NOKIA

5G network analytics help CSPs create new sources of revenue

Nokia AVA NWDAF

Executive Summary

Unlock the value of network data

Data is a strategic asset for CSPs in meeting business priorities and achieving digital transformation. Nokia AVA Network Data Analytics Function (NWDAF) uses Artificial Intelligence (AI) to unlock the value of that data.

Data analytics improves customer experiences and helps CSPs use their 5G investments to create new sources of revenue. It also enables more predictive and proactive network operations.

Data analytics is a crucial capability

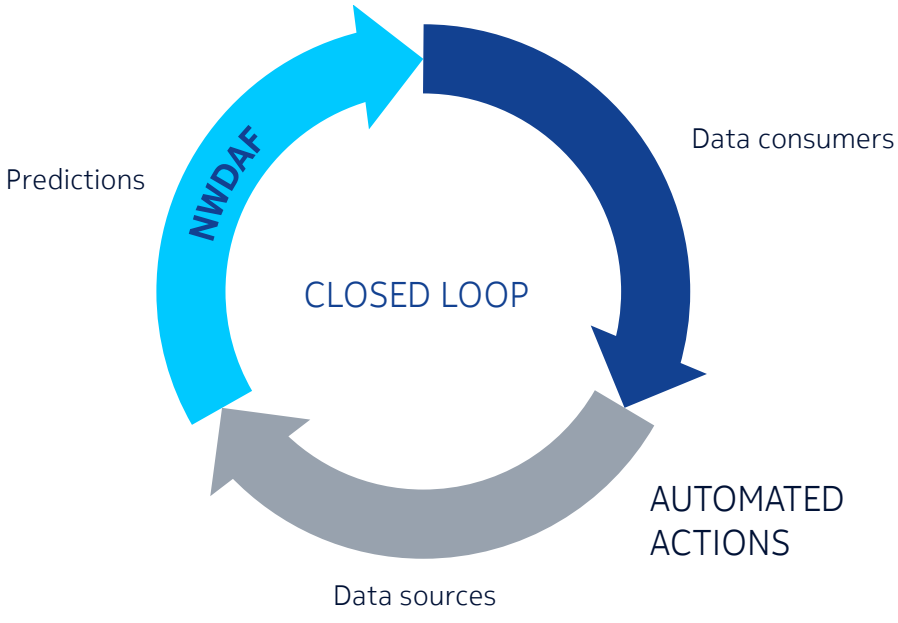
AVA NWDAF collects data from 5G Core network functions, performs analytics and provides insights with closed loop automation to authorized data consumers, including external partners through open APIs, helping to generate greater innovation and unlock new value. The NWDAF defines how data is saved and accessed and includes support for analytics models applied to operational processes, charging data analysis and data monetization opportunities.

AVA NWDAF complies with 3GPP specifications for the 5G Standalone Core, which standardize data use and analytics models to support product and service development. Its standardized approach to collect, analyze and expose data allows CSPs to manage, automate and optimize their 5G network operations much more efficiently.

Nokia AVA NWDAF is a cloud-native, multi-vendor and probeless solution that simplifies the collection and analysis of data from networks and services.

It is part of the Nokia AVA analytics and AI product offering, leveraging software-as-a-service (SaaS) delivery and consumption models to quickly deploy new applications in an agile manner.

Nokia AVA NWDAF collects and analyzes data to provide valuable insights



Data is a strategic asset for CSPs

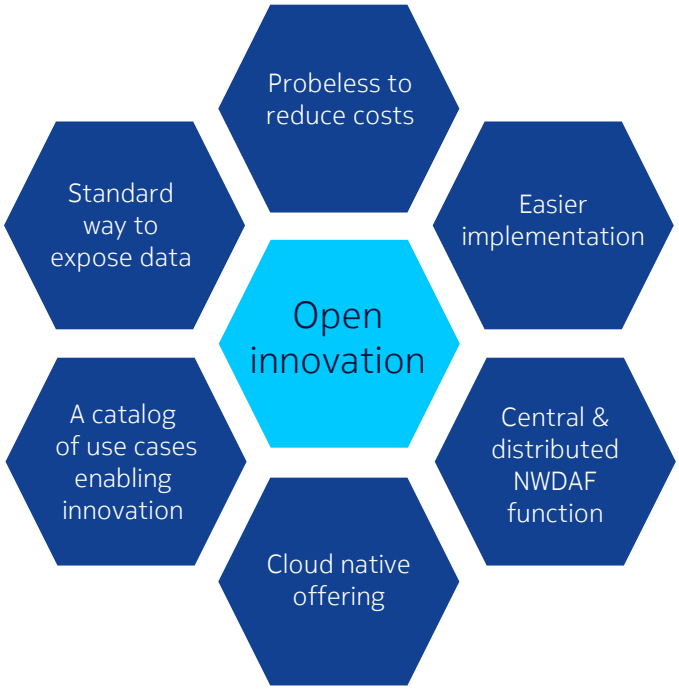
Monetizing data has long been a goal for many CSPs.

