Enhance the Customer Experience with Analytics-Driven Care

NOKIA
Nokia portfolio of Customer Care Analytics Solutions
Communications service providers (CSPs) are facing fierce competition as they strive to win consumer and enterprise business with their fixed and mobile services. Intense economic pressures, escalating consumer demands and increasingly complex technologies are raising the stakes, forcing CSPs to work harder than ever to attract customers and keep them happy.

Putting more focus on improving the overall customer experience helps to keep customers on board and spur long-term success. By effectively mining and analyzing the vast amounts of data that CSPs have about their network and subscribers, they can gather valuable insights about customers’ experiences, preferences and predicted behaviors.

Analytics that address customer, service, device and network data provide real-time business intelligence that can be applied at every customer touch point. Insights gathered from analytics can drive strategic initiatives to improve retention rates and customer lifetime value. Real-time capabilities enable CSPs to react quickly to changing conditions and enable timely interaction with customers. With analytics that produce real-time intelligence and invoke appropriate actions, CSPs can transform the customer experience.

Analytics is a key strategic area for Nokia, with an analytics portfolio that spans customer experience management (CEM), real-time network analytics, marketing analytics, data monetization and predictive services.

This document focuses on the Nokia portfolio of Customer Care Analytics, which provides detailed data from the access network, connected devices found in the home and customer care processes, resulting in an end-to-end view of the customer experience:

- **Nokia Home Analytics (HAL)** collects data from home networks and connected devices, proactively identifying issues, combining analytics-based insights with a closed-loop optimization process to deliver continuous improvement.
- **Nokia Access Network Analytics (ANA)** allows CSPs to monetize and derive business value from digital subscriber line (DSL) access network data.
- **Nokia Care Analytics (CAL)** is an analytics tool that collects and analyzes customer care workflow data, discovers and correlates anomalies, then triggers proactive workflows that take (or suggest) immediate, remedial action.
- **Nokia Wi-Fi Expert Solution** enables both consumers and help-desk agents to quickly, easily and accurately qualify the home network for advanced services.
- **Network Analyzer – Copper (NA-C)** ensures that your DSL network delivers the quality and stability that CSPs need to succeed with triple-play service deployments.
- **Nokia Network Analyzer – Fiber (NA-F)** reduces OPEX, increases fiber activation success rates, and improves the overall customer experience.
- **Nokia Service Management Platform (SMP)** is an omni-channel CEM platform that improves customer care and lowers call center operating costs.
CEM provides a competitive advantage

On-going CEM is an undisputed way for CSPs to achieve sustainable competitive advantage. By having a complete and non-siloed view of customers’ behavior, CSPs can ensure the long-term stability of their subscriber base through continuously raising levels of customer satisfaction, beyond those of their competitors.

Figure 1. Nokia Customer Care Analytics portfolio

- Network access analytics
- Use analytics to resolve issues before customers even notice that there is a problem
- Reduce MTTR for GPON faults, mean time service activation and increase QoS after the fix

- Network analyzer fiber
- Network analyzer copper
- Care analytics
- Connected device platform
- Service management platform

- Home analytics/Wi-Fi expert solution
- Reduce OPEX and enable rapid indoor small cell growth
- Deliver more xDSL consistent speeds and avoid 1000s or customer calls and truck rolls

- 1.5B+ devices managed, 80,000+ device models recognized, 15K+ device models automatically configured

- Reduce Wi-Fi call handle time and Wi-Fi related truck rolls

- Field care
- Customer solves their own problems (prevent 1000s) of calls and truck rolls
- Increase first-time fix rate for GPON, xDSL, Wi-Fi, small cells (+60%) reduction of truck rolls

- Self care
- Accelerate resolution when customer calls (+70% FCR)

- Agent-assisted care

Omni-channel customer experience for >300 CSPs, +38€ cost savings for top 10 customers and >1,000 prebuilt workflows
Home Network Analytics: Monitoring the digital home ecosystem

Today’s home networks – and the myriad of connected devices – are growing more complex. At the same time, consumers expect their broadband service experience to be simple and seamless. Most CSPs are lacking visibility into the home network ecosystem, making it difficult to resolve customer issues quickly. This results in longer (and more frequent) calls to the help desk, increased support costs and diminished customer satisfaction.

