



Core network automation in a 5G world

Nokia 5G core takes a web-scale, cloud-native
approach to network automation

Executive Brief

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Nokia is committed to leading the industry in automation

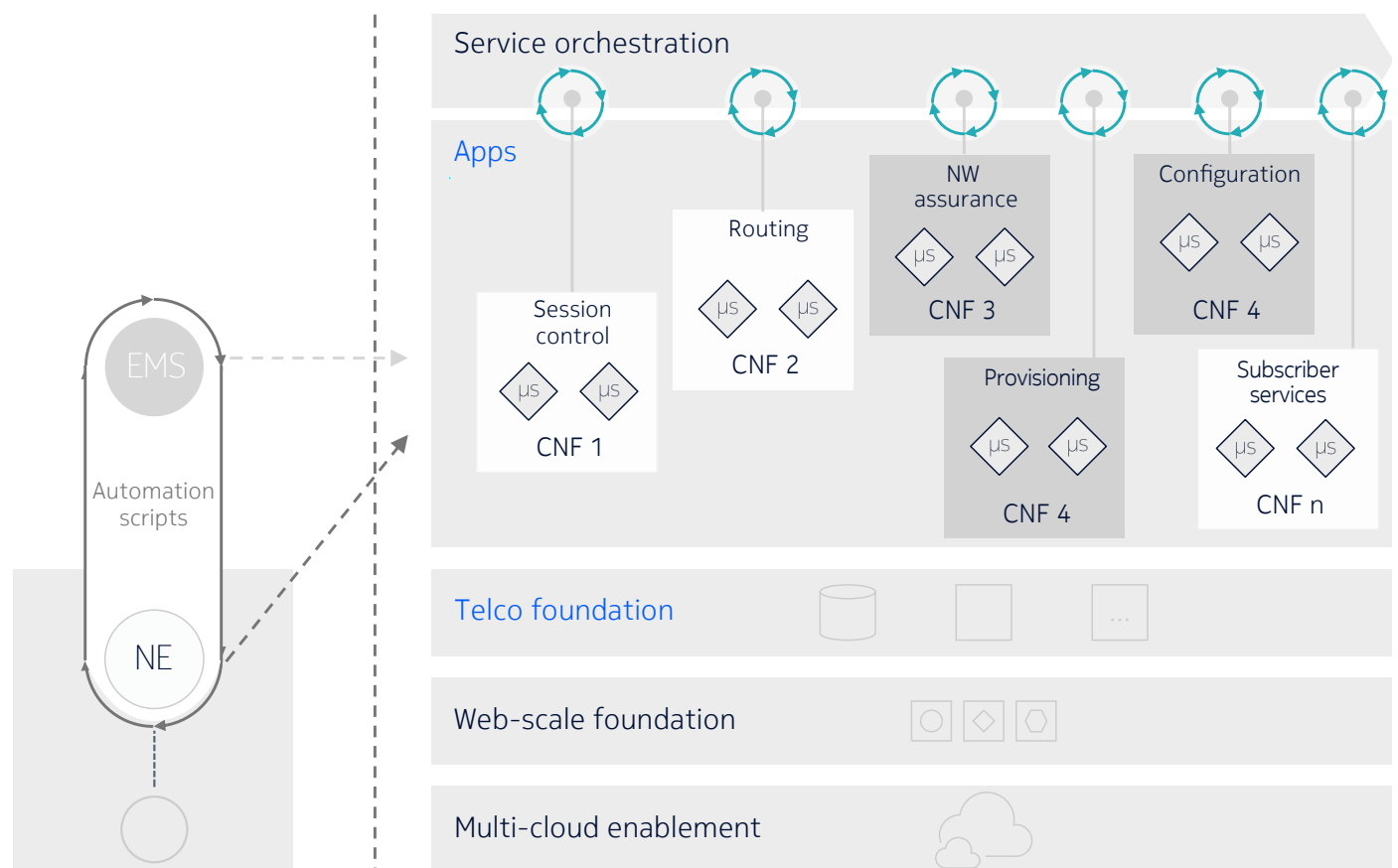
5G presents many opportunities that cannot be achieved without extensive network automation. Going beyond what Communications Service Providers (CSPs) have achieved to date requires the industry to adopt the web-scale cloud approach to software architecture and deployment. This is the next big technology change facing CSPs.

Accordingly, Nokia has invested in redesigning its network products, including its own 4G and 5G core, to create robust network functions that unlock the full potential of 5G through network automation.

