

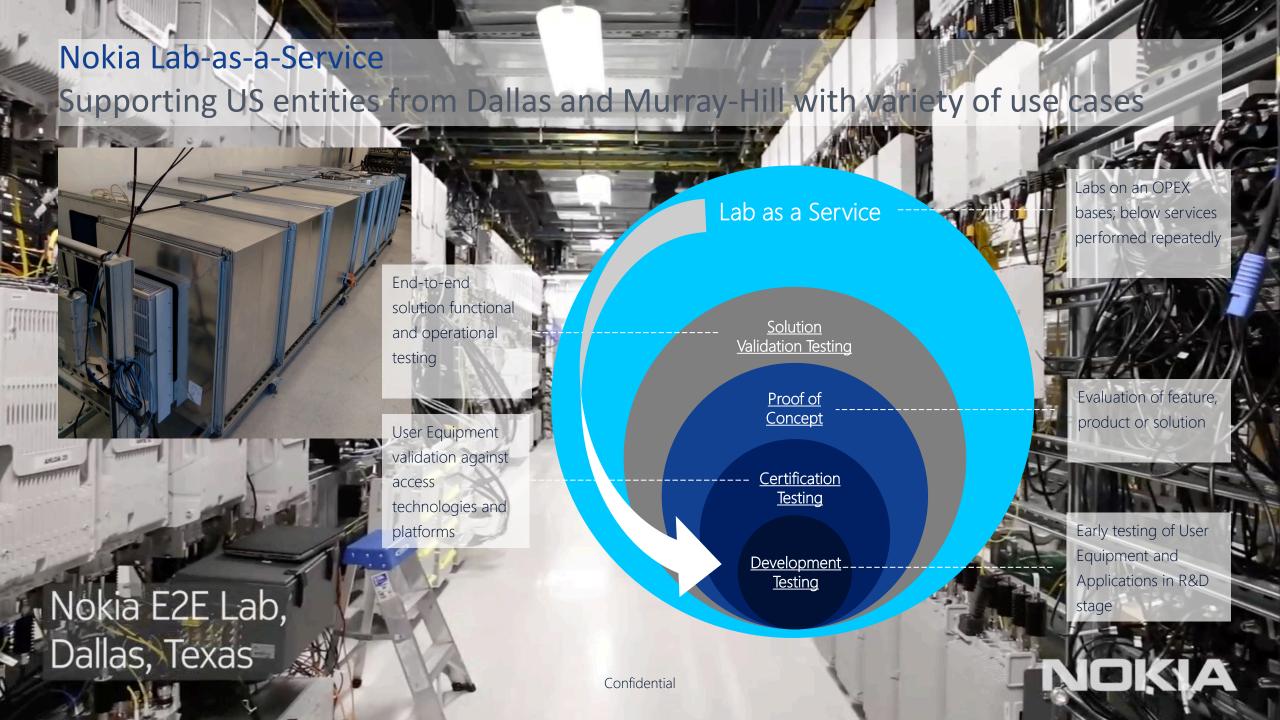
Lab as a Service

Realworld testing capability supporting Framework to 5G testing

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Lab as a Service Solution (LaaS) Customer lab deployment made easy

Skip initial lab infrastructure cost

No CAPEX and low OPEX for access to carrier grade lab equipment

No more lack of resources

Ensured lab availability and support for customer use cases with Nokia SME's



Avoid long lead times to deploy new infrastructure

Leverage existing Nokia LaaS infrastructure to rapidly offer lab services and reduce time to market