Nokia Home Analytics (HAL) monitors subscribers’ experiences with devices that are connected to the home network, collecting data and proactively detecting (and resolving) issues. Nokia HAL provides all the capabilities needed to optimize customer support, remediate problems, and fix home issues before they impact the customer experience.
Multi-dimensional analytics
Nokia HAL provides intelligence about any device or group of devices in the home network. It correlates device-sourced data with network data and leverages proven, scalable big-data analytics. With this visual development environment, Nokia HAL helps users visualize data flows and data manipulations. Visualization and query tools enable data scientists to build on the readily available use cases as a foundation. Moreover, it eliminates multi-system queries by giving CSRs a subscriber-, network- and device-spanning view of the actual customer experience.

Standardized problem resolution use cases
Nokia HAL offers built-in use cases for a broad range of home networking issues, enabling CSPs to "see" subscriber experiences and delve into the factors driving any potential issues. Available use cases proactively identify wiring problems, radio frequency (RF) interference, bad connectors, local area network (LAN) configuration issues and software/firmware defects. Use cases are also available for a variety of network technologies including Ethernet, MoCA, PLC, Wi-Fi, fiber and copper access.

Proactive support use cases and recommendations
These recommendations can be applied to targeted devices, such as wireless home gateways. If, for example, the gateway is set to a manual channel but the CSP policy is auto-channel selection, the recommendation workflow overwrites the gateway settings to auto-channel selection. Similarly, if the gateway is set to auto-channel selection, the recommendation workflow resets the Wi-Fi interface, causing the Wi-Fi chipset to re-scan for better channels.

Use-case discovery
Use-case discovery facilitates customer care evolution by enabling CSPs to model, test, and deploy new support
use cases for new devices and future networking technologies. Nokia HAL offers highly usable, customizable, and modular user interfaces that extend the library of use cases for new devices, key performance indicators (KPIs), alerts and triggers of next best actions (NBAs). Predefined user interfaces, workflows, and data source adapters address top call drivers and are based on templates, reducing complexity.

**Moving from Reactive to Proactive**

Nokia HAL delivers continuous improvement by combining analytics-based insights with a closed-loop optimization process. Together, these capabilities enable CSPs to improve not only reactive customer service but also introduce a more proactive and predictive approach to the broadband home experience, often fixing issues before the consumer is even aware of a problem.

Together, these capabilities proactively discover, identify, and resolve issues with home broadband services and connected devices. By turning insights into actions, they improve the customer experience by:

- **empowering agent-assisted care:** improved visibility into the home network and attached devices, CSRs can resolve problems more efficiently and effectively based on common call drivers and frequently invoked workflows. Nokia HAL also gives CSRs historical visibility that spans devices and in-home networking technologies.
- **driving proactive self-care engagement:** self-service tools enable subscribers to resolve issues for a broad range of devices, offering automated alerts and interactive resolution recommendations for end users.
- **anticipating and resolving more issues** – proprietary algorithms monitor network and device performance, discovering new patterns and allowing for the diagnosis, analysis, and remedy of common issues.
Monitoring the Access Network: Using analytics to identify network issues

Networks degradations can be difficult to detect, especially in the last mile. According to industry reports, IT departments typically discover only 70% of the service problems that end users report to the help desk.

Analytics from the access network can be used to anticipate service impacts, optimize the network and drive business decisions. The challenge is that terabytes of network data can be generated each day. How can this data be converted to insights that can be used to transform your business? In other words, how can you monetize this information?

Nokia Access Network Analytics (ANA) provides all parts of a CSP organization — operations, engineering, planning, field service, customer care and marketing — with descriptive insights from the digital subscriber line (DSL) access network that can be used to anticipate service impacts, optimize the network and drive business decisions. As a result, CSPs can provide their customers with the highest speeds, the best offers, and the best care — resulting in a highly differentiated service offering.

Unlike generic big data solutions, Nokia ANA is designed specifically for access network management. This next-generation analytics platform combines domain expertise with insights, and eliminates big data complexity. Nokia ANA uses nodal DSL data and the expert DSL diagnosis from the Nokia Nokia Network Analyzer – Copper (NA-C). Nokia ANA enriches the data with advanced key performance indicators (KPIs) as well as geolocation and services data from business and operations support systems (B/OSSs).

Figure 3. Nokia Access Network Analytics
Identification of common user problems
The most common access network-related problems include interrupted, intermittent or slow broadband connections caused by environmental and time-varying physical issues occurring in the DSL network. Dynamic Line Management (DLM) dynamically optimizes configuration parameters to achieve the highest possible performance on each line to meet coexistence objectives, satisfy Quality of Service (QoS) requirements for each line, and maximize data rate based on the line’s service requirements.

