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Perspective

Cloud-native networks: telecoms operator readiness and strategies for deployment and operations

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Contents

1. Executive summary 1

2. Cloud-native networks help to deliver improved agility and operational efficiency 2
2.1 What are cloud-native networks and what are their benefits? 2
2.2 How advanced is cloud-native adoption among telecoms operators? 4

3. Cloud-native networks pose challenges, particularly because VNFs and CNFs often need to coexist 6

4. Horizontal network clouds can constrain the costs and complexity of hybrid VNF/CNF networks 7
4.1 Horizontal network cloud platforms should support automation based on ETSI NFV MANO as well as GitOps-based, cloud-native automation approaches 9
4.2 Horizontal network cloud platforms can be more conducive to implementing AI-native networks than if operators use NEPs' vertically integrated stacks 11
4.3 Operators can begin by adopting horizontal network cloud platforms for network upgrades or by consolidating their existing mobile core infrastructure 11

5. Conclusion and recommendations 12

6. About the authors 14

List of figures

Figure 1: Operators' ranking for the drivers of cloud-native network adoption, worldwide, October 2023 to February 2024 3
Figure 2: Operators' current and planned deployment environments for their mobile core NFs, worldwide, December 2024 to January 2025 5
Figure 3: Comparison of siloed mobile core networks with horizontal network cloud platforms 8
Figure 4: Essential capabilities required of horizontal network cloud platforms 9
Figure 5: Features of cloud-native automation 10

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1. Executive summary

Telecoms operators are increasingly adopting cloud-native network functions (CNFs) for the mobile core network domain. This adoption has been driven by the growing maturity of cloud-native technologies for telecoms networks, and a clearer business case for cloud-native networks is beginning to emerge. Operators increasingly understand that cloud-native networks will play an important role in driving improved operational efficiency and network agility, allowing them to reduce costs and the time that is needed to bring new software and services to market. To achieve these benefits, operators require effective automation and orchestration solutions. This includes using GitOps-based, cloud-native automation that leverages the inherent orchestration capabilities of Kubernetes (K8s) and that converges the automation of the cloud infrastructure and network function (NF) layers.[1]

However, operators continue to face organisational challenges (such as a lack of cloud-native skillsets) and technical challenges (for example, some CNFs from NF vendors do not fully align with cloud-native principles) that hinder their adoption of cloud-native networks. Furthermore, operators will only migrate from virtualised network functions (VNFs) to CNFs in a gradual, piecemeal fashion. Consequently, VNFs will need to coexist alongside CNFs in operators' networks for some time. Operators must support this model of coexistence without driving up costs and complexity, introducing unnecessary duplication (of systems, processes and effort) or hindering network programmability.

The use of a horizontal network cloud platforms – a unified platform for running network functions as disaggregated software on a common cloud platform rather than on separate, dedicated hardware – can play a critical role in streamlining the adoption of CNFs, addressing challenges with VNF/CNF coexistence and automating cloud-native networks.

We have the following recommendations for telecoms operators that are adopting cloud-native technologies for the mobile core domain.[2]

- Operators should ensure that they have a comprehensive understanding of the benefits of cloud-native networks.
- Operators should adopt a common, horizontal network cloud platform for their mobile core VNFs and CNFs.
- Operators should consider adopting GitOps-based, cloud-native automation for their cloud-native networks while continuing to use NFV MANO[3] for VNFs and their underlying infrastructure.
- Operators should work with vendors that have strong capabilities for both cloud-native networks and legacy networks.

[1] For more information on cloud-native automation, see section 4.1.

[2] See the 'Conclusion and recommendations' for more details on these recommendations.

[3] NFV MANO = network functions virtualisation management and orchestration.

- Operators should encourage vendors to provide products that fully support their cloud-native network ambitions.

2. Cloud-native networks help to deliver improved agility and operational efficiency

2.1 What are cloud-native networks and what are their benefits?

Telecoms operators' networks have evolved over the 10 years from operational technology (OT) characterised by highly proprietary, tightly integrated, closed systems to becoming an IT technology characterised by open and modular components that are software-/cloud-based. This change began with the virtualisation of NFs, which separated NF software from proprietary hardware and implemented it on virtualised servers. However, operators realised that they could unlock further benefits if they transformed their NFs into cloud-native software that follows the twelve-factor app methodology.[4] As a result, operators began adopting cloud-native networks in the early 2020s.

The Cloud Native Computing Foundation (CNCF) defines cloud-native technologies as those that empower organisations to build and run scalable applications in modern, dynamic environments such as public, private and hybrid clouds. These technologies enable loosely coupled systems that are resilient, manageable and observable, and can be combined with robust automation. In the context of the telecoms industry, this means deploying CNFs, which leverage microservice and container-based architectures, on K8s-based cloud platforms.

