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Case study

Telenor: Making tailored 5G customer experiences a reality with AI and orchestration

2025 Winner

FUTURENET WORLD AWARDS

Operator Network API Award

telenor

There is still a significant gap between the full potential of 5G and accessibility for customers with highly diverse use cases and requirements.

Together with a partner ecosystem including Nokia, Telenor Research & Innovation in Norway aims to bridge this gap by abstracting underlying technical complexities through AI and automation to offer private 5G solutions that best address specific customer needs.

The challenge

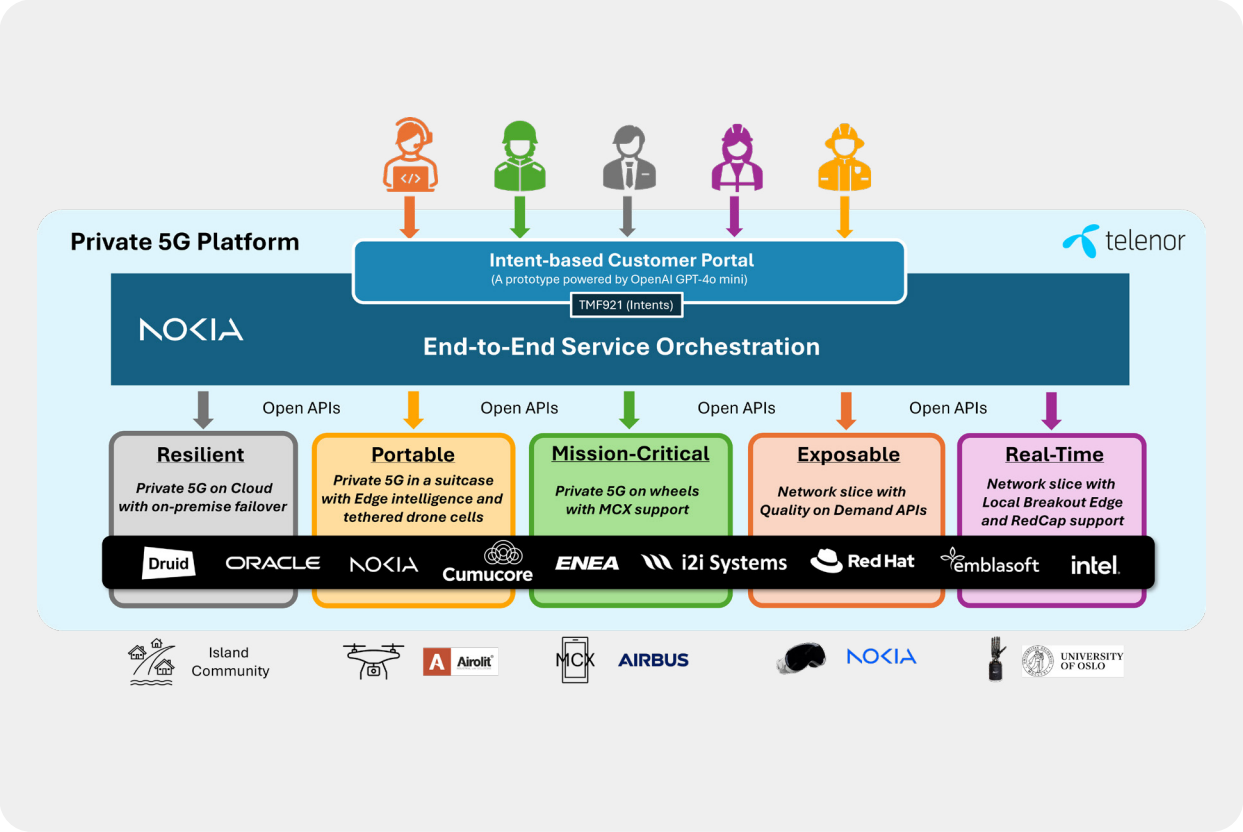
Telenor worked with its partners to create iCORA, an innovative, cloud-native, open, resilient and automated experimental platform for end-to-end 5G services. This large-scale platform is now running live in the Telenor lab environment in Oslo. Most recently, it was used for a project that demonstrates how the ordering of private or dedicated/sliced 5G network capabilities can be simplified with a GenAI-enabled customer portal and end-to-end service orchestration capabilities.

