



How to become a digital service provider unicorn

The telecoms industry has been targeting digital services for many years, looking to serve new and existing customers with additional digital offerings. However, until recently the digital service provider has been a unicorn. Now, though, the situation has changed and VMware Telco Cloud explains here how it is turning myth into reality

For communication service providers (CSPs) contemplating network transformation over the next few years, the question isn't so much 'What should we do?' but 'Where should we start?'

New 5G and edge innovations offer no shortage of options. With the ability to bring advanced edge intelligence close to users and tune network slices for the applications running on them, CSPs can do amazing innovative things. A world of new consumer and enterprise services – ultra-low latency applications, industrial automation, dynamic augmented and virtual reality (AR/VR) experiences, and many others – become possible.

At VMware, we know that no two transformation journeys will look the same. It's why we designed our Telco Cloud portfolio from the ground up for versatility. We bring cloud-native flexibility, cloud-based service delivery, and end-to-end automation together in a single platform to support the full range of emerging 5G and edge use cases.

In reality, most CSPs will pick one or two areas to focus on, at least initially. But reality is boring. Let's try something different: What if a service provider did everything? What would their network and services look like? What would they be able to do?

Let's take a deep dive into this hypothetical unicorn service provider and see how they can use VMware Telco Cloud to reimagine their business. Note that while the CSP described here is purely imaginary, the solutions and outcomes detailed are anything but. All come from real-world experiences of CSPs working with VMware right now.

The challenge

Unicorn Services is a regional telco providing mobile, fixed-line, and broadband internet services for consumer and enterprise customers. The CSP leads its market, but company leaders are ready to take the next step in transforming their business and can feel new competitors nipping at their heels. As they plan out their investments for the next five years, they have some ambitious goals:

- **Converge siloed operations:** Unicorn Services offers a full range of voice and data services, but it relies on multiple siloed networks to do it. As it prepares to update the voice network for 5G, it finds itself at a crossroads. Should it double down on legacy IP multimedia subsystem (IMS) or adopt a more forward-looking approach?

- **Enable consistent cloud-based service delivery:** Unicorn has been using third-party cloud services for years, both internally and as part of various enterprise offerings. Within the last year though, the company's cloud portfolio had grown highly complex, with a dozen different public, private and hybrid clouds in use. It wants to consolidate everything – core, edge, radio access network (RAN) and public clouds – onto a converged multi-cloud platform, so a centralised team can control all resources and clouds with a single operational model. ▶





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- **Capitalise on new edge opportunities:** Unicorn leaders want to use new 5G and edge capabilities to offer targeted Internet of Things (IoT) solutions for the public sector. To do it, Unicorn needs a solution that's powerful at the edge but easy to control centrally. At the same time, the company doesn't want to get locked into one use case; any investments should support multiple edge offerings to meet diverse customer needs.
- **Modernise the RAN:** Unicorn plans to reimagine the radio access network (RAN) to increase scale and density. Critically though, the company wants to adopt an Open RAN (O-RAN) framework, where it will have the freedom to use best-of-breed RAN technologies from any standards-aligned vendor.
- **Deliver superior customer experiences:** Today, Unicorn operations teams can get buried by the avalanche of network alarms pouring in every day. To support complex 5G and edge services, it needs to cut through the noise and surface the real problems more quickly.

Let's see how Unicorn Services can work with VMware to accomplish all of these goals.

Unify the network

As the first step in its journey, Unicorn needed to lay the foundation for converging voice and data services. The goal: a single, unified services platform that extends from core to cloud to customer, with a single, consistent operational model.

Unicorn's network vendors offered to help it define an IMS evolution strategy, but it looked a lot like the old one: a siloed platform with integrated software. If Unicorn went that route, it would still need dedicated tools and processes for voice services. The company would also be at the mercy of its vendors for new features and pricing. If Unicorn intends to stand out in the coming years, it will need the freedom to continually bring new converged capabilities to customers – in its own way, on its own schedule.

Telco Cloud Platform

Working with VMware, Unicorn designed a unified platform for converging all services and management across multiple layers and clouds in their distributed network. The first step: virtualising and consolidating network functions (NFs) from multiple vendors. VMware made it easy with the VMware Telco Cloud Platform.