However, cloud-native networks go beyond just container-based deployments; operators also have to adopt new network operating models that foster operational efficiency and agility. This includes:

- implementing automation and lifecycle management approaches that use K8s' inherent orchestration capabilities to facilitate a move to declarative, intent-based, closed-loop network operations.
- implementing automated, multi-vendor CI/CD pipelines and GitOps – a method for network operations and management (O&M) that uses Git as a single source of truth that stores the desired state of the network. This helps to simplify network operations and reduces the time taken to deploy new software and services.
- ensuring network platforms and applications have sufficient abstraction, disaggregation and vendor-agnosticism to enable them to be deployed on any infrastructure. This can help improve the scalability, resilience and flexibility of networks.
- adopting industry-standard tooling, workflows, data models and APIs alongside open-source solutions from the broader IT world, enabling operators to benefit from the rapid pace of open-source innovation while maintaining interoperability and consistency.

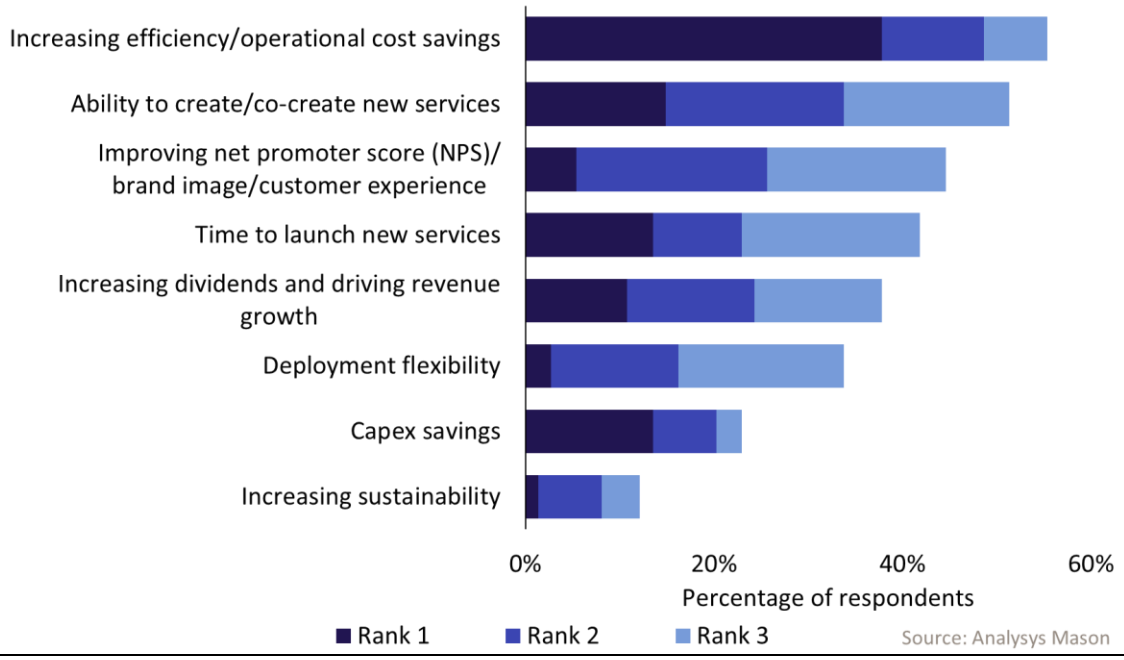
[4] The twelve-factor app methodology is a set of best practices for designing cloud-native applications, covering the codebase, dependencies, configurations, processes, scaling and logs that help ensure portability, scalability and maintainability across environments.

- leveraging the increased availability of observability data from cloud-native systems to facilitate more efficient network operations/automation and improved network assurance.

- improving network security, for example, by taking advantage of security tooling from the cloud-native ecosystem, quickly applying security patches to individual microservices and expanding the availability of security telemetry data.

Following a period of several years of uncertainty among many operators about the business case for cloud-native networks, operators are more widely beginning to understand the importance of cloud-native architectures for driving operational efficiency and cost savings. This fact is reflected in the results of a survey that Analysys Mason conducted of 75 operators between October 2023 and February 2024 – see Figure 1.[5]

Figure 1: Operators' ranking for the drivers of cloud-native network adoption, worldwide, October 2023 to February 2024[6]



Cloud-native networks can bring operational efficiency benefits due to their ability to facilitate network automation. The disaggregated, decomposed nature of CNFs and the use of industry-standard, reusable cloud-native components (including tooling, workflows, data models and APIs) enable operators to apply a common and consistent automation framework to their network. This automation framework can be applied to all parts of the network, including different domains and different vendors' solutions. Subsequently, it is easier to achieve autonomous operations across areas such as self-healing, software upgrades and performance optimisation at scale.

Cloud-native networks also lend themselves well to new automation approaches that can eventually allow networks to transition to being declarative and intent-based. This is because the K8s API is declarative, so by extending K8s through K8s operators and Custom Resource Definitions (CRD), declarative operations can be applied to both cloud infrastructure and CNFs. For example, the Cluster API project provides a declarative way of managing the lifecycle of multiple K8s projects; use of the Cluster API has become a defacto standard

[5] For more information, see Analysys Mason's *Cloud-native mobile core networks: operator maturity index*.

[6] Question: Rank your top three drivers for introducing cloud-native networks; *n* = 75.

approach for managing/automating cloud-native infrastructure. A transition to declarative, intent-based networks will abstract the complexities of network configuration and management. This will enable operators to specify high-level network requirements (relating to areas such as performance and support for new services), that can be actioned automatically. The result will be improved network performance, flexibility and operational efficiency. These benefits may be amplified as operators expand their use of AI for network operations.

