Open and Resilient by Design

5 October 2023

Opening the network: From 5G Slices to 6G Applications

by

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NOKIA

The reason for 5G- **Not final**

Why was 5G designed?

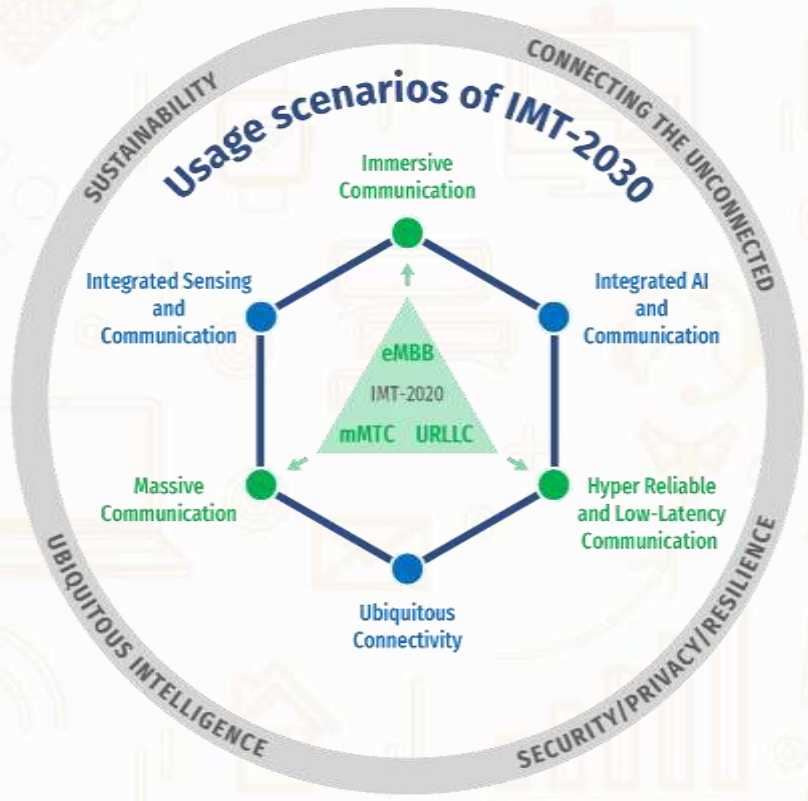
“5G is designed to not only deliver faster, better mobile broadband services compared to 4G LTE, but can also expand into **new service areas** such as mission-critical communications and connecting the massive IoT.”

However

What is new in 5G?

„5G can be significantly faster than 4G, delivering up to 20 Gigabits-per-second (Gbps) peak data rates and 100+ Megabits-per-second (Mbps) average data rates“

6G – Is this enough?



Still TBD:

- Improve market acceptance
- Grow industry revenue as a whole
- ➔ Create more value!

Opening the network – Telco hasn't settled in!

Web search results for:

How to create my own cloud webpage?

- Multiple sites with clear step by step instructions
- Google/AWS **free** account instructions

VS

How to create my own network slice?