VMware Telco Cloud helps CSPs deploy virtualised and containerised network functions (VNFs/CNFs) across their networks from core to edge, enabling simpler, more consistent operations. With a single, flexible cloud-based platform, Unicorn Services gained:

- **Performance:** Telco Cloud solutions help Unicorn optimise application throughput and response times across the multi-vendor architecture.
- **Scalability:** The network can now dynamically allocate capacity to respond to spikes in demand. Soon after launch, for example, a popular sporting event aired that suddenly increased demand by 30%. Unicorn was able to spin up new resources in seconds.
- **Resiliency:** With consistent operations for all services, Unicorn customers can now benefit from advanced resource guarantees, unified monitoring, and closed-loop remediation.
- **Agility:** The converged platform provides a versatile foundation for Unicorn to develop new products and quickly bring them to market. The CSP has already cut roll-out times in half for new services. ▶



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Today, Unicorn has a head start on wherever its transformation journey takes it. With a unified services platform, it can use the same operations for any application, running in any cloud, over any access, to any customer.

Enable consistent multi-cloud management with centralised control

Unicorn leaders knew that cloud would play a central role in their transformation, but few vendors could deliver the multi-cloud platform they had in mind. Some offered solutions that would lock them into siloed proprietary ecosystems and roadmaps. Others offered clunky solutions based on open source software that would be difficult to integrate and expensive to maintain. Only VMware offered a mature Telco Cloud platform that could unify all networks and operations across multiple vendors and clouds.

Telco Cloud Solution

VMware Telco Cloud solutions provide a versatile digital foundation to help Unicorn build, run, manage, connect, and protect multi-cloud services. In addition, VMware's pioneering leadership in virtualisation made it the perfect partner to disaggregate the previously monolithic, hardware-based network.

Today, Unicorn can treat all infrastructure and services as cloud-based software – delivering any application, to any device, across any cloud. It has implemented a single, vendor-agnostic platform for new and existing applications, with a consistent operating model across engineering, operations and service assurance. Unicorn has also standardised on a common catalogue of network services that can be provisioned in the same way across all markets, regardless of where workloads are deployed.

With this unified multi-cloud platform, Unicorn can:

- **Improve scalability** by scaling network resources up and down, in and out, as needed to meet changing demand
- **Drive down costs and complexity** by centralising network operations, automating manual processes, and breaking free from vendor lock-in
- **Increase agility** with a consistent, cloud-connected platform to create new services on the fly and rapidly bring them to customers

Capitalise on the intelligent edge

Unicorn leaders believe that smart cities are the future of public safety, and they plan to use new edge capabilities to bring innovative IoT solutions to public sector customers. They envision an expanding portfolio of applications that use next-generation sensors, ultra-high-definition cameras, and private 5G networks to protect citizens and optimise emergency response. These applications – especially video analytics – will require advanced edge processing unlike anything customers have needed before.

Unicorn wants to be an early market entrant in delivering these new capabilities. At the same time, its edge ambitions go well beyond smart cities. To support other opportunities in the future – industrial automation, healthcare, autonomous vehicles, and others – it wants an open, flexible edge.

Telco Cloud Distributed Edge

Working with VMware, Unicorn designed a new edge architecture to enable remote distribution, management, and operation of IT resources from devices and networks to the cloud. Now, Unicorn is using the Telco Cloud Platform to host local hyperconverged infrastructure, IoT gateways, and predictive analytics for smart city applications. Unicorn will deploy innovative micro data centres close to sensors around a city. These sites will perform predictive and diagnostic analytics at the edge, sending data back to the core data centre only when needed to minimise transport volumes and round-trip times.

With these capabilities, Unicorn can orchestrate complex connectivity and compute for diverse smart city applications. And it can do it under strict service-level agreements (SLAs) – such as delivering advanced video surveillance and analytics with guaranteed quality, coverage and delay. Most importantly, Unicorn can use the same capabilities to support an ever-expanding portfolio of edge use cases in the future, delivering a wide range of applications under diverse SLAs.