> The operational efficiency benefits associated with cloud-native networks will become more pronounced as AI is increasingly integrated into networks. This is down to cloud-native systems enhancing observability and visibility into networks by external orchestration systems.
>
> *Director, Network Platforms, Tier 1 operator in Asia–Pacific*

In addition, operators increasingly understand that the agility offered by cloud-native architectures is essential in helping them to quickly launch and monetise new services. This can include services such as network slicing, mobile private networks and network-as-a-service (NaaS). Operators will be able to make updates to individual microservices and leverage the automation built into their cloud-native network clouds to make changes to their network flexibly, thereby accelerating the process of introducing new services. The use of a K8s platform also makes it more straightforward to achieve consistency across development, testing and production environments, with automated CI/CD pipelines and GitOps helping operators to migrate new applications between these environments. Additionally, CNFs will allow operators to expose API both internally, to support developers in creating new services, and externally, which can be consumed by third-party application developers.

2.2 How advanced is cloud-native adoption among telecoms operators?

Cloud-native technologies have been gaining traction in telecoms operators' networks for the last 5 years, especially for 5G mobile core networks. We are now beginning to see cloud-native networks move beyond the purview of only the most advanced/ambitious operators, with cloud-native technologies being adopted for domains other than 5G standalone (SA) cores. Cloud-native evangelists within operators are finding growing success in promoting cloud-nativeness as a strategic consideration when operators look to evolve or refresh their mobile networks.

> We are turning to cloud-native approaches whenever we need to upgrade our network to overcome capacity bottlenecks.
>
> *Manager, Network Strategy, an operator with operations across Africa and the Middle-East*

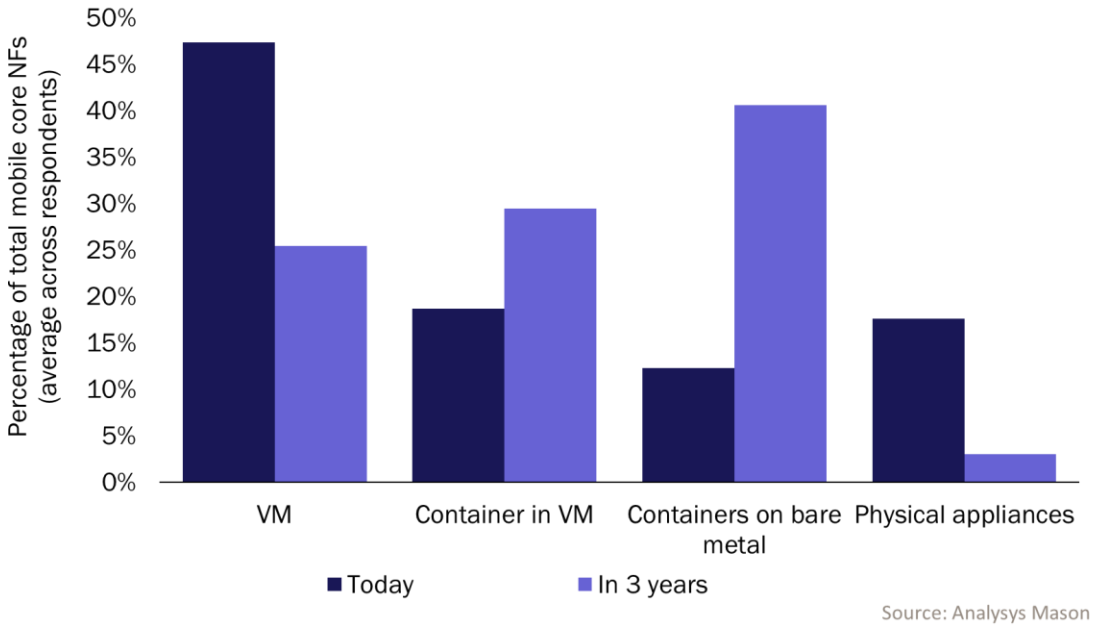
Vendors have also improved their ability to deliver cloud-native solutions and to support operators with their implementation and operation of cloud-native networks. The telecoms industry has now gained much experience in implementing solutions from IT and open-source communities in cloud-native networks. However, there are still complaints about the extent to which network equipment providers' (NEPs') CNFs conform to cloud-native principles. For example, many CNFs have strict dependencies – both between individual microservices within the CNFs and between CNFs and the underlying hardware and software infrastructure. Additionally, CNFs often do not fully support cloud-native lifecycle management (LCM) approaches, such as in-service software upgrades (ISSUs).

Analysys Mason estimates that spending on CNFs will account for 36% of mobile core NF spending in 2025, up from 26% in 2024.[7] This figure is expected to grow to 76% in 2030. Additionally, in December 2024–January 2025, we asked 45 Tier 1 operators about which environment they were currently using to run their mobile core NFs and which environment they will use in 3 years' time. Survey responses indicate that by the beginning of

[7] For more information, see Analysys Mason's *Network cloud infrastructure: worldwide forecast 2024–2030*.