With 5G connecting billions of sensors and devices, the volume of data generated across networks is set to explode. This creates superb opportunities for CSPs to use their insights 5G network analytics to generate revenue.

In the enterprise domain, promising use cases range from autonomous vehicles and robots to 5G drones, while cloud gaming will create consumer demand for low and consistent latency for an enjoyable user experience. Using open Application Programming Interfaces (APIs), CSPs can share NWDAF insights with an ecosystem of partners and jointly create valuable propositions for specific use cases or vertical sectors.

CSPs could also combine NWDAF outputs with other internal data sources – such as subscriber demographics or mobility data.

How Nokia AVA NWDAF offers an effective way for CSPs to monetize their 5G network data



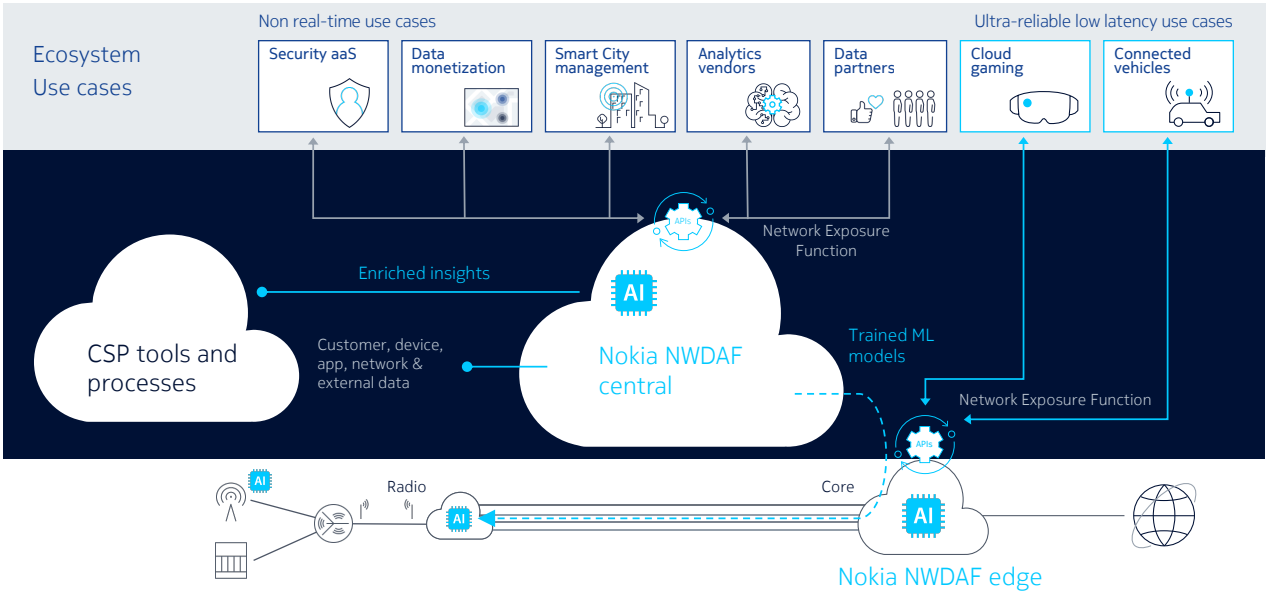
Early preparation for the best revenue opportunities

The opportunity to use network data analytics to grow revenue needs to be seized without delay. CSPs can start by mapping out the wide range of consumer and enterprise use cases that they could support with network analytics, in addition to internal use cases.

Another action is to ensure that analytics can be consumed at the network edge. Many of 5G's most exciting capabilities involve very low latency use cases at the edge. Furthermore, as networks become cloud native, an open analytics engine that spans private and public clouds will be needed.