Upgrade and capacity management
The first step in deploying a new DSL technology such as vectoring is to plan for the upgrade. To obtain the most accurate projections, DSL management data must be collected from the field. This collection needs to include a statistically significant number of lines in the candidate markets for vectoring and also span a period of several weeks for proper capture of network time variation. This analysis guides the selection and prioritization of sites, neighborhoods or regions for upgrade. Nokia ANA provides reliable projections of rates and services that can be delivered after the upgrade. Nokia ANA also provides impact analyses for network changes, upgrades, maintenance events and new customer premises equipment (CPE) deployments.

Proactive maintenance and automated improvements
Nokia ANA also obtains performance projections, such as QoS trends, provides insights into DSL/FTTx issues detected in the network, and reports on the access speeds being delivered. A key factor in these analyses is the ability to detect network issues before the subscriber’s service is affected and perform proactive maintenance.

Expanding Analytics Capabilities: Getting an end-to-end view
Combining Nokia ANA with Nokia Home Analytics (HAL) provides end-to-end insights across the access and home networks, resulting in:
- increased customer satisfaction and reduced churn through proactive identification of the most common user problems
- reduced OPEX through fast, consistent and accurate fault localization, which reduces the number of customer calls, improves field-technician performance, and decreases the number of repeat calls and dispatches for many common issues
- accelerated upgrades to new technologies, with accurate predictions that help prioritize investment to those geographies that are more likely to produce a high take-rate
- improved first call resolution (FCR) rates and reduced average handling time (AHT)
Customer Care Analytics: Improve customer care with optimized workflows

Nokia CAL automatically discovers and correlates the network and service topologies associated with subscribers. This is accomplished by leveraging the back-office integration capabilities of Nokia SMP. The assisted-care workflows in Nokia SMP collect the topology data for each subscriber call from the appropriate back office-systems. The topology data is then available for use within the workflows and is sent to Nokia CAL in real time. Nokia CAL correlates the topology data for all calls to detect call anomalies for elements in the topology. When Nokia CAL detects a call anomaly, it is associated with a network element, service or a third-party application. Nokia CAL sends a call anomaly notification to Nokia SMP, which triggers a proactive workflow.

Nokia CAL lowers call center OPEX and improves customer care by optimizing workflow management. A new feature called Call Anomaly Detection uses a Nokia Bell Labs machine-learning algorithm to monitor and detect network, service and third-party application issues at the call center. Nokia CAL enhances and accelerates the benefits delivered by the Nokia SMP by optimizing workflow performance through automated analysis of the workflow execution data from Nokia SMP.

Demanding customers have little patience for service degradations or outages. Nokia Care Analytics (CAL) is an analytics tool that collects and analyzes customer care workflow data, discovers and correlates anomalies, then triggers proactive workflows that take (or suggest) immediate, remedial action.

Nokia CAL utilizes these algorithms to provide the earliest possible detection of a network or service element problem, based on calls to the help desk. When these call anomalies are automatically detected, workflows are invoked in Nokia Service Management Platform (SMP) to take proactive actions.

Nokia CAL uses the big data analytics stack, which provides a highly scalable and fully functional analytics platform within which multiple analytics applications can seamlessly interoperate as a solution. This brings advanced analytics capabilities such as stream processing and machine learning using state-of-the-art technology components.

Call Anomaly Detection
A new feature called Call Anomaly Detection uses a Nokia Bell Labs machine-learning algorithm to monitor and detect network, service and third-party application issues at the call center. This algorithm learns the normal pattern of calls for each element type and accounts for the time of day, day of week and seasonal variation of calls.

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The action taken by this workflow is configurable for each deployment.

Typical actions are to:
- automatically re-configure or reboot the CPE before the customer notices an issue and calls the help desk
- reconfigure the DSL link, using dynamic line management (DLM), to find the optimal stability and speed of the line
- ship replacement equipment or mobilizing field technicians to undertake proactive repair actions
- annotate the customer’s account information, so that CSRs are aware of potential problems in case the customer calls the help desk
- notify customers of the problem and providing instructions/information
Wi-Fi Connectivity Issues: Optimizing the in-home experience

Wi-Fi®-enabled devices in the home are multiplying so much that consumers consider internet and Wi-Fi interchangeable. Whether it is smartphones, tablets, set-top boxes, thermostats or game consoles, broadband internet access over home Wi-Fi networks is growing dramatically. This is good news for CSPs, but it’s not all smooth sailing. According to industry reports, nearly 35% of all calls to the help desk are related to Wi-Fi.