2028, an average of 73% of mobile core NFs will be deployed as containers (either in VMs or on bare metal), up from 32% at the beginning of 2025 (Figure 2). This shows that operators have strong ambitions to move towards containerised, microservices-based CNFs in the next 3 years. However, it is worth noting that few operators' core networks will consist solely of CNFs. Most operators that have started their cloud-native network transformations will use a mixture of CNFs and VNFs; this will add to the complexity of their networks.

Figure 2: Operators' current and planned deployment environments for their mobile core NFs, worldwide, December 2024 to January 2025[8]



While cloud-native networks promise to unlock higher levels of automation, it has been challenging for many operators to fully realise these benefits. Analysys Mason's survey of 75 operators in late 2023–early 2024 about their adoption of cloud-native mobile cores measured operators' performance against DevOps Research and Assessment (DORA) metrics to understand their progress in implementing automation. The metrics were deployment frequency, lead time to changes, change failure rate and time to restore service for their mobile core networks. On average, the most cloud-native operators in the study – those that had already implemented a microservice architecture and a horizontal platform for NFs – only scored 23% of the maximum score using these metrics. For operators that stated that they would use microservices architectures and a horizontal platform by the beginning of 2025, the average DORA score was 19% of the maximum score, while for the remaining operators, it was just 12%. This demonstrates that although cloud-native networks can support higher levels of automation, implementing CNFs alone is not sufficient for operators to achieve the full automation potential of cloud-native networks (however, the most cloud-native operators have been able to achieve the most automation).

[8] Question: What percentage of mobile core NFs are you running in each environment currently? What about in three years' time?; *n* = 45.

3. Cloud-native networks pose challenges, particularly because VNFs and CNFs often need to coexist

While interest in cloud-native networks is strong and growing, organisational and technical barriers continue to pose challenges for large-scale operationalisation of cloud-native networks. Early adoption of cloud-native networks among operators was especially hindered by decision makers' lack of understanding of cloud-native technology and by the perceived lack of a business case for cloud-native networks. While these challenges still exist to some extent, operators have made considerable progress in overcoming obstacles during the last 3 years because they have developed an improved understanding of, and vision for, cloud-native networks.

Operators often believe that cloud-native networks will introduce complexity and that their in-house skills are not sufficient to overcome this complexity. A key technical challenge faced by operators is the need to operate cloud-native networks alongside their legacy systems. Few operators have the appetite, at least in the short term, to completely replace their entire estate of VNFs with CNFs. For example, it may not make sense from an ROI perspective for an operator to replace an existing VNF-based 4G networks with a cloud-native 4G network. Subsequently, VNFs will need to coexist with CNFs, potentially even within the same mobile core network domain. This results in divergent day 0, 1 and 2 systems, topologies, workflows and standards needing to be applied by operators to manage their networks. This challenge is exacerbated by the need to manage the various underlying infrastructure technologies to run NFs. Analysis of the data behind Figure 2Figure 2 indicates that 78% of operators were running their mobile core network functions using at least two different environments out of the four possible environments (virtual machines, containers in virtual machines, containers on bare metal and physical appliances). 35% of operators were using at least three of these environments.

To prevent increasing levels of complexity in hybrid VNF/CNF networks, operators need to stitch together and harmonise O&M systems and processes for both VNFs and CNFs, potentially by implementing higher-level orchestrators (operators want to avoid the cost of needing to completely reimplement O&M systems and processes). However, achieving this harmonisation is technically challenging. Furthermore, the need for backwards compatibility with traditional virtualised networks could potentially limit operators' ability to unlock benefits from applying cloud-native concepts such as GitOps to networks.

> "Adopting two ways of managing networks [for VNF-based and CNF-based networks] would make operations and management challenging. It would eliminate the advantages that come from adopting CNFs. Operations and management for VNF-based and CNF-based networks should be done in a unified manner."
>
> *Director, Network Platforms, Tier 1 operator in Asia–Pacific*

In addition, as mentioned previously, cloud-native networks are about more than just deploying network functions in containers. Truly cloud-native networks require operators to adopt new approaches to network operations, automation and LCM (see section 4.1 for more details). Without these new approaches, operators will struggle to maximise operational efficiency and agility benefits from deploying CNFs and can become overwhelmed by the complexity of their cloud-native networks. However, these new models for O&M are still unfamiliar for many operators, and they therefore lack the necessary cloud-native skills required for these approaches.

> Telecoms operators are beginning to understand containers but don't fully leverage cloud-native concepts on top of this … they are stuck operating networks the same way they were doing so 20 years ago.
>
> *System Architect, Tier 1 operator in Western Europe*

Operators also face the challenge that the 'CNFs' offered by NF vendors do not always have all the characteristics that are expected of a cloud-native NF. Operators report that rather than true cloud-native NFs, NF vendors tend to deliver containerised VNFs that continue to have strict dependencies and do not have sufficient support for applying cloud-native concepts to LCM. The burden is on NF vendors to build more cloud-native NFs as well as on operators to come together and demand truly cloud-native NFs from their vendors. Operators need to develop common requirements for cloud-native solutions and present a strong, collective stance when asking vendors to meet these requirements (for example, through initiatives such as Sylva or the Cloud Native Telecom Initiative). Furthermore, operators need to show willingness to invest in open, horizontal infrastructure and automation platforms, and they need to push vendors to align with these open platforms, rather than buying vertically integrated solutions with strict dependencies.