CSPs will need capabilities to charge for the external consumption of analytics, whether as a subscription service, charging per API call, or as a share of revenue generated by partners. A monetization platform that allows rules to be defined easily will enable CSPs to collect revenues promptly.

Nokia AVA NWDAF distributed architecture with both Edge and Central instances makes analytics available where needed and supports ultra-low latency use cases with near-real-time insights



The Nokia architecture includes an edge NWDAF co-located with Core Network Functions (NFs) and a central NWDAF. The edge NWDAF serves low/ultra-low latency use cases while the central NWDAF serves use cases which do not have real-time requirements and includes functions such as the data and Machine Learning (ML) models repository for the continuous training of AI/ML models. The collaborative approach enabled by AVA NWDAF supports the joint development of ML models and enables flexible deployment of different services across multiple locations.

This distributed architecture enables CSPs to provide real-time analytics at the network edge to optimize the user experience for ultra-low latency use cases, thus creating new revenue possibilities with partners and customers. The architecture also helps to boost CSP productivity by providing insights directly from the NWDAF, as well as indirectly by feeding insights to CSP tools and processes. AVA NWDAF enables CSPs to move towards 'AIOps' (operations driven by artificial intelligence).

Insights about current or predicted Quality of Experience (QoE) could also be fed into service assurance or slice design processes, as supported by Nokia Assurance Center and Nokia Orchestration Center.

Nokia AVA NWDAF Security and Data Privacy includes strict user and application access authorization to the data as well as data anonymization.

Nokia AVA NWDAF can run on the same edge platform as other CNFs (Cloud native Network Functions) and interwork with the Nokia Service Enablement Platform (SEP) including the near-real time RAN Intelligent Controller (RIC).

Use-case driven Nokia AVA NWDAF enables a wide range of use cases created jointly with customers and partners

Supporting a variety of 5G use cases

3GPP standardized analytics services address different use case groups according to the intended data consumer, such as device-related analytics, service experience analytics and load and performance analytics. Nokia AVA NWDAF offers a catalog of use cases for easy deployment.

Network performance and reliability are critical in a variety of 5G use cases. NWDAF supports the various 5G use cases by enabling CSPs to offer predictive insights to their partners.

Autonomous vehicles, delivery robots and 5G drones are prominent examples of use cases needing predictive QoE. The automotive industry is developing connected, cooperative and automated driving applications that rely on network support for connectivity with a specific QoE.

Cloud gaming requires low and consistent latency to ensure an enjoyable and fair user experience. CSPs can share real-time network performance predictions, so the gaming experience can be managed consistently across networks. This creates opportunities such as a value-added service to cloud gaming companies, or to individual gamers as part of a gaming-themed 5G plan.

Drones for public safety or other uses rely on 5G connectivity and low latency not just to livestream video, but also to calculate drone position, provide situational awareness, avoid collisions and receive instructions from a remote operator. Real time and predictive insight into network performance will be essential to ensure the drone can operate safely and as expected.

"5G creates opportunities for CSPs to deliver advanced services to customers beyond connectivity and a SaaS based NWDAF solution will be an important component in facilitating the creation of these new revenue generation opportunities. The Nokia AVA NWDAF can be delivered as a service and has a distributed architecture to make analytics available where needed, to meet varying latency requirements for new customer service offerings".

Adaora Okeleke, Principal Analyst, Data, AI and Development Tools, Cloud and Platform Services, Analysys Mason

An ecosystem of partners will be key

Open APIs play a key role in exposing NWDAF insights to an ecosystem of partners, who can then use them in innovative services for specific use cases or vertical sectors.

For example, in case of the 5G drones and remotely controlled/autonomous delivery robots, a CSP could work with providers of other data-driven services to create a bundle of forecasts which would as an integrated suite provide a high degree of situational awareness for the drones, robots and their operators.

Instead of selling network insights as individual services, CSPs can work with a range of partners to create broader platforms and communities. Insights then become part of a wider set of services that address specific business issues and create higher value.

Start thinking about 5G analytics monetization today

CSPs are well placed to capitalize on the market potential of the vast volume of data in 5G networks. Thinking about the monetization opportunities today and starting to build relevant partnerships, will put CSPs in a good position to become more than just connectivity providers in the emerging hyperconnected era.

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