That’s because Wi-Fi setup can be cumbersome and configuration can be more complex than expected. On top of this, consumer expectations for quality of experience (QoE) and easy access to self-care tools are continuing to rise; therefore, demand will only continue to increase. In home network environments, managing the customer experience requires control over Wi-Fi performance.

Wireless access points (APs) operating according to the IEEE 802.11 Wi-Fi standard can operate within a selection of channels, each channel characterized by a certain frequency spectrum. If, however, neighboring APs operate in the same (or overlapping) frequency spectrum, interference occurs, resulting in an overall decrease of performance due to contention and retransmission.
Using data analytics to improve performance of Wi-Fi devices
By leveraging data analytics, the Nokia Wi-Fi Expert Solution enables both consumers and CSRs to quickly, easily and accurately qualify the home network for advanced services. Using a patent-pending Wi-Fi self-optimizing algorithm, a dynamic frequency assignment is made to minimize interference and maximize capacity and throughput. The resulting performance improvements translate into improved customer satisfaction as well as significant reductions in operating costs.

Improving the consumer experience
The Nokia Wi-Fi Expert Solution provides consumers with a simple way to conveniently activate, configure and troubleshoot the in-home Wi-Fi network. At the same time, for CSPs, it offers advanced in-home Wi-Fi monitoring and optimization tools. In both instances, the overall goal of the system is to improve the home Wi-Fi customer experience and reduce the number of support calls.

There are five easy-to-use interfaces to the Nokia Wi-Fi Expert Solution: self-care, assisted care, field technician console (FTC), proactive care and dashboards and operational reports.
Enhance the customer experience by improving DSL loop performance

The global endeavor to provide consumers with 100 Mb/s access was already pushing DSL technology to its limit. The next wave of technologies, such as VPlus and G.fast, offer even higher bitrates – up to 1 Gb/s – making copper loop management increasingly complex and critical for managing the customer experience. As CSPs launch triple play services in an effort to increase average revenue per user (ARPU), the DSL performance level rises dramatically.

Offering these services forces CSPs to operate lines close to their bit-rate limit. In addition, real-time triple play services require greater line stability. While ADSL2+, VDSL2, VPlus, G.fast and vectoring technologies are able to deliver significantly more speed than current offerings, loops of inferior quality will result in unstable DSL connections, poor QoE and a degraded customer experience.

**Succeed in fixed copper access management**

Nokia Network Analyzer – Copper (NA-C) ensures that your DSL connections deliver the quality and stability your customers need to succeed with high-speed internet and triple-play services. Nokia NA-C is a market-proven integrated line testing, diagnosis and optimization solution that maximizes DSL performance with automation provided by DLM. Nokia NA-C lets you apply operational best practices across the entire access line lifecycle, from planning, prequalification and provisioning to maintenance, troubleshooting and customer support. The result: comprehensive and efficient DSL lifecycle management.

**Figure 6. Nokia Network Analyzer – Copper (NA-C)**

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The copper pair itself is also not static: it is sensitive to various events. Usual home activities, such as using electronic devices, turning on lights, and even using microwaves or vacuum cleaners can influence the DSL service. During the weekends, these activities may be extended. Neighbors’ DSL usage and subscriber location can also interfere with the line. More random phenomena, such as weather, can also influence the line and therefore the communication quality. There is a need for a dynamic method able to assess and adapt to all of these evolving conditions.

**Dynamic Line Management (DLM)**

CSPs wanting to offer the highest possible bandwidth to fit each end-user subscription, while guaranteeing reliability and high QoE, need a dedicated configuration for each line. DLM provides automatic line reconfiguration, ensuring that the best profile configuration is assigned to the line to provide the subscribed level of service. DLM also provides automated testing, diagnosis and optimization of each DSL link to ensure the optimal balance between robustness and performance. Whatever bandwidth, correctionalisms, compensation or retransmission techniques are deployed, DLM combines them in the most appropriate way to maximize each subscriber experience.

Finding the optimal set of parameters for each line that will provide the highest level of satisfaction for the subscriber requires a dynamic method. This is because, after copper pairs are deployed, they can be reassigned or extended. The CPE can also be upgraded and copper technologies evolve.