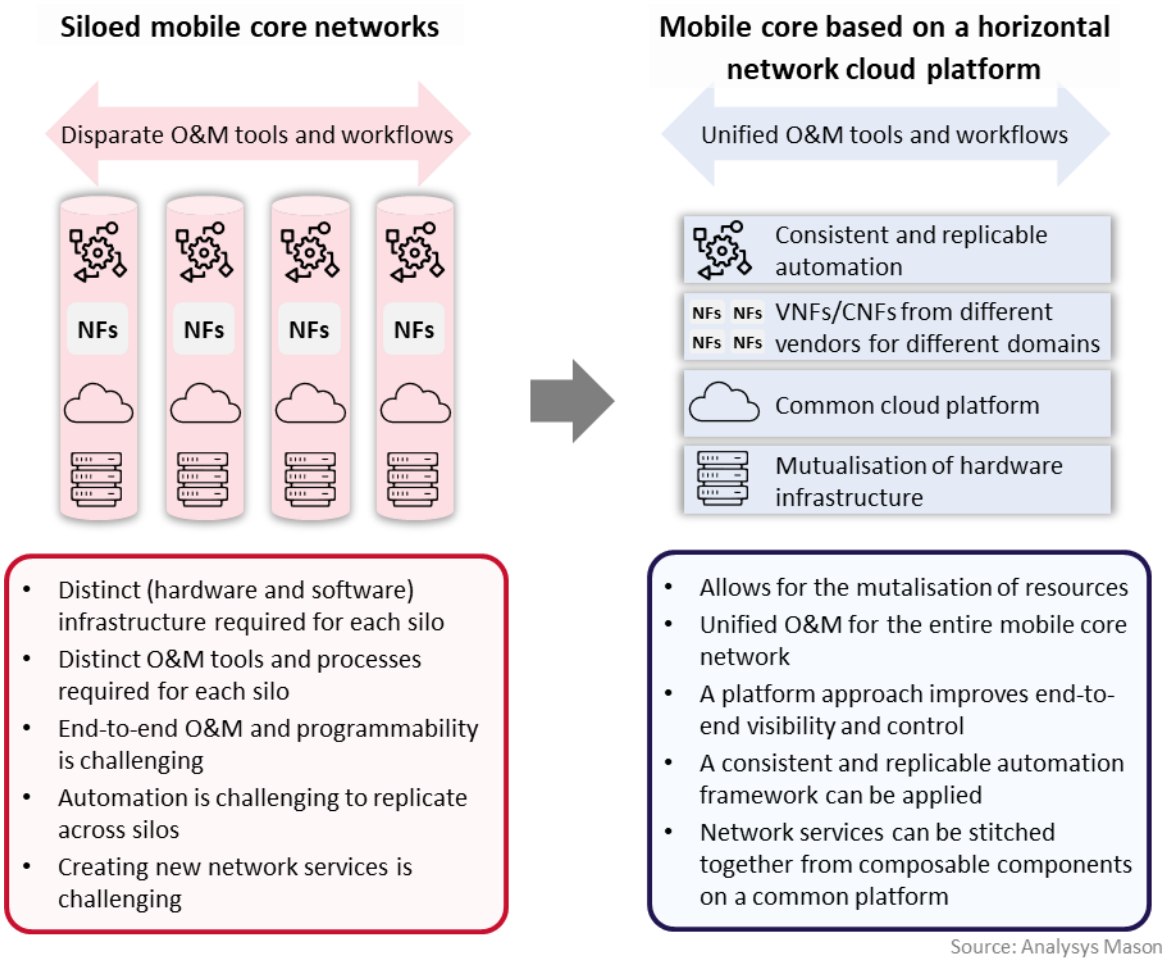
4. Horizontal network clouds can constrain the costs and complexity of hybrid VNF/CNF networks

Many operators continue to deploy their networks using vertically integrated stacks provided by NEPs, even as they adopt virtualised and cloud-native mobile core networks. Analysys Mason's research found that 57% of 5G network cloud deployments for the mobile core domain in 2024 used a vertically integrated network stack.[9]

Vertically integrated network stacks can reduce complexity for operators because the solutions are fully pre-integrated and tested, and NEPs can provide full end-to-end support. However, they may restrict access to innovation and savings from infrastructure mutualisation, and result in lock-in to a particular NF vendor. Furthermore, this approach results in siloed network clouds, which makes achieving end-to-end network programmability more difficult. These silos can also make network automation more challenging because rather than implementing consistent network automation and reusing automation systems/assets, operators need to rely on unique automations for each silo. In the context of hybrid VNF/CNF networks, CNFs would be confined to vertically integrated stacks/operational silos that are separated from VNFs. This means that disparate tools and processes will be required for the O&M of CNFs compared to VNFs, inducing duplication and complexity. Figure 3 summarises the key challenges associated with deploying mobile core networks as operational silos.