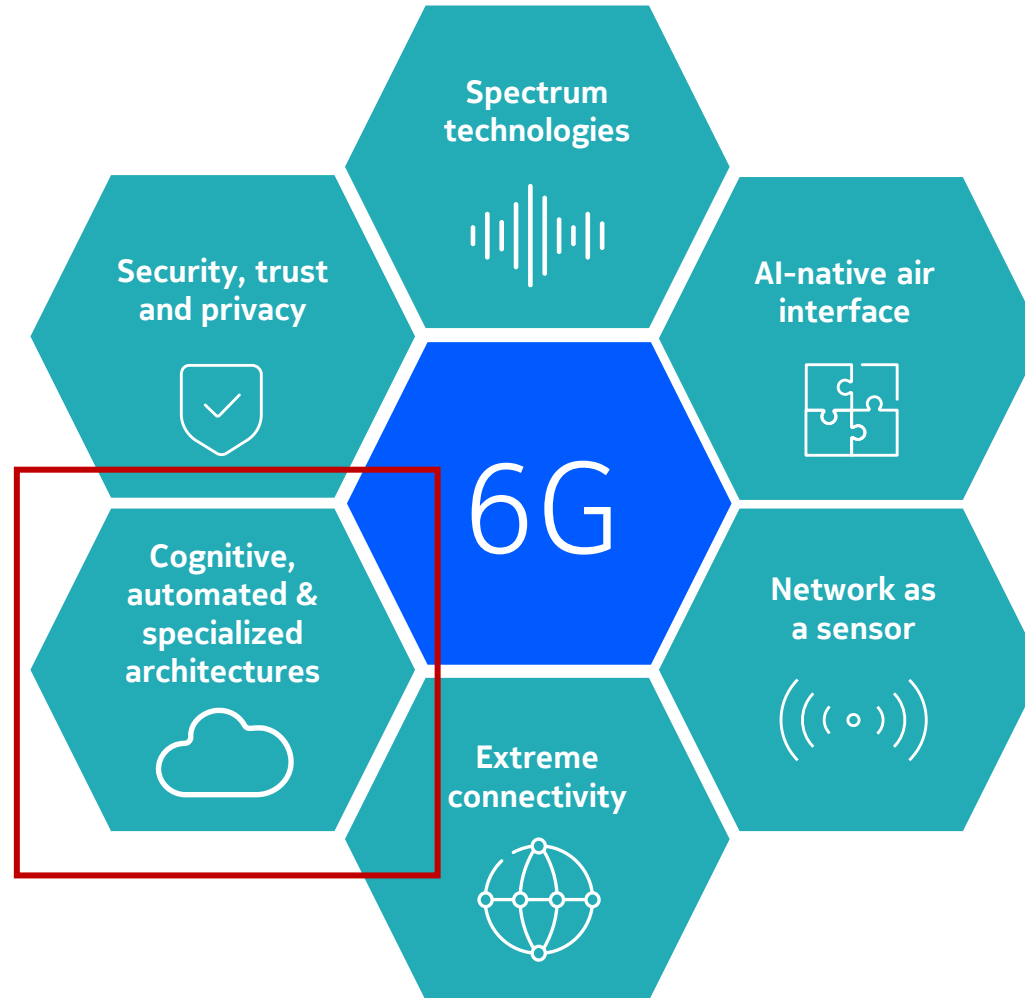
- IEEE Explore
- Blogs about what is network slicing
- 3GPP