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Because line behavior is influenced by many unpredictable factors, modeling is not feasible. Even if daily patterns could be extrapolated, it is difficult to infer their potential consequences on Internet service. Also, subscribers use a variety of DSL technologies, which further complicates modeling.

DLM provides automated testing and diagnosis of each DSL using quality of service indicators derived from errors occurring during data transmission. DLM evaluates data related to speed, reliability, stability and degradations, including transient degradations, then automatically optimizes each line.

**Build a complete home and access analytics solution**

Nokia NA-C has been integrated with many customer care applications for enhanced help desk support, faster service delivery, enhanced service quality and shortened service downtime, reducing OPEX by up to 50 percent. Moreover, NA-C has been successfully integrated with numerous third-party DSLAMs through the Multi-vendor Plug-in (MVP) program.

By combining Nokia NA-C with the Nokia Service Management Platform (SMP), assisted care and field care can get insights and recommendations that help boost first call resolution rates and reduce handling time for access-related issues. CSPs can use these insights to enhance the customer experience and keep their care costs low.
Reduce OPEX, increase fiber activation success rates, and improve the overall customer experience

New optical services provide subscribers with a substantially higher quality of experience (QoE). To deliver these services with high quality and cost-effectively, CSPs need an activation process that meets optical quality of service (QoS) requirements and minimizes the number of connectivity problems as well as their impact. Providers must minimize the number of degradations to prevent service failures where possible, and repair faults quickly and predictably when they occur.

Nokia Network Analyzer – Fiber (NA-F) helps CSPs reduce OPEX and increase ARPU through enhanced fault localization. This improves fault escalation efficiency by identifying the right resource to fix the fault and ensuring that the right person has the information to take action. These capabilities improve QoS, helping CSPs improve customer satisfaction and reduce churn while increasing the likelihood of selling higher bandwidth services.

Deliver the best broadband customer experience of successful fiber-to-the-home services
In the home, subscribers can inadvertently create defects. These problems can be as trivial as an ONT being switched off, but often can also be the result of loose connectors or fiber that has been bent or stapled. Nokia NA-F provides unique diagnostic capabilities that enable identification of root causes for issues, dramatically reducing the time and resources required for fault identification and resolution.

Nokia NA-F helps CSPs reduce OPEX and increase ARPU through automatic and on-demand detection of passive faults (pressured fibers, visual bends, loose or dirty connectors, loss of signal, feeder cable cuts) and active faults (operational errors, administrative errors and malfunctioning transceivers) and fault diagnosis of hybrid PONs (co-existence of GPON and TWDM-PON).

Nokia NA-F monitors provides automatic and on-demand comparison of the optical power levels for all optical links connected to the same last splitter and/or the same PON and automated near-real-time fault diagnosis of "critical" optical links (e.g., VIP subscribers, business subscribers, mobile backhaul links)
Enhance the Customer Experience with Analytics-Driven Care

Figure 7. Nokia Network Analyzer – Fiber (NA-F)
Use prescriptive analytics to support automation and actions

Nokia SMP combines intelligence and prescriptive analytics from our Nokia Customer Care Analytics with recommendations that drive self-healing service orchestration workflows in Nokia SMP. By combining these solutions, you can use predictions to support automation and actions that optimize the customer experience.

Figure 8. Nokia Service Management Platform (SMP)
Enhance the Customer Experience with Analytics-Driven Care

To ensure that best practices are followed and that all agents have a consistent approach to problem resolution, CSRs typically use guided troubleshooting processes – sometimes called workflows – which provide step-by-step instructions. Typically, the steps included in a workflow are fixed, with a pre-defined sequence based upon a series of educated guesses. In reality, the most appropriate actions will differ from call to call, depending on the customer context. Until recently, however, workflows were not able to adapt to changing contexts; it was seen as too much effort to have a workflow respond to various options.

Thanks to a variety of different analytics applications, when customers call the help desk of their local CSP, CSRs are now able to access quite a bit of client-specific information, including the type of access point found in the home, the settings of that device, what network equipment they connect to for service and more. Using this information, CSRs can provide detailed instructions on how to resolve a customer’s issue.

Selecting the next-best action for improved problem resolution

Using machine learning – which collects information on each successfully (and unsuccessfully) completed workflow – and adapting the sequence for every customer’s unique situation, Dynamic Intelligent Workflows can predict the optimal sequence of tasks that should be taken to resolve specific issues. The effectiveness of these workflows can (and should) also be monitored. Further, this data should be stored and analyzed, resulting in a series of best practices that can be leveraged for future calls.

