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Company profile

Broadcom supports cloud-native networks and automation through the VMware Telco Cloud Platform

December 2025

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1. Executive summary

Broadcom offers a range of network virtualisation, management and operations solutions to telecoms operators (Figure 1). Central to its offering for operators is VMware Telco Cloud Platform, a horizontal network cloud platform that supports virtualised and cloud-native network functions (VNFs and CNFs). This platform is built on VMware Cloud Foundation (VCF). Telco Cloud Platform has over 150 deployments and over 350 network functions (NFs) have been certified on the platform.

Telco Cloud Platform allows operators to move away from deploying networks as siloed, vertically integrated stacks provided by network equipment providers (NEPs) to an operating model based on a horizontal network cloud infrastructure. Analysys Mason's Broadcom supports cloud-native networks and automation through the VMware Telco Cloud Platform explains how this approach can help to drive efficiency, cost and agility benefits for operators as they undergo their cloud-native network transformation journeys. Another key message that Analysys Mason presented in the paper was that a horizontal network cloud platform can play an integral role in addressing the complexities associated with deploying hybrid networks that use both VNFs and CNFs. CNF adoption is beginning to become mainstream: CNFs will account for 36% of mobile core NF spending in 2025 (worldwide). However, most operators are adopting CNFs gradually while retaining large VNF networks estates. Therefore, it will become increasingly important for many operators to have a solution such as Telco Cloud Platform that can help them to harmonise the operations of VNF- and CNF-based networks.

Telco Cloud Platform is packaged with Broadcom's solutions for orchestration, automation and assurance. This includes Telco Cloud Automation, which supports the automation of physical infrastructure, infrastructure-as-a-service (IaaS) and container-as-a-service (CaaS) environments, NFs and network services. For VNFs, CNFs and their underlying infrastructure, Broadcom supports an automation approach based on the European Telecommunications Standards Institute's (ETSI's) network functions virtualisation (NFV) management and orchestration (MANO) framework. Operators also have the option to use a declarative, GitOps-based automation approach (i.e. cloud-native automation) for the lifecycle management (LCM) of CNFs. Implementing such cloud-native automation will be critical for operators to unlock the agility and operational efficiency benefits associated with cloud-native networks.

In addition, Telco Cloud Platform offers an advanced workflow engine the delivers orchestration capabilities. This workflow engine serves as an umbrella orchestrator that unifies the LCM capabilities of Broadcom's own and third-party solutions. It is designed around a drag-and-drop interface that facilitates the self-service composition of automations by operators.

Figure 1: Overview of Telco Cloud Platform [Source: Broadcom, 2025]
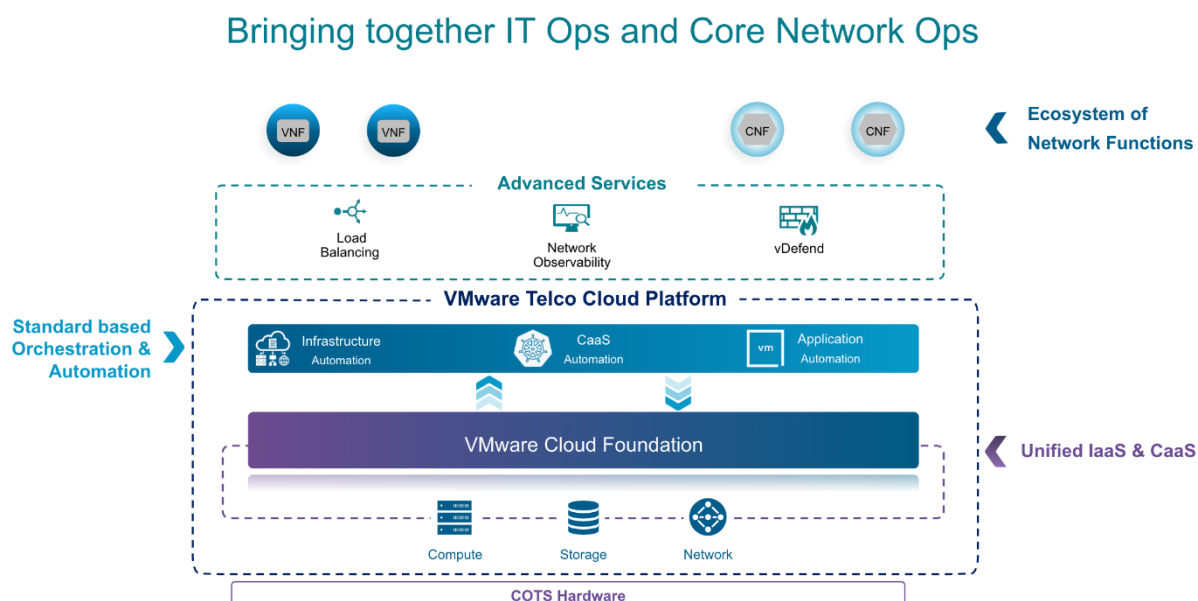
2. Broadcom offers a horizontal network cloud platform with extensive automation capabilities