No shortage of testing and troubleshooting expertise

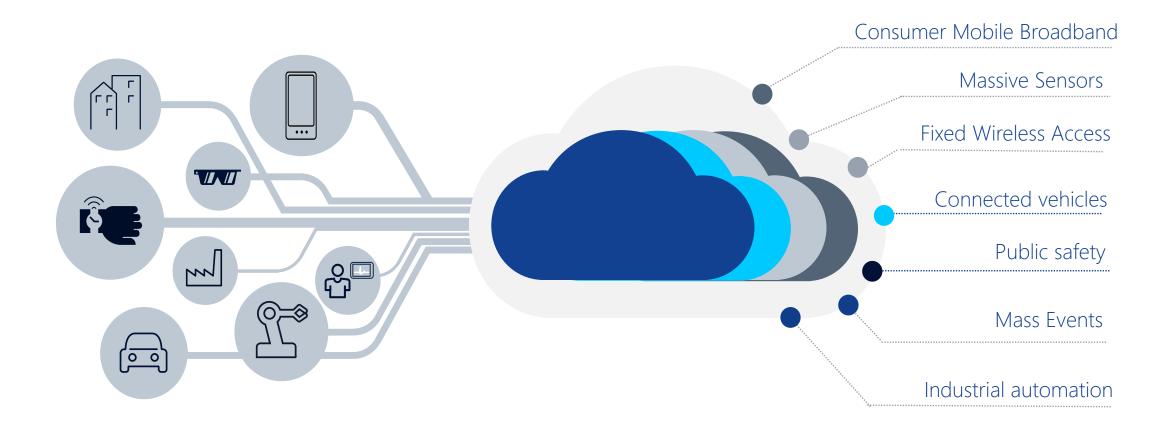
Provide consultancy to support test execution, test strategy, and troubleshooting

Low test efficiency due to lack of real world, industry and commercial best practices

Extensive Nokia experience with operator networks to ensure robust network and highest customer quality of service



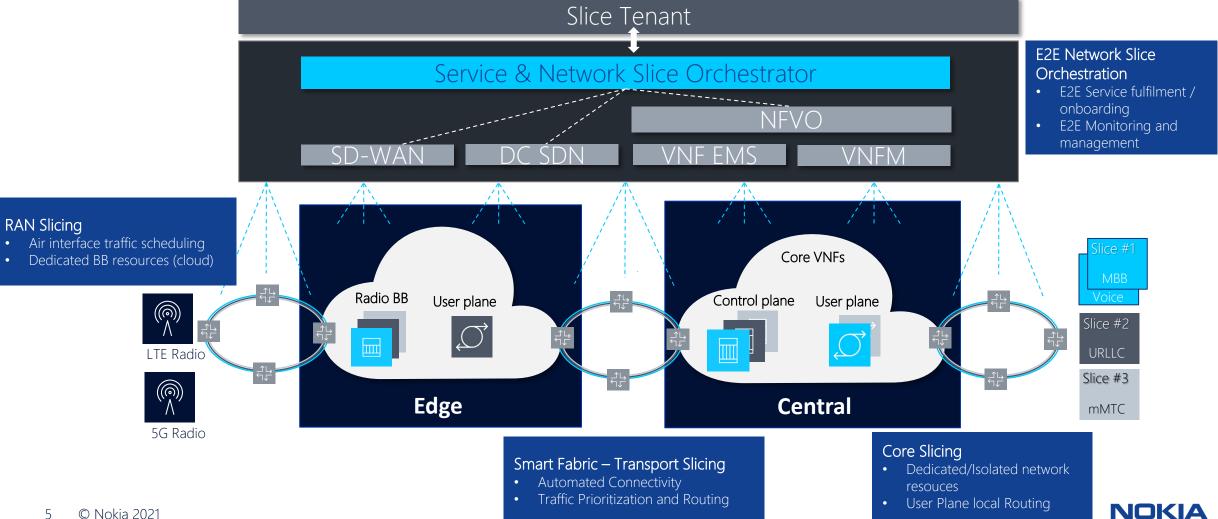
Testing Framework: Use Case - Network Slicing