Targeted at customers

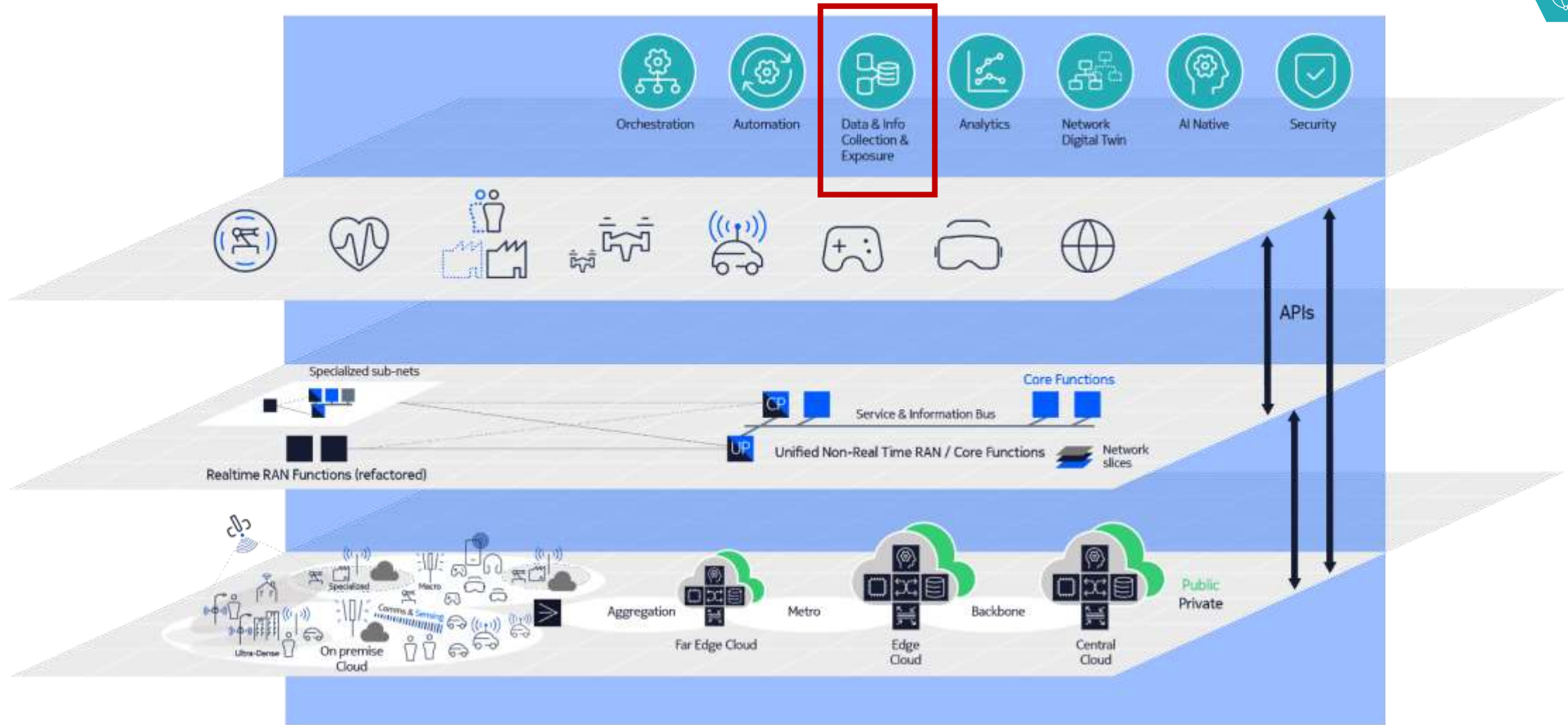
Targeted at research/standards experts

Nokia's 6G Vision

Six key technology areas for the 6G essential infrastructure

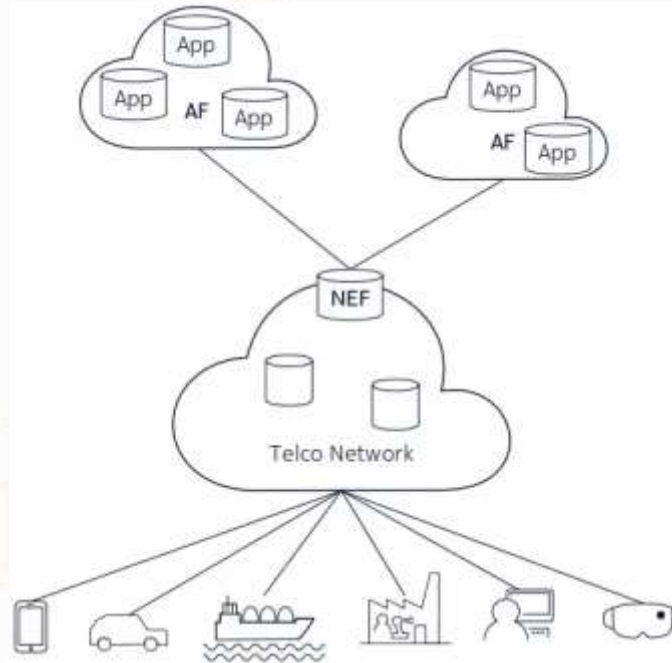
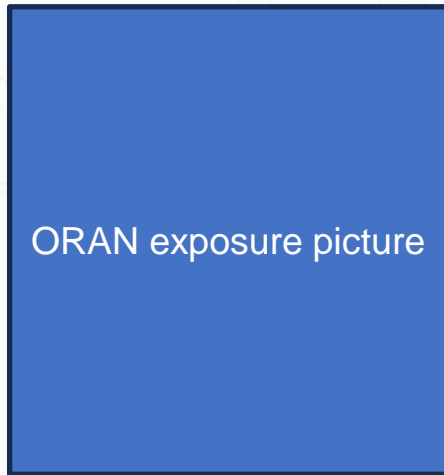