Broadcom's portfolio includes an IaaS and CaaS platform for running NFs, solutions for automating the entire network cloud stack, and capabilities for network operations and management (O&M).

2.1 Telco Cloud Platform enables operators to deploy, manage and operate all mobile core NFs on a single platform

Telco Cloud Platform offers a unified IaaS/CaaS platform for running VNFs and CNFs, including 4G/5G mobile core and IMS NFs, as well as BSS/OSS applications.[1] Broadcom enables operators to deploy VNFs and CNFs from multiple vendors for all their mobile core networks on a single platform. Telco Cloud Platform is built on VCF and brings together a number of Broadcom solutions, including its solutions for managing compute, storage and networking infrastructure (including. vSphere, SDDC Manager, vSAN and NSX) and Broadcom's Kubernetes (K8s) distribution.

Telco Cloud Platform enables operators to deploy their networks using commercial-off-the-shelf (COTS) hardware. It supports running NFs directly in virtual machines (VMs) and as containers in VMs. The platform automatically adjusts the underlying infrastructure allocated to each network function to optimise resource usage. Broadcom helps operators to achieve high-performance networking through the use of advanced scheduling algorithms, which it claims allow its platform to match/exceed the performance of running containers on bare metal. Telco Cloud Platform also uses Enhanced Data Path (EDP), a network/packeting forwarding stack that helps operators to achieve the high network performance demanded by 5G core data plane

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[1] Radio access networks (RANs) are no longer a key strategic focus area for Broadcom.

network functions. EDP also offers other operational advantages over SR-IOV such as L2/L3 and edge network programmability, and enhanced visibility and analytics. Smart network interface cards (SmartNICs) are used to run EDP functions, freeing up CPU resources for other tasks.

Telco Cloud Platform brings a diverse array of infrastructure management capabilities that tie into the automation capabilities covered in section 2.2. For example, it offers a built-in workflow for upgrading K8s clusters to successive extended support versions. Further to this, it supports cluster rehoming: a subset of CaaS workload clusters can be upgraded to a different version by facilitating the seamless rehoming of these clusters to a different CaaS management cluster. This allows operators to accommodate the varying requirements that different NF vendors have relating to the versions of K8s being used.

Telco Cloud Platform is security hardened and includes tools that are needed for operators to strengthen their security posture. For example, it recently introduced a K8s policy manager based on Open Policy Agent (OPA) to help operators enforce security policies across fleets of K8s clusters. Telco Cloud Platform offers a set of preconfigured policies that align with security guidelines from the USA's NSA and CISA.[2] It makes it straightforward for operators to apply these out-of-the-box policies to secure their K8s clusters. Operators can use a centralised dashboard to manage these policies and detect violations.

