



Network-as-a-service: Shaping the future of telecoms

NaaS is set to reshape the telecoms landscape, delivering on-demand networking through cloud-based models. While NaaS 1.0 leverages APIs to program virtualised telco networks, NaaS 2.0 will use AI and cloud-native networks to redefine connectivity. We propose three distinct business models that telcos can adopt to target the NaaS 2.0 opportunity.

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What is NaaS?

Network-as-a-service (NaaS) is a cloud-based product that offers networking services to businesses and organisations on a pay-as-you-go basis. Similar to other “as a service” models, NaaS provides networking functionalities and capabilities on demand. Key benefits of NaaS include:

1. **Scalability and flexibility:** NaaS allows businesses to easily scale up or down their networking resources based on their requirements, without extensive upfront investments.
2. **Cost-efficiency:** By outsourcing network infrastructure to a NaaS provider, businesses can reduce capital expenditures and only pay for the resources they use.
3. **Reduced complexity:** NaaS abstracts the technical complexities of networking, making it easier for businesses to deploy and manage their network services.
4. **Rapid deployment:** NaaS services can be provisioned quickly, allowing businesses to respond faster to new opportunities or changing demands.
5. **Managed services:** NaaS providers often offer managed services, which can offload the burden of maintaining and monitoring network infrastructure from the business itself.

At the moment, NaaS is geared towards monetising opportunities arising from the ability to program and customise largely virtualised functions of the telco network around the needs of different applications, usually using application programming interfaces (APIs). We call this opportunity NaaS 1.0. However, we believe that API-based NaaS will be replaced by a new generation of artificial intelligence (AI)-driven NaaS, which we call NaaS 2.0. This has been discussed in more detail in our recent report [Network-as-a-service: APIs, AI and the open cloud](#).

How does NaaS 2.0 differ from NaaS 1.0?

NaaS 1.0 and NaaS 2.0 represent distinct phases in the evolution of network as a service.

NaaS 1.0 emerged with the advent of network virtualisation and disaggregation. The NaaS concept, inherently linked to the telco cloud, became important as virtualised network functions (VNFs) took shape. NaaS 1.0 is centred around providing network services through network information and network configuration APIs, aiming to achieve goals such as on-demand activation of networking capabilities, dynamic scaling, programmability and centralised management through software-defined networking.

NaaS 2.0 represents a more advanced phase that capitalises on the potential of AI, cloud-native networks, and broader technological trends. AI has the potential to play a significant role in NaaS 2.0 by automating and optimising the creation, orchestration, and management of cloud-native network components. AI-driven NaaS introduces the possibility for what we term “net compute”: where AI dynamically optimises and coordinates the various layers of both network and application software, resulting in more efficient and effective service delivery. This version of NaaS transcends traditional boundaries, merging private telco clouds with hyperscale public clouds to create a unified “open telco cloud” that supports a wide array of AI-driven, on-demand services.

Figure 1: The differences between NaaS 1.0 and NaaS 2.0



Source: STL Partners

Three NaaS 2.0 business models for telcos

We have identified three main business models that telcos could adopt to capture the potential of the NaaS 2.0 market, which align with telcos' existing telco cloud "pathways", as set out in our [Telco Cloud Manifesto 2.0](#).

Co-creator

In the co-creator model, telcos will partner with application developers to design and manage cloud-native software layers for NaaS services. This collaborative approach is ideal for telcos embracing cloud- and software-centric networking. Telcos would focus on network-function software, while application developers would handle application software, although the two layers will be interconnected and dynamically interact, aided by AI-driven optimisation. This model shifts telcos' role from physical infrastructure operators to software-driven service creators. The model envisions infrastructure-independent operation and suits both DIY best-of-breed and infrastructure-independent operators: Pathways 3 and 4 respectively.