Cognitive, automated and specialized architectures

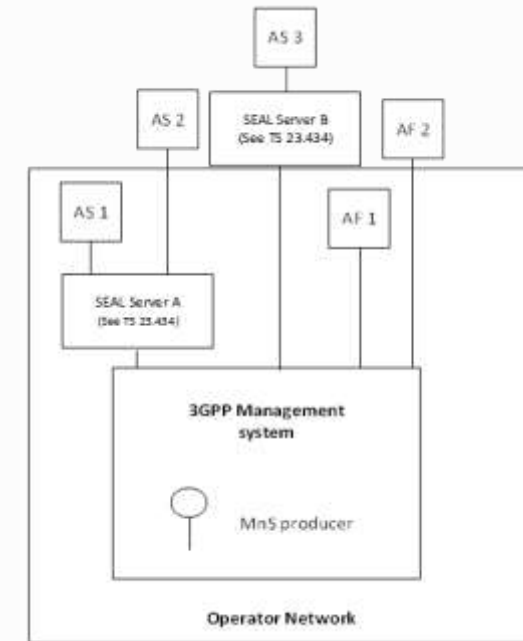


Many types of exposure

Edge exposure, NEF exposure, O-RAN exposure, Management exposure



Control and user plane exposure



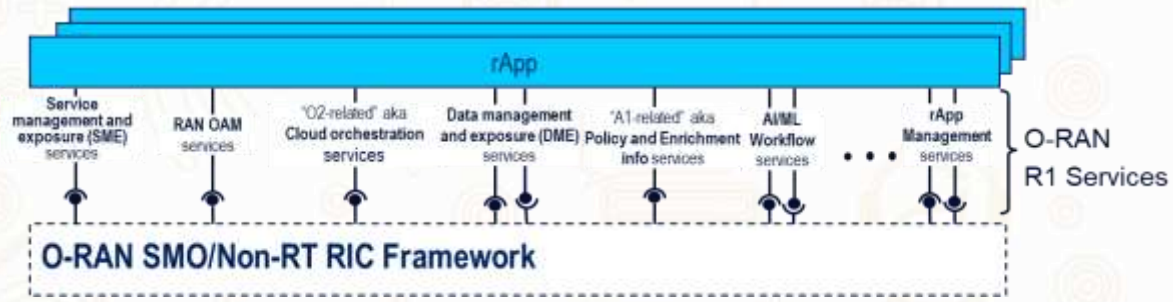
Operation's exposure

Exposure in RAN

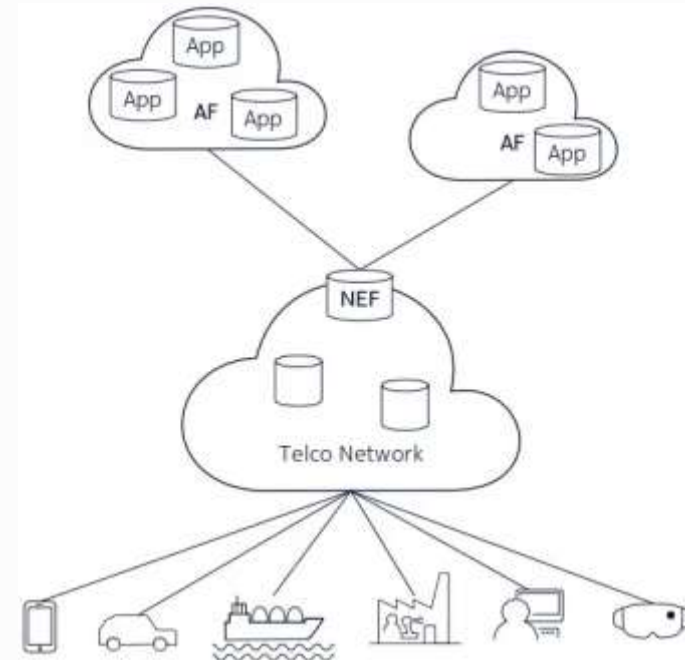
Exposure in MEC?