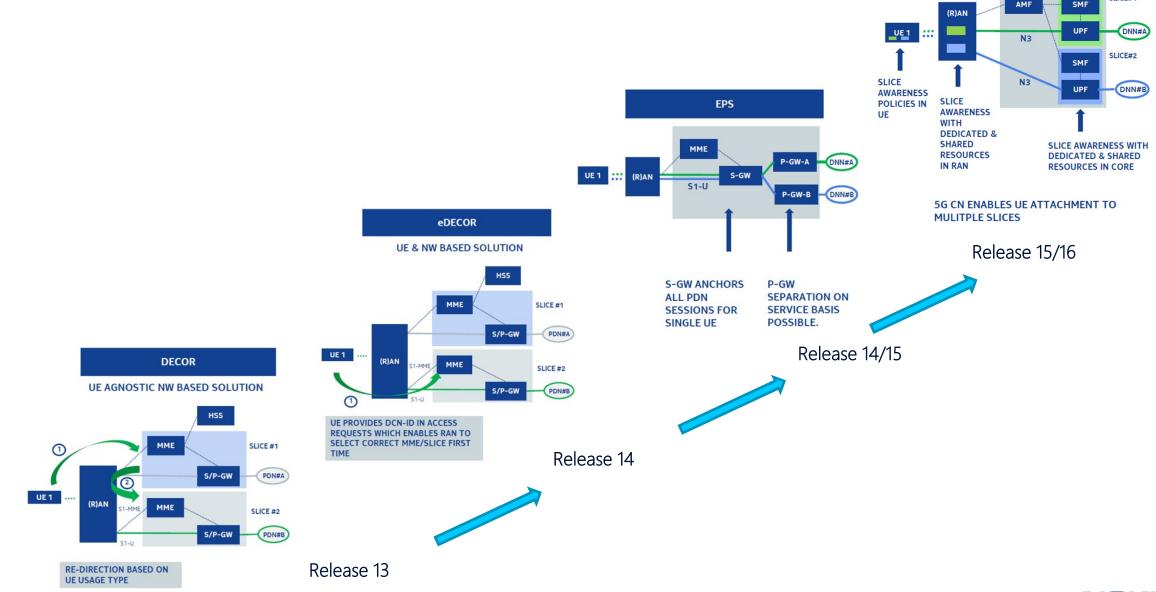
Multiple customized logical networks on shared physical infrastructure in an economic way



Focus on E2E Network Slicing, which Domains? Different Domains and their relevance with Slicing



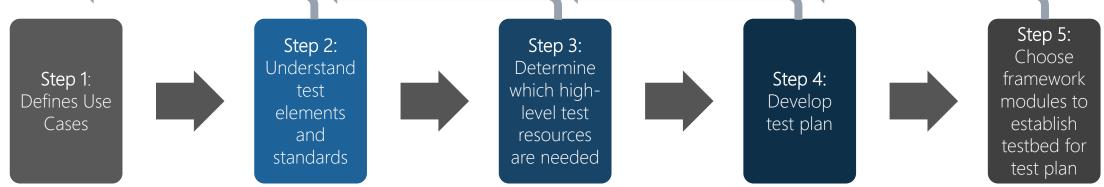
3GPP Evolution of Slicing



5GS

Example for Lab-as-as-Service support preparing for testing

Network Slicing use case



Customer define objective for slicing to meet various scenario expectation

Throughput, speed and

implementation on QCI

• Application, environment

and area of operation

latency

• Previous 4G

Security

Create high level design of Radio, Transport and Core elements, Release and technology to be assessed leveraging lab/network assets and roadmap

- Scope of network, SA/NSA, Radio, Core, Transport, E2E
- Customer premise, remote of hybrid lab
- Size of network
- Spectrum
- Testing locations

Confidential

Detailed design of lab, measuring equipment and services. Define UE and application requirements and high-level performance metrics

- Further refined performance criteria
- Support requirements for configuration, testing, troubleshooting based on high level expectation
- Budgetary estimate on cost

Define testcases, approach, durations and data collection and reporting mechanisms. Performance metrics per use case and domain

- Continuous further refined performance criteria
- Listing of test plan and initial reporting

Selection of testing resources at government locations, Nokia TX/NJ facilities, resources, support services, measurement equipment

 Final list of material, equipment and tools

and testing automation

- Services scoping from Customer and suppliers
- SLA and testing timelines
- Final pricing and budgeting



Lab as a Service Solution (LaaS)

Use cases for LaaS

Device Testing

Development Testing of device HW/SW against Nokia's radio access and core networks

Application Testing

Integration testing of 3rd party applications against Nokia's radio and/or core networks

MVI IOT

3rd party network function interface-level testing & validation against Nokia's radio access / core networks

Proof of Concept

Evaluation of a Nokia feature, product or solution. Typically limited scope and duration

Solution Validation

End to end solution integration and testing for Nokia and 3rd party network functions

Lab Trials

Customer lab trials or as support of RFP product evaluation



Locations of Testing Centers

Delivered from 5 locations around the world.

















Lab as a Service Solution (LaaS) Customer Benefits

Rapid access to carrier grade lab Infrastructure

Reduce CAPEX and OPEX investments

Faster product
development and
services launch through
automation





Uncover and resolve issues early in the product/service introduction lifecycle

Maximize reliability of products and quality of services

Confidential

Expert consultancy support to help customers in testing and trouble-shooting efforts





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