Broadcom's approach can support operators with their network and IT cloud convergence strategies. Telco Cloud Platform is built on VCF, Broadcom's non-telecoms-specific platform for IT workloads. This allows operators to unify the platforms that are used for network and IT workloads as well as the workflows and LCM tools used for these domains. Broadcom also unlocks the possibility for AI platforms to be converged with network and/or IT platforms as VMware Private AI Services is now offered as part of VCF.

2.2 Telco Cloud Automation supports NFV MANO and GitOps-based network automation, as well as empowering self-serve implementation of K8s/CNF automation

Telco Cloud Automation is part of Telco Cloud Platform. It supports the Day 0, 1 and 2+ operations of an operator's cloud infrastructure and network functions, as well as end-to-end network orchestration (including the automation of network services). For the automation of VNFs and their underlying infrastructure, Telco Cloud Platform supports an approach based on ETSI's NFV MANO framework. For CNFs, operators have the choice between using an NFV-MANO-based approach or using declarative, GitOps-based automation. Telco Cloud Platform's GitOps approach leverages ArgoCD. GitOps allows operators to specify declarative intents for their cloud infrastructure and network functions in Git, with that state of live networks being automatically and continuously reconciled with these desired intents. Telco Cloud Platform offer several capabilities to help operators make a success of GitOps, including providing error handling capabilities for GitOps and allowing operators to apply changes via GitOps in a granular manner.

Critically, Telco Cloud Automation helps to harmonise network automation and orchestration across VNF- and CNF-based networks. It supports unified end-to-end O&M across both NFV MANO and GitOps network automation approaches, eliminating for operators' need to employ divergent systems and workflows for Day 0, 1 and 2 operations.

Telco Cloud Automation also offers a workflow engine that features a drag-and-drop GUI for piecing together prebuilt automation templates and building blocks to create automated workflows, including CI/CD pipelines. These workloads can be used for provisioning/deploying and managing the lifecycle of cloud infrastructure and NFs. This is designed as a low-/no-code solution that makes it more straightforward for operators to create

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[2] NSA = National Security Agency. CISA = Cybersecurity and Infrastructure Security Agency.

automated workflows, and/or for Broadcom's professional services organisation to create these workflows on behalf of operators. This workflow engine integrates with other components of Telco Cloud Automation, other Broadcom products and third-party automation tools. It also allows operators to invoke their existing/custom automation scripts.

2.3 Broadcom's NetOps capabilities facilitate service assurance and intelligent network operations and management

Broadcom DX NetOps brings additional network management, monitoring and observability capabilities on top of Telco Cloud Platform. This solution suite collects and analyses data from networks and leverages AI/ML-based analytics to support intelligent network operations. In addition, Network Observability by Broadcom extends VCF management capabilities with end-to-end visibility into overlay and underlay networks as well as applications. The solution provides actionable insights to detect and identify issues, resulting in faster issue resolution times. The solution can also identify where issues originated – in the VCF domain or elsewhere. It leverages a combination of passive and active monitoring to enable NetOps teams to understand how network performance is affected by common issues such as device outages, route changes, connectivity drops and internet service provider (ISP) peering changes.

Broadcom allows operators to link automation and AI with each network layer, thereby helping them to address the complexity of network operations.

3. Broadcom's offering enables operators to reduce operational complexity and improve efficiency

3.1 Broadcom allows operators to unlock the benefits associated with adopting horizontal network cloud platforms

By leveraging Telco Cloud Platform as a horizontal network cloud infrastructure, operators can consolidate their multiple mobile core networks, which can comprise a mixture of VNFs and CNFs from multiple NF vendors, onto a single platform. Such a capability will become increasingly important as operators begin adopting CNFs, while they continue to operate VNFs, and as operators' mobile cores become increasingly multi-vendor.

Broadcom's horizontal platform approach allows operators to eliminate the operational silos associated with deploying vertically integrated stacks from NEPs, bringing benefits such as reducing costs, reducing complexity and making it more straightforward to automate/orchestrate networks. With regards to automation, these benefits arise because vertically integrated stacks create operational silos, which make end-to-end network orchestration more complex and require systems and processes to be duplicated for each silo. Such duplication could eliminate the operational efficiency benefits that operators hope to achieve by implementing cloud-native networks. In contrast, Telco Cloud Platform allows for converged and unified Day 0, 1 and 2+ operations of all mobile core VNFs and CNFs. The use of a horizontal platform can also help operators to reduce capex through resource mutualisation.