Algorithms developed by Nokia Bell Labs use all of the information available – workflow history, customer information and network status – to prescribe specific workflows to agents using a recommendation engine that selects the next-best action (NBA) that has the highest probability of resolving a customer issue in the shortest time.

Nokia CAL and Nokia SMP

The Nokia SMP is a standard platform for customer experience business processes, helping CSPs leverage advanced service troubleshooting and management logic across key elements of their existing service delivery ecosystem. Nokia CAL enhances and accelerates the benefits delivered by the Nokia SMP by optimizing workflow performance through automated analysis of the workflow execution data from Nokia SMP. When deployed in parallel, this solution offers a number of tangible benefits, including:

- decreased number of calls to the call center, through deflection of calls to the Interactive Voice Response (IVR) system
- reduced number of inappropriate technician dispatches to customers’ homes, owing to automatic issue identification
- improved customer experience, by isolating problems in the last mile, including service degradations and passive elements, which are difficult to detect with OSSs

Dynamic Intelligent Workflow

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Intelligent Care
Nokia SMP offers CSPs a foundation for deploying service management as part of an agile omni-channel customer experience strategy that is innovating customer service and care. Nokia SMP simplifies the definition, publication and execution of advanced service troubleshooting and management logic across key elements of a CSP’s existing service delivery ecosystem. This reduces IT and care costs with automated workflows and a consolidated approach to service management.

By combining Home and Access Analytics with the Nokia SMP, assisted care, self- and field-care can get insights and recommendations that help boost first call resolution (FCR) rates and reduce average handling time (AHT) for access-related issues. CSPs can use these insights to enhance the customer experience and keep their care costs low.

To truly meet the expectations of the new generation of consumers and keep them engaged, the customer care experience must go beyond reactive support. It should also enable a more intelligent level of care based on advanced analytics. By collecting key data from a customer’s previous connected behaviors, analyzing it, and learning from it, the platform can enable a more personalized level of interaction and care. For example, when they’re at home most consumers connect to the Internet using a Wi-Fi connection provided by a home gateway. Analytics from these gateways can be collected and stored. Key data could include whether or not the gateway is providing maximum throughput, and if it is dropping the connection. By aggregating and examining this information a customer care team can see if there are any patterns in the way the gateway is behaving. If a specific brand of gateway is found to be having an issue, all gateways from that manufacturer can be rebooted remotely or a firmware upgrade can be pushed to all of those devices at a pre-defined time (i.e., between 2:00 and 4:00 a.m.). This proactive action will prevent all consumers with this type of gateway from having problems. It will prevent customer frustration. And it will eliminate thousands of calls to the help desk.

Instead of the fixed sequence that characterized workflows in the past, Dynamic Intelligent Workflows start with a common set of introductory steps. Then, based on the available data – some of which is collected in near real time – quickly diverge into customized paths.

As a result, not only do all workflows get continuously optimized, but each individual workflow has the highest probability to resolve a customer issue in the shortest time. This enables faster response times, reduced support costs and a better customer experience. It also simplifies the workflow design since special cases based on context do not need to be hard coded into the workflows.
About Nokia Customer Care Solutions

The Nokia portfolio of Customer Care solutions lets you consolidate your device management and customer care activities across fixed and mobile services. It helps you reduce OPEX and total cost of ownership (TCO) while providing experiences that secure customer loyalty and boost your NPS.

Our award-winning customer care solutions have created over €2B in cost savings for our top 10 customers. We are the global leader in home, mobile and IoT device and service management solutions that simplify provisioning and care processes. Our Customer Care solutions support:

- More than 1.5 billion devices for 300 customers
- Approximately 1 million CSRs
- More than 2.5 billion workflow executions per month
- More than 10 million self-service sessions per month

Learn more about the Customer Care portfolio at:
Enhance the Customer Experience with Analytics-Driven Care

About Nokia
Nokia is a global leader in the technologies that connect people and things. Powered by the innovation of Bell Labs and Nokia Technologies, the company is at the forefront of creating and licensing the technologies that are increasingly at the heart of our connected lives.

With state-of-the-art software, hardware and services for any type of network, Nokia is uniquely positioned to help communication service providers, governments, and large enterprises deliver on the promise of 5G, the Cloud and the Internet of Things. http://nokia.com

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Product code: SR1703009115EN (April)

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