

Blog Posts and News Stories

At MWC 2023, Google Cloud targets cloud-native network transformation

"Google's solutions focus on Telecom Network Automation, a new cloud service that's said to accelerate CSP network and edge deployments through the use of Kubernetes-based cloud-native automation tools. It's managed by a cloud version of the open-source Nephio project that Google founded in 2022, aimed at increasing time to market and ensure multivendor interoperability while reducing configuration errors."

Cloud, datacenter vendors muscle in on traditional telco territory at MWC - The Register

"Telecom Network Automation appears to be a Google-managed implementation of [Nephio](#), an open source project aimed at speeding deployment of network functions via Kubernetes, including provisioning of the underlying cloud infrastructure, using intent-based automation.

Google claims the platform allows CSPs to deploy entire networks and manage them using a single pane of glass. The search giant said several are actively working with it as design customers and early testers of Telecom Network Automation."

Linux Foundation Press Release

"**San Francisco—April 12, 2022** Today, the [Linux Foundation](#), the nonprofit organization enabling mass innovation through open source, announced the formation of [project Nephio](#) in partnership with Google Cloud and leaders across the telecommunications industry. The Linux Foundation provides a venue for continued ecosystem, developer growth and diversity, as well as collaboration across the open source ecosystems."

Achieving cloud-native network automation in telecommunications together - Google Blog Post Announcement

"The transition of telecommunications networks to the cloud has begun. Yet, simply containerizing network functions and running them on centralized or edge clouds will not maximize the cost savings and operational efficiencies promised by the cloud. A nominal change in technology from virtualized to containerized functions risks the same disappointments seen with the previous virtualization effort: minimal reductions in costs and continued rigidity in deployments.

Over the last two years, Communication Service Providers (CSPs) have been approaching Google Cloud to ask us how we created our network. How did we achieve economies of scale and build out a resilient, flexible network while flattening the cost curve? How can they seize the opportunity to do the same during this network transition to telco and edge cloud?

To address these questions, Google Cloud and the Linux Foundation are thrilled to announce the formation of project [Nephio](#) in partnership with leaders across the telecommunications industry to work towards true cloud native automation to drive scale, efficiency, and high reliability across network operations."

Achieving cloud-native network automation at a global scale with Nephio - Google Blog Post

"We started with a set of automation tools for software deployment (remotely executing commands), a set of tools for auditing/repairs (if this condition occurs, run that command), and a third set of tools for configuration management. As the fleet grew and was deployed in more varied environments, we discovered and fixed more edge cases in our automation tools. Soon, the system started reaching its scaling limits, and we built a new, more uniform and more scalable system in its place. We learned a few key lessons in the process:

- **Intent-driven**, continuously reconciling systems are more robust at scale than imperative, fire-and-forget tools.
- **Distributed actuation** of intent is a must for large-scale edge deployments. Triggering all actions from a centralized location is not reliable and does not scale, especially for edge deployments.
- **Uniformity in systems** is easier to maintain. Being able to manage deployment, repairs, and configuration using common components and common workflows (in other words, files checked into a repository with presubmit validation, review, version control, and rollback capability) reduces cognitive load for the operations team and allows more rapid response with fewer human errors"

On the road to public cloud 5G networks - Nephio

"Communication service providers (CSPs) have been using virtual networks and private cloud-based deployments for nearly half a decade. Pivoting from physical network functions (PNFs) to virtual network functions (VNFs) was the first phase in this journey to cloud adoption. The transformation to cloud promised to improve operational efficiency by reducing reliance on specialized hardware, reducing costs through improved hardware utilization, and increasing agility through more flexible software delivery."

Join us in evolving the usability of GitOps - Google Blog Post

A GUI isn't the only capability enabled by making the configuration in storage mutable. [Nephio](#), the [Cloud Native Network Automation project](#), is building on kpt, Porch, and [Config Sync](#) to fully automate configuration of interconnected network functions and the underlying infrastructure that supports those functions. Configuration as Data provides the foundational API for configuration data, enabling mutation by Nephio automation controllers.

What is the Nephio Project? - Aarna Networks

"What I found fascinating about Nephio is that it considers cloud infrastructure within its scope as well. Other projects, such as the Linux Foundation Networking [ONAP](#) project, have only worked on the service/NFVO/VNFM layers. I think considering both infra+NFs together is a huge plus for the 5G + MEC (multi-access edge computing) era. We at Aarna are seeing evidence of this trend from groups such as the O-RAN Alliance, where FOCOM (Federated O-Cloud Orchestration and Management), NFO (Network Function Orchestration), and NF (Network Function) Configuration Management, Performance Management, and Fault Management are all within the scope of the O-RAN Service Management and Orchestration (SMO) entity."

Nephio Extends Kubernetes to Solve Cloud Native Automation - The Newstack

"Nephio started with a tweak in the perception of how Kubernetes is being deployed and configured at a larger scale. We know that for large-scale or telecom networks, Kubernetes is well suited to act as a unified and automated control plane to configure all aspects of each infrastructure that may be distributed and host network functions.

But it was observed that Kubernetes has not been utilized to automate the cloud native functions (CNFs) and VNFs both. Nephio architecture will be using Kubernetes in the automation perspective in addition to hosting CNFs and VNFs (virtual network functions) both."

Nephio Sees Rapid Growth as More Organizations Commit to Simplify Cloud Native Automation of Telecom Network Functions - PR Newswire

"Since launching in April 2022 in partnership with Google Cloud, support has grown with 28 new organizations now part of the project (with over 50 contributing organizations), progress towards Technical Steering Committee (TSC) formation, and an upcoming [Nephio Technical Summit](#), June 22-23, in Sunnyvale, Calif. New supporters include: A5G Networks, Alcon Sweden, Amdocs, ARGELA, Capgemini Technology, CIMI Corporation, Cohere Technologies, [Coredge.io](#), CPQD, Deutsche Telekom, HPE, Keysight Technologies, KT, Kubermatic, Kydea, MantisNet, Matrixx, Minsait, Nabstrack, Prodapt, Sandvine, SigScale, Spirent Communications, Telefónica, Tata Elxsi, TechMahindra, Verizon, Vodafone, Wind River, and Wipro."

Nephio carrier-grade network automation project gains support - RCR Wireless

"The Linux Foundation's [Nephio](#) project recently announced that it has added more supporters including Verizon, Vodafone, Deutsche Telekom and many others — 28 new organizations are now part of the initiative, bringing the total to more than 50. Together, they're working to build a cloud-native and carrier-grade network automation platform based on Kubernetes, the increasingly ubiquitous microservices cloud app container orchestration system. The goal of the project is to unify automation control planes abstracted from infrastructure, to help make multivendor cloud deployment and management easier and more performant, through intent automation and automation templates."