3.2 Broadcom supports operators in automating their networks, including in the implementation of GitOps-based automation for cloud-native networks

Broadcom brings strong automation capabilities through its Telco Cloud Automation solution, which can help operators to improve operational efficiency and agility. Telco Cloud Platform's support for a declarative, K8s- and GitOps-based automation paradigm (which we call cloud-native automation) will allow operators to fully leverage the inherent automation advantages that come from adopting cloud-native architectures. Unlocking these automation advantages from cloud-native networks would be much more challenging if operators relied solely on NFV MANO. Furthermore, cloud-native automation can play a critical role in helping operators to eventually transition to declarative, intent-based network operations, which will be necessary for them to achieve higher levels of autonomous networking.

Importantly, Telco Cloud Platform helps unify GitOps-based automation (for CNFs) with NFV-MANO-based automation (for VNFs and CNFs). Without such unification, the need to adopt disparate automation approaches would induce significant complexity for operators. This capability also means operators can focus on unlocking the agility and operational efficiency benefits associated with cloud-native networks without being held back by the need to ensure interoperability with their existing networks.

The low-code/no-code nature of Telco Cloud Platform's workflow engine will also help operators improve the automation levels of their networks.[3] The activity of coding scripts has traditionally been time-consuming and complex for operators, particularly because hiring employees with the necessary automation skills is challenging, especially for cloud-native networks. Consequently, operators have struggled to implement automation at the rate they would like, and implementing automation is often something that they have often had to outsource to third parties (such as systems integrators) at considerable expense. However, Broadcom's workflow engine makes it more straightforward for operators to set up automated workflows themselves and/or for Broadcom's professional services organisation to compose these automations on behalf of operators. Subsequently, this solution reduces the cost and accelerates the time to implement new automated workflows. Its nature as an umbrella orchestrator that can integrate with third-party automation tools and custom workflows/scripts will also help simplify end-to-end network automation.

3.3 Broadcom can support operators on their journeys towards implementing AI-native networks, allowing AI capabilities to be integrated into network operations

AI-native networks are designed to intrinsically facilitate the use of AI to support network operations and optimisation. Broadcom can support operators in implementing both agentic and non-agentic AI capabilities to enable their evolution towards AI-native networks.

VMware Private AI Foundation with NVIDIA is Broadcom's platform for allowing operators and other enterprises to run AI workloads and develop AI applications. Broadcom has recently made capabilities of this platform – Private AI Services – a standard component of VCF. This integration means Broadcom can offer a unified platform for AI and non-AI workloads. Private AI Services also bring innovations such as support for the model context protocol (MCP), model deployment across different AI hardware without refactoring and secure multi-tenant sharing of AI models.

