COMPANY PROFILE

NOKIA: SMART PLAN SUITE

JOHN ABRAHAM
Company summary

Nokia Networks is a global provider of mobile telecoms equipment, software and related services. Its portfolio of offerings span fixed and mobile broadband and IP/optical networking; software solutions (OSS, BSS, SDP, cloud, analytics, security and IoT); professional services; and consumer technology products for communications service providers (CSPs), governments, large enterprises and consumers.

This profile is focused on Nokia’s Smart Plan Suite (SPS). Nokia re-entered the BSS space with the acquisition of Alcatel-Lucent in 2015. Since then, Nokia has acquired Comptel, which is a BSS and OSS vendor, further building up its BSS portfolio. Globally, Nokia has over 200 CSP customers using products from its monetisation portfolio and supporting over 1 billion users.

Since the Alcatel-Lucent acquisition, Nokia has prioritised the consolidation of its BSS offerings and building a stable standalone software business unit that can support CSPs’ end-to-end requirements. The SPS suite is a new product at the heart of Nokia’s streamlined BSS portfolio, which includes offerings from its different acquisitions. Nokia SPS is cloud-native compliant and 5G ready and designed to support DevOps and continuous delivery principles.

Figure 1: Nokia company facts

<table>
<thead>
<tr>
<th>Founded</th>
<th>1865</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>HQ in Espoo, Finland with offices in 120 countries</td>
</tr>
<tr>
<td>Employees</td>
<td>101 000 (2016)</td>
</tr>
<tr>
<td>Regional focus</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Revenue</td>
<td>Overall - USD26.4 billion (2016)</td>
</tr>
<tr>
<td>Key Nokia customers</td>
<td>BSkyB, Telefonica, Liberty Global, Telus, Oi, Portugal Telecom, Vodafone, Televisa, TotalPlay, Singtel, Windstream, TalkTalk, Time Warner Cable (Charter Communications), du, CenturyLink and Swisscom</td>
</tr>
<tr>
<td>Key Nokia BSS customers</td>
<td>Over 200 CSP customers including BSNL India, China Mobile, China Unicom, Etisalat, M1, NTT Docomo, Ooredoo, Orange, Telefonica, Telus, Three, Vodafone</td>
</tr>
<tr>
<td>Nokia BSS Partnerships</td>
<td>Capana, Cerillion, salesforce.com, 6d Technologies</td>
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</tbody>
</table>
Strategic direction

Since spinning off its BSS portfolio to Redknee in 2012, Nokia made a grand return to BSS through the acquisition of Alcatel-Lucent in 2015 for USD 17.6 billion. The approach since then has been to build a standalone software portfolio that can address CSPs’ end-to-end business needs.

With SPS, Nokia has consolidated and streamlined its multiple BSS offerings, especially in charging and policy management. The older solutions will continue to be supported for existing customers for the next few years, although these will not be sold anymore. Nokia SPS provides policy, charging and customer engagement functionality, building on the legacy of Alcatel-Lucent’s SurePay, Dynamic Services Controller and Smart Plan Builder products, as well as Comptel’s Monetizer.

SPS is complemented by Comptel’s Data Refinery (Mediation) and Fastermind (Analytics), as well as Nokia’s own cognitive analytics suite that enables continuously optimising self-learning software systems. For billing and partner management capabilities, Nokia continues to partner with other smaller vendors.

The Nokia SPS has been built from the ground up to be cloud-native compliant. The architecture incorporates Nokia’s common software foundation framework and is compliant with the ETSI network function virtualisation (NFV) architectural framework. Nokia is offering all current customers a clearly defined upgrade path to the new suite.
Nokia’s monetisation portfolio highlights

Nokia’s monetisation portfolio includes the following components:

**Nokia Smart Plan Suite** is Nokia’s real-time rating, charging, policy control and customer engagement platform. The integrated suite (which will also be sold as separate modules) is cloud-native compliant and capable of supporting 5G and IoT use cases. Contextual customer engagement was a key focus in the development of this suite.

**Nokia digital sales channel.** Formerly known as Comptel FWD – this offers a white-labelled, SaaS-based solution with an app interface for selling mobile data in time-based increments. It can be rapidly deployed within CSP environments (in up to 2–3 months).