Watch the video

Overview of use cases

The following use cases were implemented as part of the project (shown from left to right in the diagram)

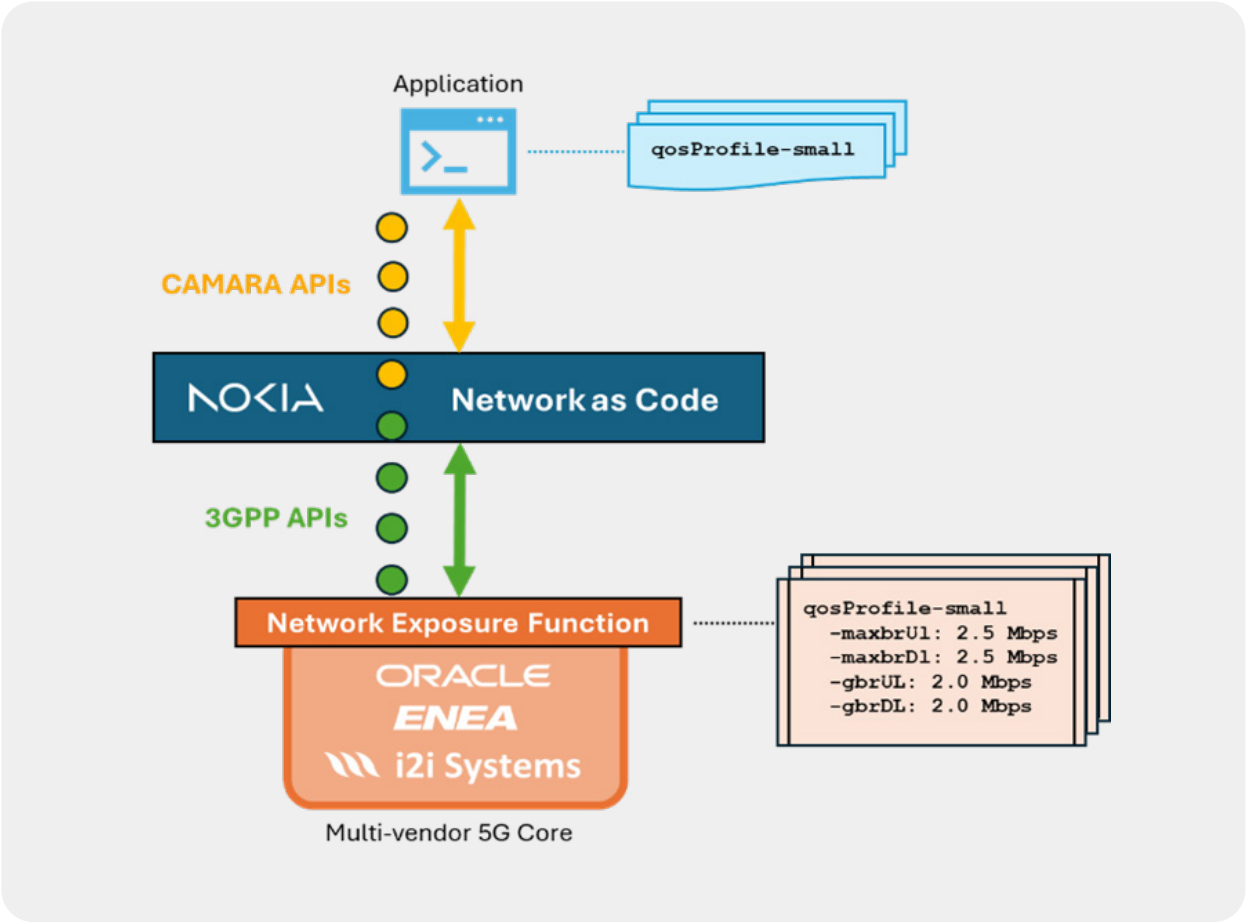
1. Autonomous 5G for an island community: At Svalbard, an archipelago in the Arctic Ocean, a private 5G network was deployed with two 5G cores for high resilience: the main core on the cloud and an on-premises failover core.
2. Support of edge intelligence and drone cells: A portable 5G network with extendable coverage through a tethered drone offered support for AI-driven object detection at a disaster site.
3. Mission-critical applications: A mobile 5G network on wheels was driven to an emergency site, enabling mission-critical services for first responders.
4. Network exposure for forestry applications: With real-time monitoring, a mission-critical application can be given priority on demand over a surveillance application in an emergency.
5. Industry 4.0 robotics: In cooperation with the University of Oslo, this use case demonstrated how customers requiring low latency used an automatically created network slice instance to a local breakout edge to assure flawless control of a robotics arm.