Private AI Foundation with NVIDIA will allow operators to develop their own AI use cases for the network as well as provide a platform on which they can run network AI solutions from third parties. Broadcom also provides various pre-built AI use cases for its solutions, including an AI-based support assistant for VCF and
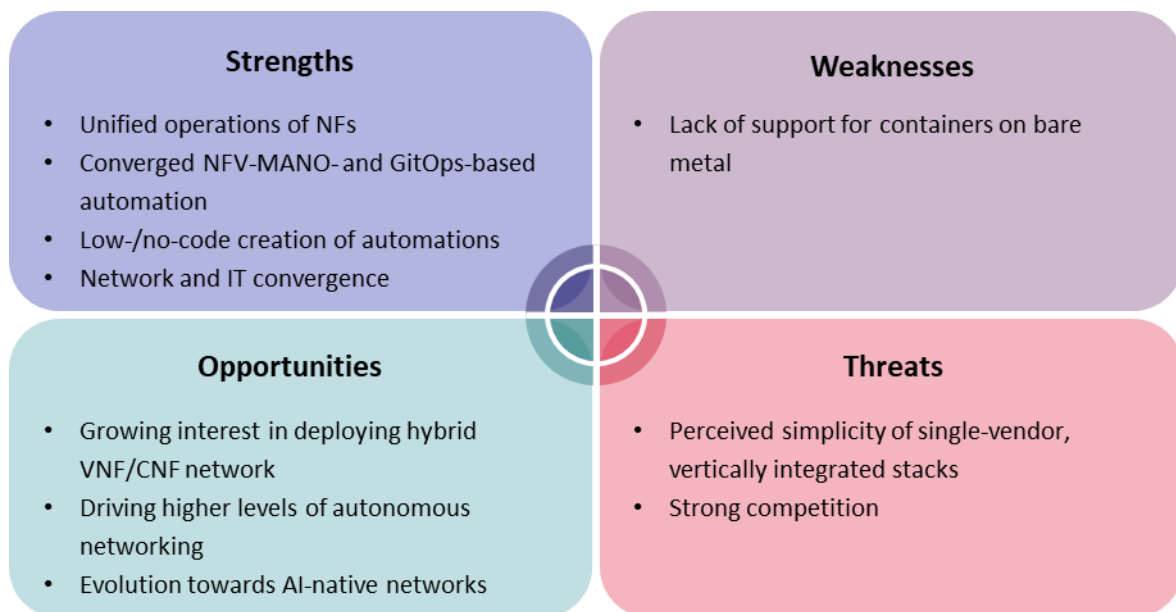
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[3] For more details, see Analysys Mason's End-to-end automated telco cloud workflows are critical for driving 5G value.

AI/ML capabilities embedded in its NetOps solutions. However, there is scope for Broadcom to expand how AI/ML is integrated into its portfolio. For example, it would be beneficial for operators if AI/ML was more deeply integrated into Telco Cloud Platform to support the automation of network infrastructure, functions and network services.

4. SWOT analysis: growing interest in horizontal network clouds presents a strong opportunity for Broadcom

This section provides a SWOT analysis of Broadcom and its Telco Cloud Platform offering.

Figure 2: Summary of Analysys Mason's SWOT analysis of Broadcom and its Telco Cloud Platform offering

Strengths
- Unified operations of NFs
- Converged NFV-MANO- and GitOps-based automation
- Low-/no-code creation of automations
- Network and IT convergence

Weaknesses
- Lack of support for containers on bare metal

Opportunities
- Growing interest in deploying hybrid VNF/CNF network
- Driving higher levels of autonomous networking
- Evolution towards AI-native networks

Threats
- Perceived simplicity of single-vendor, vertically integrated stacks
- Strong competition

Source: Analysys Mason

Strengths

- **Unified operations of NFs.** Broadcom offers a unified platform that can be used to converge the deployment and operations of VNFs and CNFs from different vendors for different mobile core networks. This helps operators avoid operational silos that complicate network operations and helps avoid lock-in to a specific NF vendor. It can also help reduce costs by allowing for infrastructure mutualisation. Furthermore, such a platform eliminates the need for operators to employ disparate processes and workflows to carry out the O&M of different operational silos.
- **Converged NFV-MANO- and GitOps-based automation.** Telco Cloud Platform supports operators in using NFV-MANO-based automation side-by-side with declarative, GitOps-based automation (i.e. cloud-native automation). It will allow operators to gradually adopt GitOps-based automation as they implement CNFs; this will facilitate more declarative, intent-based network operations. This more cloud-native approach to LCM will be critical for operators to unlock the automation benefits associated with cloud-native networks.

- **Low-/no-code creation of automations.** The drag-and-drop GUI of Telco Cloud Platform's workflow engine makes it more straightforward for operators to develop automations. This should help operators move towards higher levels of autonomous networking.
- **Network and IT convergence.** Broadcom offers platforms for both network and general IT workloads, with the later platform powering the former. This fact enables operators to consolidate the infrastructure, cloud platforms, tools and workflows used for their network and IT workloads. This can help operators reduce costs and facilitate the exchange of learnings and expertise between network and IT teams. Broadcom also offers an AI/ML platform, Private AI Foundation with NVIDIA, meaning that Broadcom can help operators converge their AI clouds with their network and/or IT clouds.