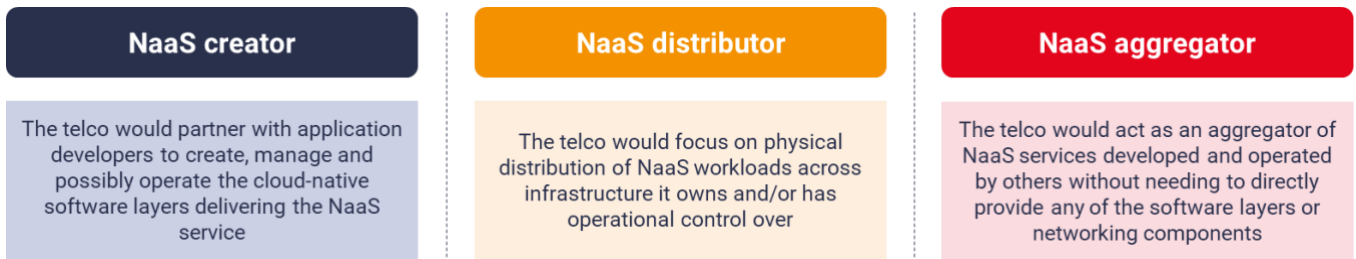
Distributor

The physical distributor model is best suited for telcos retaining focus on physical networking assets and vendor partnerships. This model aligns with the traditional telco role of operating physical network equipment and services. In this approach, telcos provide the underlying physical infrastructure for NaaS workloads, such as network facilities, data centres, edge sites, and physical networking equipment and infrastructure (such as RANs and fibre access), enabling third parties and NaaS ecosystems to build and manage application, network-function, cloud-platform, and hardware layers. The telco's role is primarily concerned with ensuring reliable and timely delivery of NaaS 2.0 workloads across their infrastructure. While this role is less transformative compared to other NaaS models, it represents a significant opportunity as NaaS 2.0 gains traction. This option suits operators that are following either Pathway 1 or 2 in their journey to telco cloud.

Aggregator

The NaaS aggregator model relates to marketing, orchestrating, and regulating third-party NaaS offerings without creating or directly managing NaaS components. In this business model, telcos act as intermediaries, reselling NaaS services, providing cross-domain orchestration, operating NaaS marketplaces for AI-driven service deployment, and potentially taking on a regulatory function to ensure NaaS reliability and security. This approach allows telcos to participate in the expanding NaaS 2.0 market without developing their own services, leveraging their existing capabilities in billing, orchestration, and networking. While it involves less direct investment, this model still offers significant revenue potential, as the offering would be attractive to larger enterprises wanting to deal with a single provider.

Figure 2: NaaS 2.0 business models



Source: STL Partners

NaaS providers

PCCW and Console Connect

In 2017, PCCW Global **acquired the software firm Console Connect**, a move that facilitated the company's transition from a telecommunications operator to a technology-driven platform. The integration of Console Connect's automation tools with PCCW Global's network infrastructure enabled the deployment of on-demand services, which customers can leverage for cloud computing and application development. In the same year, PCCW Global introduced its **"Restoration On Demand"** service, characterised as a NaaS solution, allowing customers to swiftly redirect their connections to an alternative network route in case of an undersea cable outage, effectively and quickly restoring their connectivity. The companies have recently launched the PartnerConnect programme, which is designed to help various ecosystem players extend their service portfolio, and connect their customers, clouds, and applications worldwide through the Console Connect NaaS platform.

Teridion and neutrality.one

Neutrality.one **has partnered** with Teridion to deliver networking services via its NaaS solution. Teridion's global WAN service is built upon a network of more than 25 public cloud providers globally, including AWS, Microsoft Azure, Google Cloud Platform, and IBM Softlayer. As such, this collaboration enables neutrality.one to leverage Teridion's multi-cloud platform, which has over 500 points of presence worldwide, for its global managed internet offerings. The integration of Teridion's platform via APIs and monitoring tools provides neutrality.one's customers with connectivity solutions complemented by MPLS-level service-level agreements. Neutrality.one's SDN private network services are accessible from over 120 data centres situated across 56 cities.

EnterpriseWeb

EnterpriseWeb has a cloud-native integration and automation platform, which supports application modernisation and digital business transformation initiatives. The company illustrates the integration of networking with cloud-based IT and operational technology, which is a key characteristic of NaaS 2.0. They provide an abstraction framework that allows the setting up and orchestration of on-demand, bespoke networking that distributes data and compute workloads as required by the enterprise applications and functions involved.

Future outlook

NaaS has potential for substantial market growth for telcos over the next five to ten years. As the telecoms industry continues to evolve, NaaS 2.0 will redefine how networking services are delivered, offering enhanced customisation, efficiency, and flexibility to businesses seeking advanced connectivity solutions. To realise this

potential, telcos need to decide on their network cloudification pathway to position themselves for success in the evolving landscape.

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