Use case example

For the network exposure for forestry applications use case, a network slice was created to support two concurrent applications. The first one used Nokia's Real-time Extended Reality Multimedia (RXRM) solution which guarantees video quality even in situations with bandwidth constraints. The second application provided mission critical communication, specifically high-priority video conferencing for emergency health diagnostics. In case the mission-critical application experience was jeopardized, Nokia's Network as Code Quality of Demand (QoD) API was used to downgrade the RXRM app via the network exposure function (NEF), thereby ensuring an adequate experience for users of both applications.

QoD enables vertical applications to directly interact with the network to dynamically change bit rates allocated to a device via the NEF, or the 3GPP-based NEF API is abstracted by Network as Code into high-level CAMARA-based APIs for a more simplified experience for the application developer as shown in the diagram below.



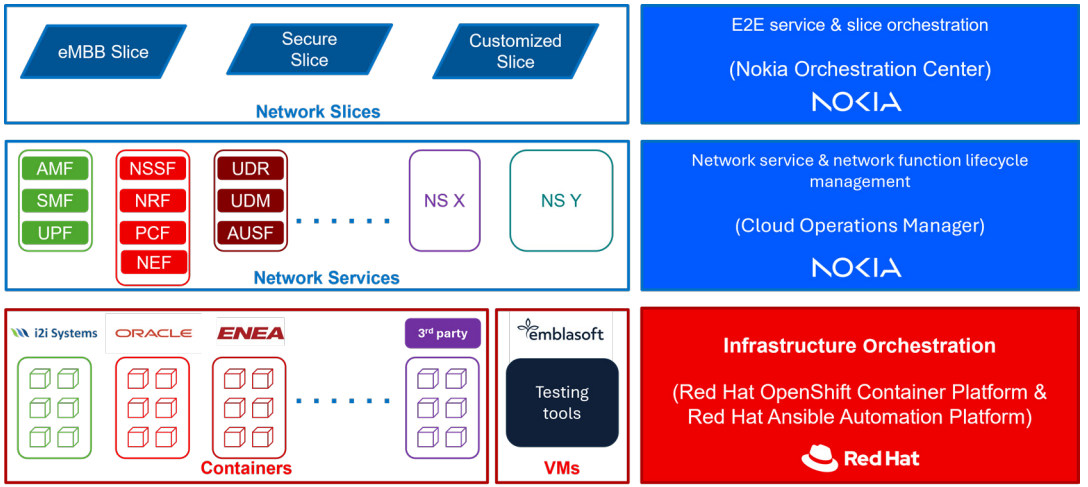
The solution

For this project, Nokia Orchestration Center manages the end-to-end 5G service orchestration across the solutions from the various partners. In addition, the process to gather requirements has been simplified. In the customer portal, an LLM-powered chatbot assistant captures the customer requirements (i.e., the intent) in natural language and translates them into an intent-based order towards the Orchestration Center using the TMF921 Intent Management API. Orchestration Center then leverages an LLM to translate the intent order to a technical order, specifying the technical parameters to create the required 5G network for a specific use-case.

Customer intent and requirements are extracted from the AI conversation, such as “mission-critical 5G” for an emergency network or “exposable 5G” for advanced capabilities such as quality-on-demand (QoD). Once the intent is confirmed with an order, the required API calls are automatically sent to the relevant 5G systems for service activation, including equipment reservation for portable solutions. For slice-based deployments, Orchestration Center triggers the relevant workflows for automated deployment of tailored slice configurations, user provisioning and service activation.

Orchestration Center operates on any cloud and across all network domains. When combined with assurance, it supports closed-loop automation and other capabilities required to achieve autonomous operations – the ultimate objective for Telenor and many communication service providers around the world.

In addition, the project leverages Nokia Cloud Operations Manager which automates the lifecycle of network services including VNFs, CNFs, and virtualized network resources.



The diagram above shows how Orchestration Center and Cloud Operations Manager create the required slices in a full multi-vendor environment.

The benefits

- Allowing enterprises and public institutions to leverage the full potential of 5G by hiding the technical complexity with AI and automation.
- Accelerating innovation for any type of 5G service by breaking down technology barriers.
- Enhancing end-user experiences by easily adapting based on customer intent, leveraging features such as quality on demand, real-time support, mission-critical services, edge intelligence, tethered drone cells and on-premises failovers.
- Driving monetization efforts by enabling programmable network capabilities.

Learn more about Nokia's solutions

Automate and accelerate network services

Nokia Orchestration Center

Expose and monetize network capabilities

Nokia Network as Code

Simplify and scale cloud network operations

Nokia Cloud Operations Manager

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At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs, which is celebrating 100 years of innovation.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.