[9] For more information, see Analysys Mason's *5G network cloud deployment tracker*.

Figure 3: Comparison of siloed mobile core networks with horizontal network cloud platforms



Operators can overcome network silos by adopting horizontal network clouds. This involves implementing a common network cloud platform that enables them to deploy, operate and manage VNFs and CNFs from different vendors, for one or more network domains, in a unified manner. This can reduce cloud infrastructure costs by allowing for the mutualisation of resources, rather than operators requiring distinct infrastructure for each vertical stack. For example, Orange Group has said it achieved 30–70% savings in cloud hardware capex in its various operating companies (opcos) through hardware mutualisation achieved through implementing a common horizontal network cloud platform.[10] Critically, such a platform also brings reusability: all VNFs and CNFs for the mobile core domain can be deployed on a single horizontal platform. This should make it easier for operators to gradually migrate from VNFs to CNFs as the need/business case arises.

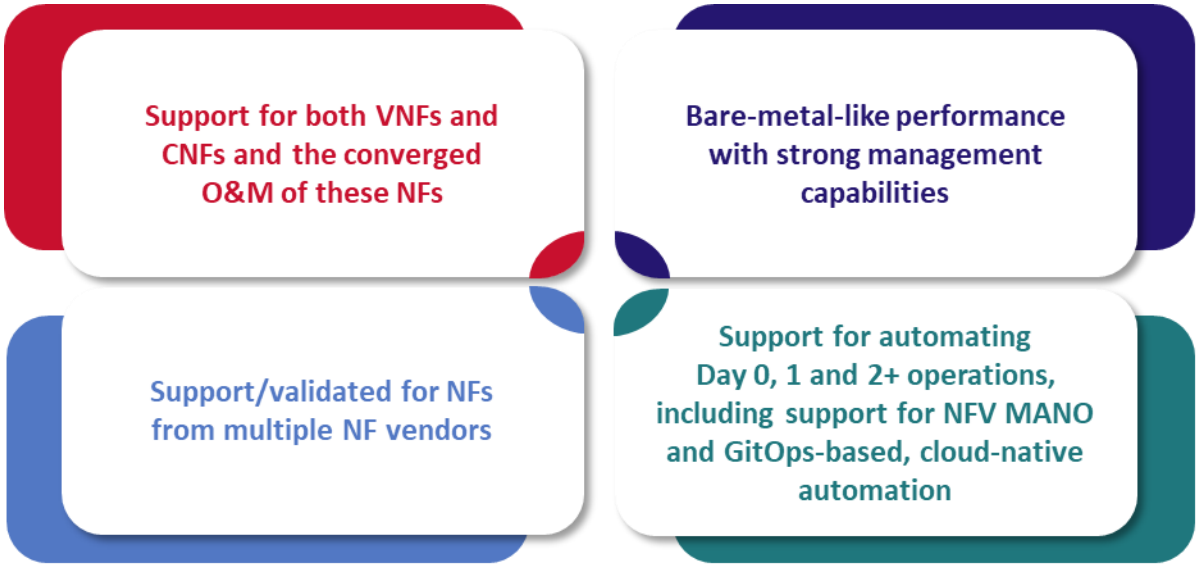
The automation systems, pipeline and processes built into or on top of horizontal network cloud platforms can also largely be reused when moving from VNFs to CNFs, which minimises the need to rebuild automations. The result is unified (rather than siloed) network operations that help constrain costs and complexity and for which it is more straightforward for operators to implement automation and orchestration.

[10] This information comes from a presentation given at the Sylva Summit 2025.

> Taking vertically integrated cloud platforms plus network functions would limit our ability to get benefits from a cloudified network. A horizontal cloud platform allows the benefits of CNFs to be fully leveraged.
>
> *Manager, Network Strategy, an operator with operations across Africa and the Middle-East*

To unlock benefits from their cloud-native networks, operators require a horizontal network cloud platform that has the capabilities shown in Figure 4.