Many types of exposure

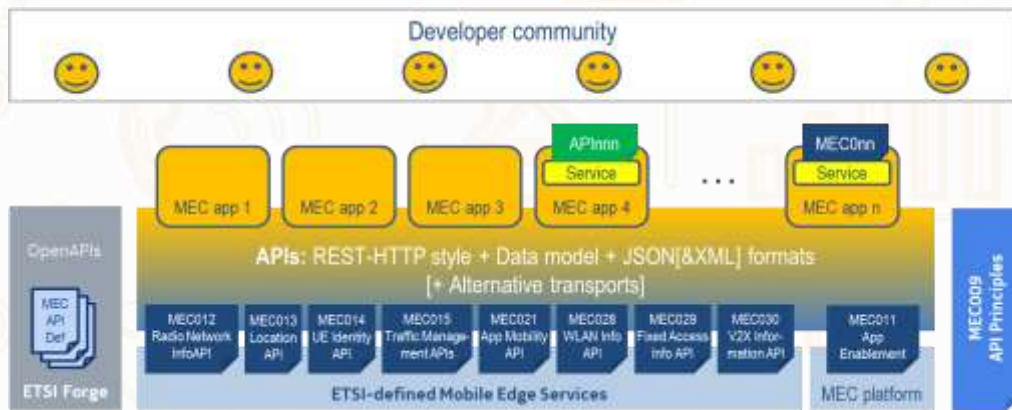
Edge exposure, NEF exposure, O-RAN exposure, Management exposure...



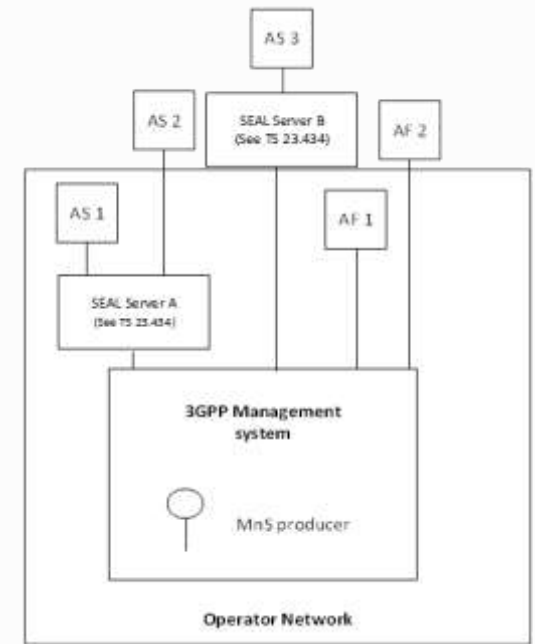
Exposure in O-RAN to enable management programmability



Control and user plane exposure towards „application functions“



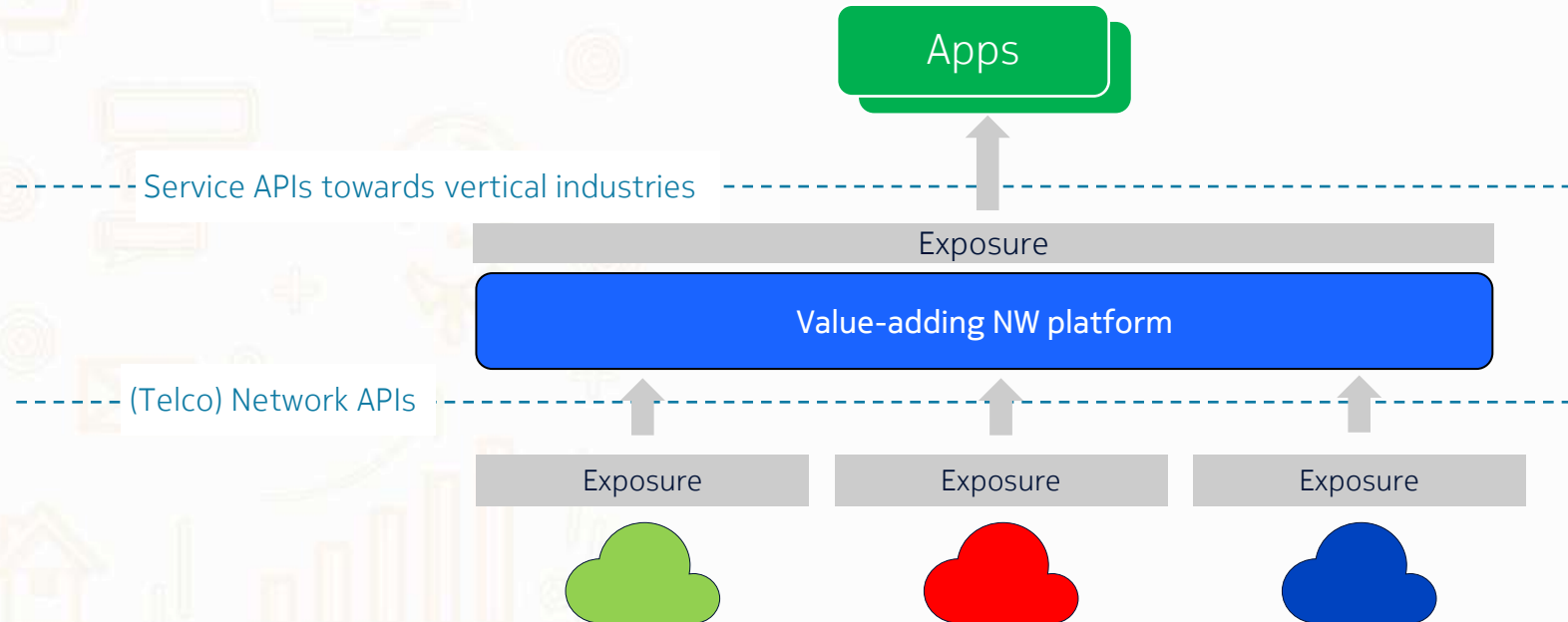
Network exposure in MEC to enable network-adaptive apps