Weaknesses

- **Lack of support for containers on bare metal.** Some operators may prefer to deploy NFs as containers on bare metal, chasing the potential performance benefits of doing so. Telco Cloud Platform does not support this deployment model. However, Broadcom argues that its advanced scheduling algorithms allows its platform to achieve similar performance with containers in VMs compared to what is possible with containers on bare metal.

Opportunities

- **Growing interest in deploying hybrid VNF/CNF networks.** Operators are increasingly adopting CNFs. However, they are doing this in a piecemeal fashion which means that a growing number of operators will be running mobile core networks consisting of both VNFs and CNFs. This risks causing a significant increase in complexity if operators' VNFs/CNFs were to be deployed in a siloed manner, requiring different infrastructure, O&M systems and workflows. Broadcom's horizontal platform offering is well positioned to help operators address this complexity and ensure that CNF adoption doesn't create another operational silo.
- **Driving higher levels of autonomous networking.** As operators chase higher levels of autonomous networking, it will become increasingly important that they eliminate network silos and converge operations/automation across their entire mobile core network estates. This may drive adoption of horizontal network clouds.
- **Evolution towards AI-native networks.** Operators increasingly want to integrate AI into their networks. Broadcom is well equipped to support operators on this journey given its Private AI Foundations with NVIDIA solution. Broadcom also has the opportunity to expand the extent to which it integrates pre-built AI use cases with Telco Cloud Platform. Additionally, compared to using vertically integrated stacks from NEPs, adopting a horizontal network cloud could potentially give operators more flexibility over what AI tools, solutions and frameworks they adopt. For example, operators may have greater flexibility to adopt AI solutions from vendors other than their NEPs. Subsequently, a growing desire by operators to integrate AI into network operations may drive adoption of horizontal network clouds.

Threats

- **Perceived simplicity of single-vendor, vertically integrated stacks.** Many operators believe that network deployment is made more straightforward when taking an end-to-end stack and support services from a single vendor. This may affect their willingness to work with Broadcom. However, Broadcom argues that testing and certification with its xNF and hardware vendor partners makes deployment straightforward while its horizontal cloud approach brings simplicity to network operations.
- **Strong competition.** Broadcom faces strong competition in the telecoms industry from other software-only cloud platform providers. Additionally, operators' use of in-house developed software platforms, industry initiatives such as Sylva, and public cloud providers' on-premises solutions could potentially limit Broadcom's opportunities.

5. Conclusion

Broadcom offers a field-proven solution for operators looking to deploy a horizontal network cloud. Ongoing investment in its automation solutions has also resulted in Telco Cloud Platform having strong capabilities to support operators with network O&M.

Being able to achieve benefits from adopting cloud-native networks will require operators to do more than just implementing a horizontal network cloud platform. For example, operators will need to expand their adoption of cloud-native automation concepts (i.e. declarative, intent-based and GitOps-driven automation), implement automated multi-vendor CI/CD pipelines, adopt DevOps/DevSecOps practices, share cloud-native learnings across teams, get better at capturing and using observability data, and increase the use of AI to support network operations. Working with partners such as Broadcom that offer capabilities, solutions and services to help support operators in implementing these practices will be key for operators to make a success of their cloud-native transformations.

6. About the authors

Joseph Attwood (Senior Analyst) is based in our London office. He is part of the Networks and Cloud research practice and contributes to the Cloud and AI Infrastructure, AI and Data Platforms and NaaS Platforms and Infrastructure programmes. Key focus areas for his research include the cloud-native transformation of telecoms operators' networks, data and AI platforms offered by vendors targeting operators and the application of generative AI in the telecoms industry. He studied computer science at the University of Surrey.

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