Modernise the RAN

Unicorn's ambitious vision for the future will require new levels of capacity, density and performance from the network. To get there, they need to modernise and open up the RAN. As the company evaluated the options though, it found few vendors that could deliver on what it had in mind. Traditional telco suppliers pitched tightly coupled hardware/software solutions that would leave Unicorn locked into its vendors' roadmaps and pricing. Hyperscale cloud providers offered their own solutions, but these would similarly lock Unicorn's customers into one public cloud ecosystem. Only VMware offered a universal platform that could accommodate any vendor's RAN technology and any public, private, or hybrid cloud.

Telco Cloud Solution

Unicorn implemented a powerful Telco Cloud platform for a cloud-native, software-defined 5G network. And, by bringing together multi-vendor innovations across the distributed cloud, edge and RAN, it retained the freedom to use the best-of-breed solutions it chose, without ceding control to a vendor or cloud provider. Through VMware's Ready for Telco Cloud programme, Unicorn can choose from dozens of cloud-native 5G NFs from leading RAN vendors that have been pre-tested and validated for the Telco Cloud Platform. ►



Unicorn has already updated the RAN at thousands of sites, taking advantage of the cloud-native architecture to deploy the network much more quickly and inexpensively. In all, Unicorn expects to save more than US\$50 million in deployment costs over the next four years compared to legacy solutions, and several hundred million in capital infrastructure savings. The open platform also facilitates extensive telemetry – and AI-driven automation to drive down implementation and operating costs. And, thanks to this software-led approach, Unicorn can support all types of customers in every market – enterprise, small business, and consumer – along with a diverse ecosystem of application partners.

Delivering superior customer experiences

Unicorn's network operations team had solid customer satisfaction scores, but the task was getting harder every day. As the network and services grew more complex, they were bombarded with hundreds of thousands of network events and alerts from thousands of customer sites daily. Just separating the real problems from the noise – much less responding to them – was a constant challenge. Worse, there was no easy way to map issues in the underlying network to specific customers and SLAs affected.

Adding to the challenge, Unicorn was constantly updating its network software and topology to meet changing customer needs. Every time there was a change, operations personnel had to manually update the network management system (NMS), wasting valuable time and resources.

Telco Cloud Solution

To set the operations team up for success with the new network, Unicorn deployed VMware Telco Cloud Operations. The solution combines holistic visibility with built-in intelligence to correlate network events, determine root causes, and quickly surface issues that require intervention. Unicorn's Ops team can triage problems much more quickly, without having to sift through thousands of extraneous alarms. When Telco Cloud Operations detects a problem, it immediately identifies the tenant networks impacted – for example, showing the enterprise software-defined wide area network (SD-WAN) customers affected by a failure in the underlying infrastructure. It can even prioritise alerts according to business-level factors, such as SLAs. The solution also continuously discovers and updates the topology relationships between devices, protocols, and services running on them – so operations personnel don't have to. With these proactive capabilities, Unicorn's operations team can now:


- Identify over 99% of alarms in real-time
- Isolate incidents 11 minutes faster, on average, per event
- Save thousands of hours annually that it used to spend manually updating the NMS

Take the next step on your transformation journey

Clearly, for a CSP embarking on transformation, VMware Telco Cloud can bring huge benefits to practically every part of the network and operations. As you reviewed the real-world performance our hypothetically stitched together service provider transformation, you might have noticed a common theme: versatility.

The days of designing an entire infrastructure and operational model to do one thing are over. Now, you can use one network, one operations, one consistent multicloud/multivendor platform to support everything you do. As far as what you build on that platform? The sky's the limit.

- **For consumers:** Use pervasive connectivity and ultra-low latency to deliver customised media like 'choose-your-view' experiences in stadiums. Bring expanded AR/VR capabilities and holographic protection to gaming, learning, and events. Support home wireless broadband, in-car entertainment, and autonomous vehicles.
- **For enterprises:** Use advanced edge and slicing capabilities to deliver new applications under more rigorous – and lucrative – SLAs. Support private 5G networks, smart manufacturing, connected mining, remote medicine, inventory management, connected agriculture, smart cities, and much more over the same network.

That's a lot of exciting possibilities for your Telco Cloud. And the best part? You don't have to be a unicorn to do any of them. 

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