**Nokia Fastermind.** Formerly known as Comptel Fastermind, it leverages machine learning to offer extensive real-time analytical insights and actioning capabilities that can drive better marketing RoI and higher revenue.

**Nokia Cognitive Analytics Suite** is a self-learning software platform with embedded artificial intelligence. The primary focus of this suite is improving customer experience through real-time customer insights and recommendations. It also includes the Nokia Cognitive Analytics for tracking crowd movement patterns.

**Nokia Data Refinery.** Formerly known as Comptel Data Refinery - is a convergent mediation system that is currently deployed by 90 CSPs. It offers over 1000 off-the interfaces for rapid deployment.

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Monetization related portfolio elements

- Smart Plan Suite – NFW
  - Policy, Charging and Customer Engagement
  - FWD
  - Digital Sales Channel
  - Fastermind
  - Intelligent Action Engine
  - Cognitive Analytics Suite
    - Analytics for Crowd and Customer Insight
  - Data Refinery
    - mediation
  - BSS and CRM partners
    - Capana, Cerillion, SalesForce.com, 6d Technologies
Overview of Nokia’s Smart Plan Suite (SPS)

Figure 6: SPS solution overview
Nokia to focus on five key pillars to differentiate the SPS suite from competitive offerings

As part of its stated desire to become an end-to-end software provider for CSPs, Nokia is firmly invested in the SPS portfolio and its ongoing evolution. Nokia is focused on five key pillars that it believes sets apart the SPS from competition.

- **Architecture.** The portfolio is cloud-native compliant and offers support for a DevOps-led operations and Continuous Integration and Continuous Delivery (CI/CD) best practices.

- **Customer engagement.** Nokia SPS prioritises improved customer digital experience by offering an omnichannel experience across a broader set of channels and personalisation, supported by artificial intelligence-enabled segmentation and targeting.

- **New revenue streams.** The solution has a set of standardised APIs for third-party interconnections through its digital partner gateway, allowing CSPs to participate in emerging digital economy use cases through partners.

- **5G readiness.** The SPS offers support for 5G-specific requirements such as natively being able to handle XML/HTML loads, support for emerging use cases such as network slicing and mobile edge computing that require ultra-low latency.

- **Professional services.** Nokia is leaning into its broader capabilities – providing services by offering CSPs vendor-agnostic professional services support.
Embracing cloud-native architecture is a central part of Nokia’s software strategy for the future

The Nokia SPS has incorporated the principles of cloud-native architecture in its framework and offers support for dual-speed architecture models, which allows legacy frameworks to work alongside modern cloud-based systems. The company, which had its first cloud-native deployment 2 years ago, has also redesigned its design, development and delivery process to support cloud-native deployment principles such as devops and CI/CD.

In the initial phase, the customer experience modules were decomposed into microservices that could run independently within containers. Business critical real-time functions such as policy and charging will be refactored for cloud native architecture in the future.

Nokia’s cloud-native solution is built on Docker and Kubernetes, which has become the de-facto industry standard for container engine and container orchestration respectively. All containerised applications in the SPS share a common data layer that allows data persistence even through fail-overs. The SPS supports horizontal scaling for all its platform components and offers support for a standardised set of APIs. This enables seamless interconnections to external systems in addition to solutions from Nokia stable such as the CloudBand portfolio for NFV deployments. The new SPS solution also supports OpenStack and VMware lifecycles.
## Key acquisitions and mergers

Figure 9: Nokia’s key acquisitions and mergers (related to the BSS segment), 2015–2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2017</td>
<td>Comptel</td>
<td>In February 2017, Nokia announced the acquisition of Comptel, a Finland based provider of BSS and OSS software solutions for USD370 million. The acquisition closed in June 2017. The Comptel acquisition offered Nokia access to a vendor with a strong portfolio of BSS and OSS solutions especially around service orchestration and data management. The acquisition also gave Nokia access to new customers - Comptel's customer base of 300 CSPs includes operators across all tiers, predominantly in EMEA and APAC regions.</td>
</tr>
<tr>
<td>April 2015</td>
<td>Alcatel-Lucent</td>
<td>In April 2015, Nokia announced the acquisition of Alcatel-Lucent for approximately USD16.6 billion. The acquisition bolsters Nokia’s portfolio and will enable it to offer a complete end-to-end portfolio of products and services. Alcatel-Lucent also extends Nokia’s reach to markets such as Europe, China, North America as well as Latin America and Middle East where Nokia roughly doubled in size.</td>
</tr>
</tbody>
</table>
# Product summary