The paradigm shift to web-scale automation

CSPs can only achieve the benefits of web-scale automation by fully adopting web-scale practices. Telecom applications must be designed from scratch to use the automation protocols already present in the web-scale cloud environment. This is a major paradigm shift for the telecom industry.

Figure 1. The paradigm shift from a telco approach to a web-scale approach



The key change is a reversal of the traditional design flow for network functions. Instead of designing the function first and then layering on an Element Management System (EMS) followed by automating the interaction between the two, the web-scale approach presumes the existence of an operations and automation framework **before the application is even written**.

In web-scale cloud software, automation is built in from the start and the business logic assumes an existing operations flow. This necessitates vendors and CSPs to fundamentally change the way telecom network functions are designed.

Nokia redesigned its core portfolio to cloud-native

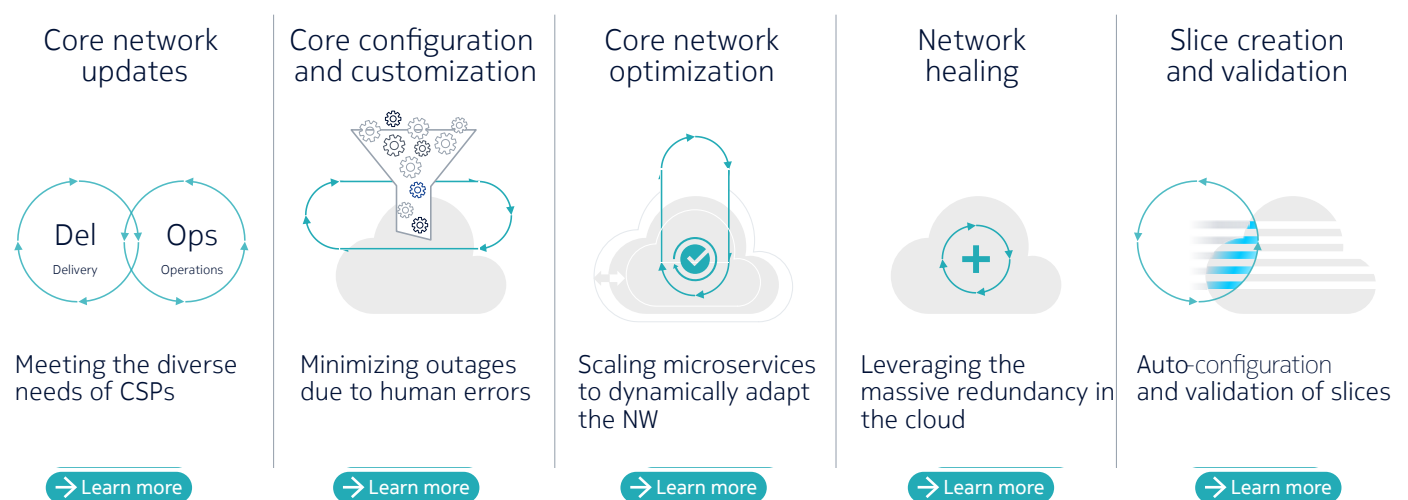
Based on this realization, Nokia several years ago invested heavily to redesign all its network functions for a web-scale cloud-native environment. Nokia had already created Virtual Network Functions (VNFs) for ETSI NFV MANO but went further to decompose functions fully down to stateless, dataless microservices encapsulated into Cloud-native Network Functions (CNFs). These expose the APIs necessary to operate natively within the pre-existing operations and automation environment of a web-scale cloud platform.

This was a major transformation of software design and delivery processes that has already produced benefits for Nokia's CSP customers, some of whom have also accomplished the full paradigm shift and are deploying Nokia CNFs on public cloud infrastructure.

Five compelling core automation use cases

Nokia has identified five important automation use cases for CSPs as shown in figure 2. Each depends on cloud-native core automation principles coupled with either CI/CD services or with operations products performing higher level functions.

Figure 2. Five essential use cases for CSPs. Click on the "Learn More" icons to see more details about each use case.





An example of Nokia cloud-native core

Nokia is already delivering cloud-native core networks to forward-looking CSPs that have adopted a web-scale cloud approach. A good example is the Nokia partnership with Dish, announced in a June 2021 [press release](#) and a September 2020 [press release](#). DISH is building a fully cloud-native 5G core network, with the primary objective of achieving closed-loop automation.

Explore more about Nokia core automation

To find out more about Nokia 5G Core Network Automation, please visit our [automation web site](#) which offers detailed information, videos, webinars and other helpful content.

About Nokia

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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.

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.

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Nokia OYJ
Karakaari 7
02610 Espoo
Finland
Tel. +358 (0) 10 44 88 000

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