Operations exposure in 3GPP towards verticals

Addressing the complexity

A layered approach



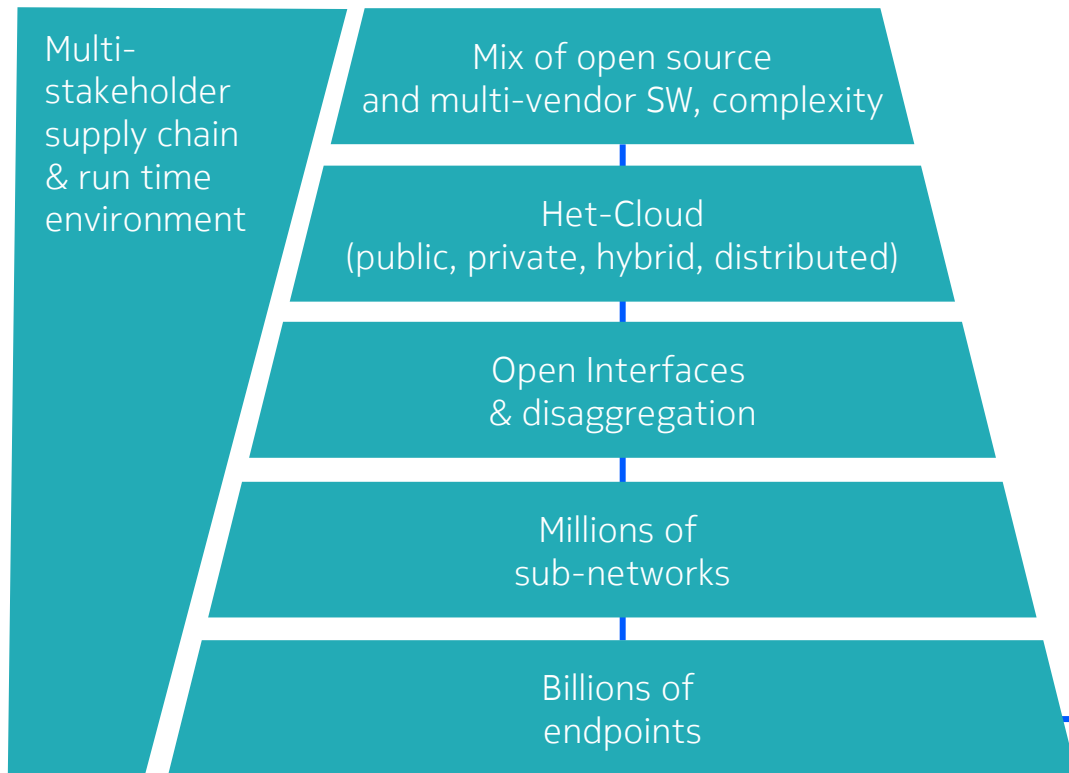
Nokia's efforts towards ecosystem development