Figure 10: Nokia’s monetisation products

<table>
<thead>
<tr>
<th>Product</th>
<th>Analysys Mason segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nokia Smart Plan Suite</td>
<td>Monetisation Platforms, Customer Engagement</td>
<td>The Nokia Smart Plan Suite (SPS) provides policy control, online rating and charging and customer engagement functions. It enables new monetization opportunities for digital service providers and a better experience for their customers.</td>
</tr>
<tr>
<td>Nokia digital sales channel (formerly Comptel FWD)</td>
<td>Customer Engagement, Monetisation Platforms</td>
<td>The Nokia digital sales channel (formerly Comptel FWD) is optimized to sell and market mobile data by actively marketing products at the right place and time. It promotes and activates them instantly. Users enjoy simple data packages that are just the right size for their needs. Service providers benefit from growing data usage, average revenue per user (ARPU) and total revenues.</td>
</tr>
<tr>
<td>Nokia Fastermind (formerly Comptel Fastermind)</td>
<td>Analytics</td>
<td>Nokia Fastermind brings artificial intelligence to digital service providers. It understands data from all sources but is specifically geared to dig deep into the telco domain data and processes. By extracting value from the unique and information rich data only digital service providers have at their disposal, it allows them to discover patterns and give recommendations to engage with subscribers with the right message at the right time.</td>
</tr>
<tr>
<td>Nokia Cognitive Analytics for Customer Insights</td>
<td>Analytics, Customer engagement</td>
<td>Nokia Cognitive Analytics for Customer Insight gives service providers a complete view of customer satisfaction, revenue, and device and network performance. It helps to identify issues quickly and prioritize improvements based on their customer and business impact. And built-in analytics that use machine learning algorithms help to tune these insights to specific needs and use cases.</td>
</tr>
<tr>
<td>Nokia Cognitive Analytics for Crowd Insight</td>
<td>Analytics</td>
<td>Nokia Cognitive Analytics for Crowd Insight provides data on where people come from, how long they stay, and where they are going next. Combined with information on other socioeconomic behavior, this dynamic, real-world data brings great value to real estate, retail, transportation, finance, marketing, and travel and tourism organizations.</td>
</tr>
<tr>
<td>Nokia Data Refinery (formerly Comptel Data Refinery)</td>
<td>Monetisation Platforms</td>
<td>The Nokia Data Refinery is a convergent mediation system that is currently deployed by 90 service providers. It offers over 1000 off-the-shelf interfaces for rapid deployment. The software has the capacity to capture and process vast amounts of raw data in-stream. Additionally, Data Refinery hides all technical complexity between the network and OSS/BSS layers through a unifying processing layer.</td>
</tr>
</tbody>
</table>
## Significant customers

Figure 11: Some of Nokia’s monetisation customers

<table>
<thead>
<tr>
<th>Customer</th>
<th>Country</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vodafone</td>
<td>Europe, MEA and APAC</td>
<td>Vodafone uses Nokia’s policy, charging and customer engagement products in several countries. Nokia also continues to increase its footprint in additional Vodafone opcos.</td>
</tr>
<tr>
<td>Telia</td>
<td>Various in Europe</td>
<td>Telia is using PCRF and mediation products across multiple opcos in several countries.</td>
</tr>
<tr>
<td>Ooredoo</td>
<td>Various in MEA</td>
<td>Mediation and customer engagement products are used in several countries in the region.</td>
</tr>
<tr>
<td>Tier-1 CSP</td>
<td>USA</td>
<td>A tier-1 CSP has been using Nokia’s OCS and mediation capabilities for mobile services for several years. The same CSP has also deployed Nokia’s policy solution for its fixed network.</td>
</tr>
<tr>
<td>SaskTel</td>
<td>Canada</td>
<td>Policy, charging and mediation system deployments.</td>
</tr>
<tr>
<td>Red Compartida (ALTAN Redes)</td>
<td>Mexico</td>
<td>Policy capabilities for new mobile network.</td>
</tr>
<tr>
<td>BSNL</td>
<td>India</td>
<td>BSNL’s OCS deployment is one of the largest in the world. The company also uses Nokia’s policy and mediation solutions.</td>
</tr>
<tr>
<td>China Mobile</td>
<td>China</td>
<td>China Mobile has one of the largest deployments of Nokia’s mediation system.</td>
</tr>
<tr>
<td>APT</td>
<td>Taiwan</td>
<td>OCS and mediation solutions</td>
</tr>
<tr>
<td>2 Degrees</td>
<td>New Zealand</td>
<td>Policy, charging, customer engagement and mediation capabilities.</td>
</tr>
</tbody>
</table>
## Analysis: strengths, weaknesses, opportunities and threats