Figure 4: Essential capabilities required of horizontal network cloud platforms



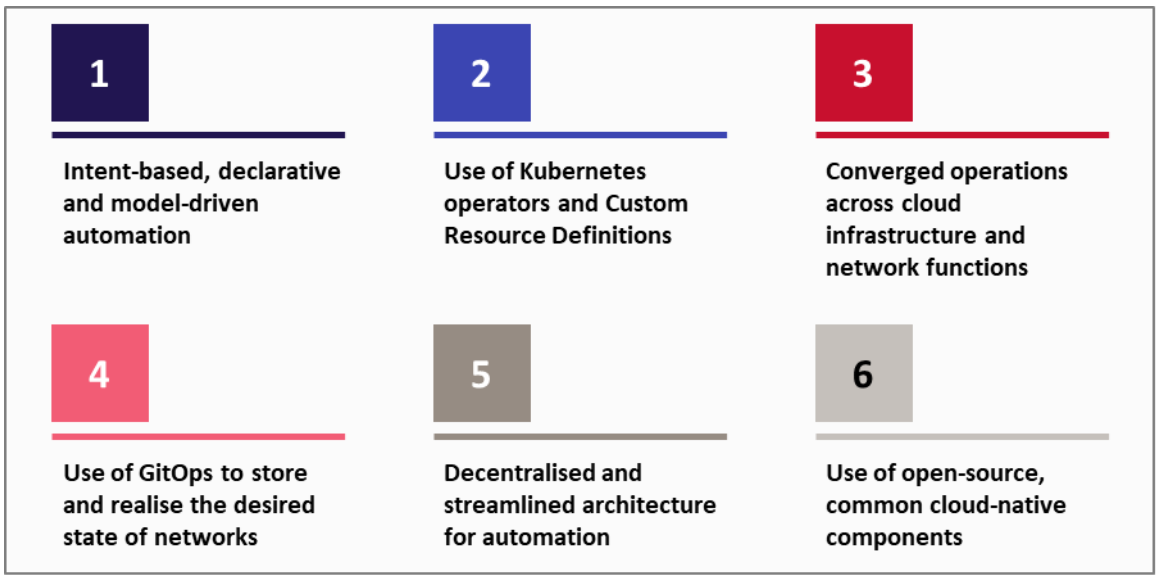
Source: Analysys Mason

In the future, operators can extend the role of their horizontal network cloud platforms to facilitate the convergence of the network and IT domains. This would mean that network and IT workloads share (to some extent) the same hardware infrastructure, software platforms, O&M tooling and workflows, and automation frameworks. This convergence would help save costs through infrastructure resource mutualisation and by sharing software, O&M assets and expertise between IT and network teams.

4.1 Horizontal network cloud platforms should support automation based on ETSI NFV MANO as well as GitOps-based, cloud-native automation approaches

The automation of VNF-based networks has primarily been based on the European Telecommunications Standards Institute (ETSI) NFV MANO framework. This framework can also be applied for CNF-based networks. However, NFV MANO's imperative and hierarchical approach, and the fact that it was designed for VNFs rather than CNFs, mean that it struggles to fully unlock the automation benefits that come with CNFs. This means that some advanced operators want to automate cloud-native networks through an evolved automation approach that takes advantage of the greater automation potential associated with cloud-native technologies. We call this automation paradigm 'cloud-native automation', the key features of which are listed in Figure 5.

Figure 5: Features of cloud-native automation



Source: Analysys Mason

Cloud-native automation is declarative, intent-based and model-driven; it also leverages the inherent orchestration capabilities of K8s. Consequently, it makes the automation of both cloud environments and network functions an inherent part of cloud platforms. It is also strongly associated with the use of GitOps.

Adopting cloud-native automation is critical for achieving agility and operational efficiency benefits from the deployment of CNFs. However, VNFs and their associated cloud infrastructure cannot easily be brought under a cloud-native automation framework. Instead, operators are likely to continue to rely on the NFV MANO for managing the lifecycle of VNFs and orchestrating associated network services.

Consequently, operators need a horizontal platform that can support automation based on NFV MANO for VNFs as well as cloud-native automation for CNFs. This platform will need to help unify the two automation approaches, offering an abstraction model with northbound APIs that hide the intricacies of each approach from high-level orchestrators.

> We have a horizontal platform in place which means that we are ready to adopt GitOps for whatever applications are ready to move to GitOps … [but,] NFV MANO is still important as not everything was designed with cloud-native principles in mind.
>
> *Head of Network Virtualisation, Tier 1 operator in Western Europe*

The adoption of cloud-native automation is still very nascent and even the most advanced operators are facing challenges with it, especially with applying GitOps for Day 2+ operations. For example, it is challenging to apply validation and guardrails, mechanisms for ensuring dependencies are understood and accounted for (which will require effective network modelling), and intelligent error handling capabilities to GitOps. However, a broad consensus is being reached among operators and vendors about the importance of GitOps for simplifying network operations and moving to higher levels of autonomous networking. Subsequently, operators will need to make significant investments internally in the capabilities/skillsets needed to develop and maintain this automation, and/or work with vendors that can support their automation needs.

4.2 Horizontal network cloud platforms can be more conducive to implementing AI-native networks than if operators use NEPs' vertically integrated stacks

By adopting an open horizontal infrastructure, operators have greater flexibility to implement AI solutions from a broader ecosystem of vendors, instead of being restricted to taking solutions from NEPs, as could be the case if they deployed NEPs' vertically integrated stacks. It also means that AI can be applied in a more consistent manner across the network and, because operational silos can be eliminated, AI models will have greater visibility into the behaviour of networks. This can make it more straightforward to implement enhanced orchestration based on AI/AI agents, which could potentially help operators to deal with the challenges of deploying hybrid VNF/CNF networks.

Over the next few years, we expect to see operators attempt to transition towards AI-native networks. This means that networks will be designed to intrinsically facilitate the use of AI to support network operations and optimisation. For example, this could mean that networks are built in such a way as to enable AI to be used to support network assurance and the automation of network infrastructure, functions and network services. A key requirement of operators' horizontal network cloud platforms will therefore be that they are an enabler of this AI-native transition. To achieve this, horizontal network cloud platforms will need to expose data for use by AI models and should facilitate AI models being used to support their operation. Additionally, these platforms will need to be capable of running AI workloads, including agentic AI workloads. This means that these platforms should facilitate the convergence of network and AI workloads (and IT workloads as well, potentially).

