

NOKIA



Be a customer experience superstar with automated network self-optimization

Use case

With the introduction of 5G, demands on Communications Service Provider (CSP) networks are increasing rapidly. Demand is also becoming more unpredictable as subscribers routinely use and then drop highly sophisticated, data-hungry applications. CSP networks must be able to adapt instantly to changing user needs to maintain winning customer experiences.

Challenge

CSP network functions are moving away from dedicated physical hardware towards cloud-based software. Cloud and web scale technologies have the major advantage of separating the processing functions from the underlying hardware - allowing loads to be dynamically added, subtracted, and even moved between different data centers.

This gives CSPs the potential to reconfigure their networks to react to changing traffic loads, so they are always using resources efficiently. In the race to attract subscribers to its network, this is a powerful way for a CSP to deliver a superior customer experience.

Yet, if this process were performed using conventional manual techniques, it could still take days, weeks, or even months to alter the network to deal with changed demand.

Core network automation enables CSPs to take advantage of the benefits of cloud scalability and flexibility. Adopting such technologies will enable networks to identify optimization opportunities and self-adjust to ensure capacity is always available at the right time.

Network Functions Virtualization (NFV) provides part of the flexibility needed, but to fully achieve these capabilities, CSPs will need to embrace web scale systems and processes, including containerized software built from stateless, dataless microservices. This means developing a strong data center approach to networks, using 5G software designed for web scale deployment.

Another essential requirement is to establish an automation framework to monitor network operations and integrate them with the lifecycles of constituent microservices. Then, based on the CSP's resource utilization plan, the network can adapt dynamically to the offered load by adding or removing containers, and in more extreme circumstances, extending operations temporarily into the public cloud.

Solution

Nokia core products are designed from the ground up to support automation and offer superior flexibility – deployable as traditional Physical Network Functions (PNFs), Virtual Network Functions (VNFs) in an ETSI NFV MANO context, or as Cloud-native Network Functions (CNFs) in a web scale cloud environment. Our solutions also support a variety of infrastructure approaches including private cloud, public cloud, or even CNFs on bare metal.

Web scale deployment realizes the maximum opportunity for network self-optimization – if a CSP experiences exceptionally high traffic or a network disruption, the network adapts to suit, increasing its capacity by running additional CNFs. When the situation returns to normal, the capacity is released back to the infrastructure for other uses. This scaling can be done regionally to take into account local events that might be affecting network needs.



Nokia's approach is to expose APIs from the containerized microservices, thereby closing the gap between operational automation systems and Kubernetes-based container life cycle management. This allows CSPs to create closed-loop automation systems that run the network at the right size, with no over- or under-dimensioning. It further enables true elastic network scalability in real-time.

Benefit

The Nokia SBC not only secures the network, it also offers a wide variety of capabilities that help you optimize your operations at multiple levels:

- **Customer satisfaction and trust** – automation ensures the network is optimized in real time to always deliver the best customer experience.
- **Reduced network investment** – continuous adjustment of network resources provides exactly what is needed for each service in each region, with no need to overprovision capacity.
- **Enhanced service opportunities** – efficient and optimized use of network resources allows additional service offers using the same infrastructure.

Result

Delivering a great customer experience is one of the most important targets for CSPs. Ensuring the network always has the capacity to serve customer needs is essential to this aim.

With automation, the network continuously monitors its own condition, scaling itself to meet the current need. Seeing only good service, customers develop more trust in their provider, building a better brand for the CSP. The network is used more efficiently, allowing spare capacity to be used for other, new services.

Learn more about how [Nokia 5G Core solutions](#), designed for [automation](#), can help you innovate, execute and pivot to new opportunities.

About Nokia

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.

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.

Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

© 2023 Nokia

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

Document code: CID210461 (July)