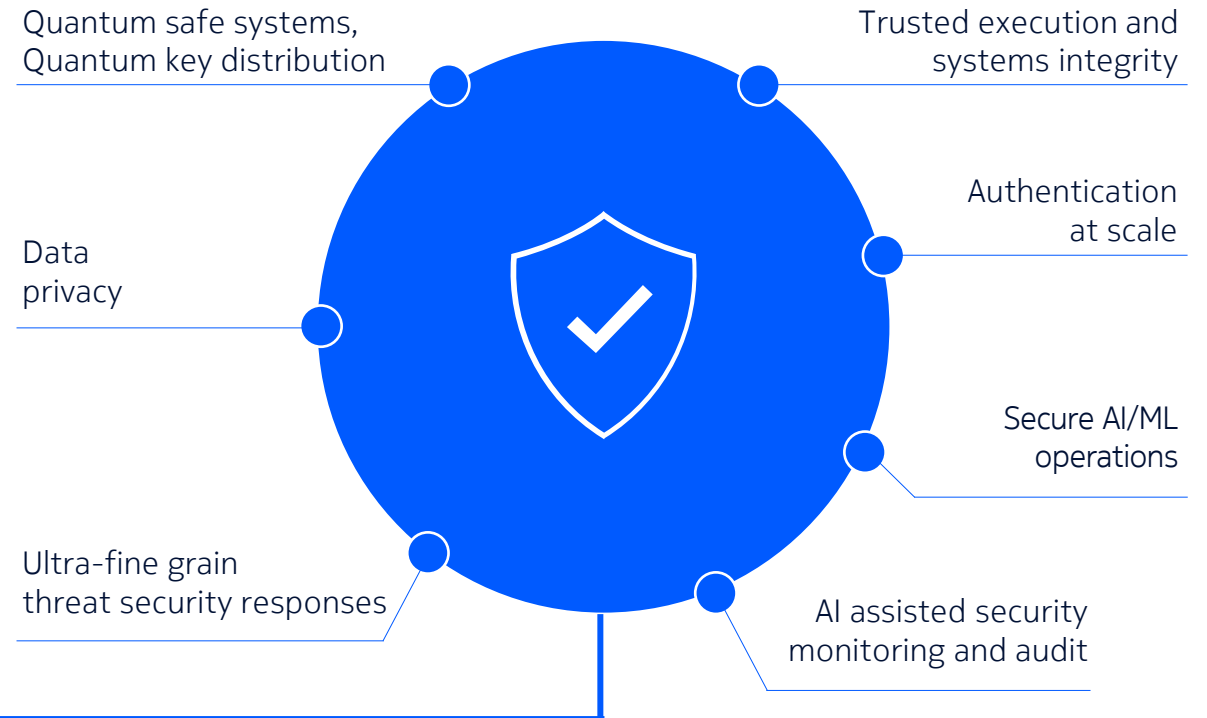
Exposed APIs require 6G security and trust

Addressing the ever-expanding threat vectors

Threat vectors



Technology enablers



The quest for monetization

Increasing revenue

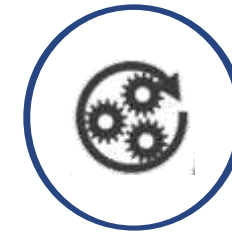


Network Exposure

Developer-friendly, “as-a-Service” access to network capabilities and data
Support value-creating vertical use cases



Reducing Costs



Automation

Transition to cloud-based, AI/ML driven Closed loops, Intent-driven autonomous networks.



Continuous innovations

In business models: Partnerships, Platforms, Eco systems; fast time-to-market/value
In technology: Agile development; DevSecOps pipelines; Shortened standardized enablers to product times

Take away – A cultural change **Ugly**

Culture eats strategy for breakfast

- Peter Drucker

- Don't go alone, find partners, create an ecosystem
 - remember doordarshan's ek-anek! (The younger folk should google it)
 - Standards can help reduce costs, align the industry!
- Open up
- Innovate – it is ok to fail when the risk is managed
 - CSPs spend 0,8% of revenue into R&D, Hyperscalers ~16%
 - Partnerships come typically via R&D
- Security is design principle 1
- Innovation is not only in tech – look for new business models
- It is not just RAN – it is RAN, EDGE, CORE and the one ring to bind them all - Management

And most importantly remember – Nokia is here to help

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