4.3 Operators can begin by adopting horizontal network cloud platforms for network upgrades or by consolidating their existing mobile core infrastructure

There are two main approaches that brownfield operators can employ for adopting horizontal network cloud platforms for their mobile cores. Firstly, they can start by implementing a horizontal platform whenever they update or introduce a new mobile core function or subdomain. We envisage this will mainly be done as operators adopt CNFs, for instance when adopting a 5G SA core. Other NFs can then be migrated to this platform as their cloud-native versions are adopted, or as operators decide they want to migrate existing VNFs to this platform. A second approach that operators may take is to transform their existing network infrastructure by collapsing their VNF-based mobile core silos into a single horizontal mobile core platform that can address the requirements of both VNFs and CNFs. This would create a future-proof foundation for introducing CNFs, as well as for operating and automating hybrid VNF/CNF networks more efficiently. Both approaches will require operators to rework their O&M processes and automation.

While some operators have developed such a horizontal cloud platform in house, sourcing a platform from a vendor (fully or partially) can help to alleviate development costs and complexities. Additionally, popular horizontal cloud platforms from vendors have existing support and certification for a wide range of third-party software, which can be difficult to achieve when developing a platform in house.

A barrier to adopting horizontal network cloud platforms is that it requires operators to move to a disaggregated model, away from the comfort of taking vertically integrated solutions from NEPs. Operators need to recognise the benefits of adopting a common network cloud platform from a simplicity and an operational efficiency perspective, especially because the gradual CNF adoption will mean that operators' networks will become a complex mix of VNFs and CNFs.

5. Conclusion and recommendations

To conclude, cloud-native mobile core networks are becoming more mainstream. However, challenges with adopting cloud-native networks still remain. In particular, operators need to consider how they will operate cloud-native networks alongside their legacy networks and how to implement automation that allows them to maximise the operational efficiency benefits associated with cloud-native networks. The adoption of a horizontal network cloud platform can help to address many of the challenges that operators have with cloud-native networks and the operation of hybrid VNF/CNF networks (on top of helping to reduce capex by allowing for infrastructure mutualisation).

We have the following recommendations for telecoms operators that are adopting cloud-native technologies for the mobile core domain.

- **Operators should ensure that they have a comprehensive understanding of the benefits of cloud-native networks.** Operators need to understand how cloud-native networks can deliver operational efficiency and agility benefits. Pursuing the right goals will be critical for getting management buy-in for cloud-native technologies and for being able to realise benefits from cloud-native networks.

- **Operators should adopt a common, horizontal network cloud platform for their mobile core VNFs and CNFs.** Operators can implement a horizontal network cloud platform to address many of the technical challenges that come with adopting cloud-native networks. Such a platform will also help to address the complexity of operating hybrid networks comprising VNFs/CNFs and the challenges associated with implementing automation for these networks. Brownfield operators can begin by either implementing a horizontal platform for updates to their mobile core networks, or by consolidating their existing mobile core silos into a single platform.

- **Operators should consider adopting GitOps-based, cloud-native automation for the cloud-native networks while continuing to use NFV MANO for VNFs and their underlying infrastructure.** In order to maximise the benefits from deploying cloud-native networks, operators need to adopt an automation approach that fully capitalises on the automation capabilities of K8s, the ability to use GitOps, and the observability data generated by CNFs' microservices. However, VNF-based networks will largely continue to be automated via existing NFV-MANO-based approaches. Operators need to be able to unify these two approaches to automation to ensure smooth end-to-end network operations.

- **Operators should work with vendors that have strong capabilities for both cloud-native networks and legacy networks.** Operators will need support from vendors to resolve a lack of in-house cloud-native skills. These vendors should be able to support operators with solutions (primarily products, but potentially also professional services) related to deploying, operating and automating cloud-native networks. However, as many operators will be operating hybrid VNF/CNF networks, operators will ideally work with vendors that also have the expertise to support them with operating VNF-based networks and that have experience supporting operators with these hybrid networks.

- **Operators should encourage vendors to provide solutions that fully support their cloud-native network ambitions.** Operators need to come together and present a strong, collective stance when asking for truly cloud-native solutions from vendors. They need to develop and present a common set of requirements for NFs, cloud platforms and O&M solutions that, once fulfilled, will help operators fully unlock the benefits promised by cloud-native architectures. For example, operators should push for NF vendors to fully embrace cloud-native best practices for their CNFs. Operators can promote their requirements by engaging with initiatives such as Sylva and the Cloud Native Telcom Initiative. Operators

should aim to avoid compromising on open networks by taking vertically integrated solutions if these solutions prevent them from fully realising their cloud-native network ambitions.

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.

Gorkem Yigit (Research Director) is a Research Director within the Networks and Cloud research practice. He leads the Cloud and AI Infrastructure and the NaaS Platforms and Infrastructure research programmes. He guides clients through the transition to software- and cloud-based network technologies and architectures that support automation, AI capabilities and API-enabled services.