Overcome 5G complexity to deliver the extraordinary:
AI-as-a-Service with Nokia AVA
Along with abundant opportunities, 5G brings unprecedented diversity and complexity to communications service provider (CSP) networks. By embracing data analytics and artificial intelligence (AI), CSPs can effectively manage hybrid configurations of 5G and legacy mobile technologies while ensuring the highest levels of quality and reliability.

Nokia’s AI-as-a-Service helps CSPs cut through complexity with scalable and flexible solutions that automate network operations, enhance performance and enrich the customer experience.
Telco networks have always been complex, but the surge in data volumes and new technologies brought by 5G and the Internet of Things (IoT) will take that to a whole new level. Some estimates say 5G networks will have 10 times the sites and spectra of previous-generation networks, producing a “telco tiramisu” — layers upon layers of new and legacy systems.

Getting a handle on complexity will be key to squeezing the most out of your 5G investments. The simple solution would be to throw more people at the problem, but with 5G the sheer volume of variables will be more than human engineers can manage — and many CSPs are already cost-constrained, so adding headcount is not an option.

CSPs recognize that automation and analytics powered by artificial intelligence (AI) and machine learning (ML) are going to be essential to manage 5G complexity (for example, by increasing network programmability) and to deliver a better quality of experience to customers. Yet many have struggled to implement those kinds of solutions. In one recent survey, 56% of CSPs reported data quality issues and 55% said they lack the in-house skills to use their data in the best possible way. The result: long development cycles and AI/ML applications that don’t easily scale or integrate into operations. CSPs said 80% of their AI/ML proof-of-concept projects failed to reach live deployments.

To capitalize on the 5G opportunity, you need a way to quickly develop, test and operationalize AI/ML applications. Nokia AVA (Analytics, Virtualization, Automation) makes that possible with a flexible, cloud-based AI-as-a-Service partner ecosystem and virtually unlimited scalability.
Intelligent insights to automate and enhance the network
A powerful AI/ML ecosystem built on data science, telco and cloud expertise

Nokia AVA AI-as-a-Service provides full lifecycle management of AI/ML solutions. Combining Nokia’s deep telco knowledge and data science capabilities with leading cloud expertise, it gives you access to a rich library of telco-specific AI/ML models that have been proven in live networks — covering a wide range of use cases, such as automating network operations and service assurance. And it provides access to a broader ecosystem of more than 75 partners with expertise in data science, analytics and cloud technologies to give help you and take advantage of the very latest innovations in ways tailored to your business.

You can also collaborate with Nokia experts to co-create custom AI/ML-driven solutions for your unique business needs. Cloud-enabled distributed development and rapid prototyping make it easy to deploy and start getting results from your pilot projects within weeks. Open APIs and decoupled container/microservices-based architecture mean the solutions you create will integrate easily with many third-party offerings, including most big data environments.

**AI tailored to your needs**

With Nokia AVA, AI and ML are customized according to your specific business goals and networking needs. Because Nokia AVA is cloud-native it can be scaled to meet virtually any practical requirement, capable of storing and analyzing more than 100 billion data points a day.

Solutions are typically deployed through our Microsoft Azure cloud but can also support your own Azure subscription or be adapted for other public cloud platforms. No matter which path you choose, Nokia AVA’s consumption-based commercial models minimize the need for upfront capital investments and draw a direct line between what you invest and the outcomes you achieve.
A complete AI-as-a-Service ecosystem

Collaboration Hubs
Our cross-functional data science and engineering teams come together in these physical facilities to co-create custom AI/ML solutions and use cases with CSPs and enterprises.

Telco expertise
With Nokia AVA, you gain access to the collective expertise of more than 20,000 telco services engineers. Our team is ranked #1 in the world for network performance optimization, bringing much-needed telco know-how to developing, securing and scaling up AI/ML proof-of-concept projects.

DevOps
An agile, cooperative approach to development — combining PaaS with Nokia DevOps methodology and culture — means AI/ML solutions get into production faster.

AI and analytics
The Nokia Bell Labs algorithms and granular data insights behind Nokia AVA use cases make it easier to develop, deploy and operationalize AI/ML solutions.

PaaS excellence
Microsoft Azure gives you rich, best-in-class capabilities for data processing, AI, security, backup and disaster recovery. Its common Platform-as-a-Service (PaaS) layer also makes it easier to enrich your AI/ML solutions by engaging and integrating with a variety of third-party solutions.

IaaS flexibility
Nokia AVA’s Infrastructure-as-a-Service (IaaS) approach offers flexible and secure deployment options — Microsoft Azure, other public clouds or on-premises — with the ability to ramp up or down compute, storage and connectivity resources as required.
Injecting intelligence into network operations

The cloud-based platform at the heart of the Nokia AVA AI-as-a-Service ecosystem combines big data storage, intelligent analytics and extreme automation to simplify data ingestion, fast-track AI/ML solution development and deployment, and assure quality.

Nokia’s Data Hub provides an open framework for automating the collection and storage of vast amounts of data from various sources in your networks. It can integrate with any data ecosystem or application — resulting in up to 70% faster cloud-based IaaS and PaaS data ingestion. Beyond taking in vast quantities of data, Nokia AVA AI-as-a-Service also curates the data to suit the various machine learning use cases — making it usable and intelligible to optimize results and speed up implementation. Multiple use cases and code-less, graphical tools enable extensive data exploration and model prototyping for fast AI/ML solution development, with new instances deployed in the cloud and results from a pilot delivered in less than six weeks. Some of the use cases co-created with CSPs in the Nokia Collaboration Hubs have included:

- Anomaly pattern recognition
- Quality of Experience optimization for video streaming apps
- Improving the spectral efficiency of mobile networks
- VoLTE key quality indicator degradation detection
- Smarter customer care (e.g., reduced complaint processing time)

AI/ML use cases are tested, deployed and operationalized at scale through the cloud-based IaaS and PaaS, with full-stack assurance and security provided by public cloud and Nokia Global Service Delivery Center monitoring tools to keep your solutions running smoothly at all times. You can easily track the status and progress of your AI/ML deployments — and also access other actionable insights — through an intelligent, interactive digital dashboard.
Automation and analytics to give you the 5G advantage

Providing full lifecycle management for AI/ML development, deployment and execution, the Nokia AVA AI-as-a-Service ecosystem can help you transform your operations, improve network performance, differentiate your subscriber experience and create new revenues by unlocking the value of your network-related data.

**Transform operations**
By automating manual processes and augmenting human intelligence with AI/ML-driven insights, you can increase your operational efficiency and move to a more customer-centric operating model.

**Balance CAPEX and performance**
Real-time insights can help you increase network programmability and improve network quality without adding new hardware by using existing resources more efficiently and forecasting capacity with greater accuracy.

**Differentiate the customer experience**
With AI/ML, you can uncover hidden patterns in device and app usage to enhance and personalize the customer experience, ultimately reducing churn and increasing average revenue per user.

[Learn more]
About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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