### Strengths

- Nokia has an extensive, telecom focussed portfolio of offerings across BSS, OSS and networks. The company also has a well established services division which offers CSPs vendor-agnostic professional services support.
- Nokia has a large number of CSP customers (including over 200 for BSS) which provides the company with deep channel access across all CSP types worldwide.
- Nokia already has multiple cloud native deployments in production which is a key advantage from a referencing perspective. The company has also been working with select tier-1 CSPs in deploying their cloud native systems.

### Opportunities

- Thanks to its large customer base, Nokia has a significant opportunity to upsell and cross-sell its BSS solutions especially with its OSS and network clients.
- Nokia's comprehensive portfolio, that includes professional services expertise, offers it an advantage with CSPs who prefer to work with single (or best-of-suite) vendors.
- Nokia has the opportunity to develop a strong story around telco-specific cloud-native architecture models, which has thus far been eclipsed by enterprise focussed architecture frameworks.

### Weaknesses

- Nokia does not have a billing system or partner management systems in its portfolio and has to rely on third party vendor partners. This can be a concern for some CSPs keen on a single stack.
- Nokia, like its telco focussed competitors, has limited exposure to enterprise where much of the drive and narrative for cloud native computing comes. This can be an issue for some CSPs working on cutting edge use-cases.

### Threats

- There is an increasing overlap with technologies used in the enterprise which increases the number of potential competitors if these vendors start targeting CSPs for business.
- CSPs are generally conservative and measured when it comes to large system transformations. This inclination can considerably delay the roll-out of cloud-native systems in telco environments.
About the author

John Abraham (Senior Analyst) is a senior analyst within Analysys Mason’s Telecoms Software and Networks Research team. He leads our Revenue Management programme and our research into digital experience for monetisation platforms, as part of the Digital Experience programme. John also contributes to our research into cloud-native architecture models, which is covered as part of the Software-Controlled Networking programme. John has been part of the telecoms industry since 2006, and joined Analysys Mason in early 2012. He has worked on a range of telco projects for operators in Africa, Europe, India and the Middle East. Before joining Analysys Mason, he worked for several years for a BSS vendor and before that for Dell Inc in India.
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- Mobile Devices
- Fixed Broadband Services
- Convergence Strategies
- Video Strategies

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- Network Investment Strategies
- Network Traffic
- Spectrum

Telecoms software and networks programmes
- Software Forecast and Strategy
- Telecoms Software Market Shares

Network-focused
- Next-Generation Wireless Networks
- Service Delivery Platforms
- Service Fulfillment
- Service Assurance
- Network Orchestration
- Software-Controlled Networking

Customer-focused
- Digital Experience
- Customer Care
- Revenue Management
- Analytics

Digital economy programmes
- Digital Economy Strategies
- Future Comms

Enterprise and IoT programmes
- Large Enterprise Voice and Data Connectivity
- Large Enterprise Emerging Service Opportunities
- SME Strategies
- IoT and M2M Services
- IoT Platforms and Technology

Regional markets programmes
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- Americas
- Asia-Pacific
- Middle East and Africa
- European Core Forecasts
- European Telecoms Market Matrix
- European Country Reports

DataHub
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- +2300 forecast and +250 historical metrics
- Regional results and worldwide totals
- Operator historical data
- Compare markets and operators
- Financial values in USD, EUR or local currency
- Export data to Excel and save searches

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- Margin squeeze tests
- Analysing regulatory accounts
- Regulatory economic costing
- Policy development and response
- Media regulation
- Expert legal support
- Radio spectrum management
- Net cost of universal service
- Radio spectrum auction support
- Postal sector policy: universal service obligation (USO), liberalisation, costing, pricing and regulation

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- Technical due diligence
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- Mid-market financial sponsors

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- Commercial expertise
- Technology optimisation
- New digital frontiers