Nokia Edge Automation tool

Executive summary

When new applications and capabilities need to be enabled on edge sites, edge automation is vital to meet customer expectations of OPEX saving, serviceability and time-to-market. As such, edge automation is the way to manage thousands of sites and achieve the expected savings in TCO. Nokia workload agnostic edge automation tools are designed for edge planning and deployment as well as for successful operation.

In centralized cloud environments with a relatively low number of data centers, the placement of components in these data centers is relatively straightforward and Communication Service Providers (CSPs) often manually specify where software components are deployed. However, edge-cloud environments consist of a much larger number of data centers, making the manual operations of deployment locations and their interconnectivity more difficult.

Automation is vital to managing thousands of edge sites, enabling 5G cloud based CSP offerings and future evolution to new business services at the edge. Edge Automation with central management provides higher OPEX savings compared to today’s central data center semi-automation, where many manual operations are still required. For example, defining configurations for every component of a system is time consuming and error prone, with many of these settings dependent on the specific hardware on which a service is running. Since a developer will not know on which hardware a service will be deployed, configurations cannot be optimized, and all possible deployment options need to be considered, making it difficult to achieve the best solution.

Nokia Edge Automation Tool is designed to
Nokia edge automation solution can automate a CSP’s edge infrastructure operations, both hardware and cloud infrastructure.

It offers both customers and services personnel easier and more efficient service operation by reducing error prone manual steps and automating mass infrastructure operations.

The tool includes workflows and centralized edge cloud stack management and automates planning, deployment and operations, allowing management of the full life cycle. Nokia Edge Automation Tool and Nokia AirFrame Data Center Manager included in Nokia edge automation solution, are cloud native applications running as part of the CSP network management solution, providing automated optimization of the operation of edge infrastructure.

Nokia edge automation solution contain virtual and physical infrastructure inventories with up-to-date information on available resources from every edge site. These are used for all operations, including troubleshooting and capacity planning.

The tools solution covers operations defined for OpenRAN (O-RAN) infrastructure and deployment management services for Open cloud instances and capabilities in service management & Orchestration Framework.

Combined with the Nokia AirFrame Data Center Manager, the edge automation solution eliminates the complexity of infrastructure management, offering an intuitive system management console to monitor and manage system hardware. Together with the Nokia Edge Automation Tool, the data center manager not only helps to consolidate numerous items of system information, but also simplifies the management process, significantly reducing operational costs and maintenance time.

The Nokia Edge Automation Tool provides real-time information about system health and configuration on a ‘single-pane-of-glass’ dashboard. This tool supports simultaneous upgrades of multiple systems in simple steps, reducing system service and maintenance time. It enables central management of user interfaces (UIs) and Application Programming Interfaces (APIs) for the life cycle operations of deployment, monitoring and upgrades. It can manage multivendor infrastructures and can be integrated with existing O&M systems for full data center automation, for example, with application management in network orchestration.
The Nokia Edge Automation Tool, together with Nokia AirFrame Data Center Manager, gives CSPs a fully prepared cloud computing infrastructure (IaaS, PaaS, CaaS). Any virtualized software and cloud native applications such as virtualized RAN (vRAN) and O-RAN, Multi-access Edge Computing/Service Enablement Platform (MEC/SEP) and Evolved Packet Core/User Plane Function (EPC/UPF) can be now deployed on the edge.

As an automation solution, it also enables a CSP to provide application platforms for on-premises deployment for customers such as enterprises.

Because service components need to run in different locations, handle varying workloads and use a diverse set of hardware, full automation is key, and Nokia Edge Automation Tool including Nokia AirFrame Data Center Manager providing it.

Figure 2. Nokia Edge Automation Tool inventory
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