



Communications  
Service Providers  
Digital Transformation  
Customer Stories





## Foreword

The communications service provider (CSP) industry is well on the way to a reimagined digital future. As service providers gain momentum toward a future ripe with the opportunity that comes with digital transformation, they will need to address technology, organizational and business model challenges. VMware has partnered with thousands of enterprises and CSPs to help them make this transformation. That's a lot of deployment successes, a lot of lessons learned, and a lot of enabled futures.

One of the objectives to a digital transformation is to break down silos. Network resource silos are being unified through agile, resilient telco cloud software platforms. IT and network engineering team silos collaborate better with the help of cloud-enabled, DevOps-ready tools.

Ecosystem companies, used to running siloed innovation processes, are linking arms to enable more flexible, multi-vendor environments. Dismantling silos makes it easier to improve efficiencies, share information, align strategies, and coordinate projects.

That's the idea behind this e-book.

This collection of customer transformation stories can help you in breaking down your own silos and in finding new opportunities in the digital ecosystem.

With these stories, you will learn that while every customer, every objective, and every network are different, the VMware platforms have the inherent flexibility to enable any project from the data center and central office, to the core and edge.

We invite you to learn from these stories and urge you to reach out to tell us yours.



SHEKAR AYYAR  
EXECUTIVE VICE PRESIDENT, GENERAL MANAGER  
TELCO AND EDGE CLOUD

[VISIT TELCO.VMWARE.COM FOR MORE INFORMATION ON](https://telco.vmware.com)

- Creating a nimble service innovation and delivery platform
- Building a flexible IT foundation for agile operations
- Leveraging revenue-generating digital services

1.  
Creating a Nimble  
Service Innovation  
and Delivery Platform

## Vodafone Group

### Customer description

Vodafone Group—with mobile operations in 25 countries and fixed broadband operations in 19 markets—works with VMware to support its global rollout of virtual network functions (VNF). Vodafone uses network function virtualization (NFV) and software-defined networking technologies across apps and networks to accelerate its delivery of cloud-based network functions.

### Challenges

*“Virtualised, cloud-native network functions are a critical element of our Group-wide program as we continue to transform how we build, operate and evolve our networks and services. Reducing the time and cost to deploy and operate services, using automation and convergence in standardised cloud environments for both our network and IT businesses, is a critical part of our technology and operational transformation strategies.”*

**Matt Beal, Director of Technology Strategy and Architecture at Vodafone Group**

### Solution

VMware helps CSPs such as Vodafone create new revenue streams, open new industry opportunities, drive down costs, and improve overall customer satisfaction by enabling them to become nimbler and more responsive. VMware provides an optimal infrastructure for all telco applications and services: custom-built, packaged, virtualized, cloud native, and software as a service (SaaS). With this infrastructure, CSPs can deliver those applications securely to any endpoint across a telco distributed cloud, including private and public cloud, branch/edge, micro data center, gateway, or end user.

Companies such as Vodafone can roll out multiple applications on a common NFV infrastructure, rather than building new platforms for each innovative service. The VMware-based virtualized infrastructure also provides a common architecture spanning network and IT operations, further improving operational efficiencies and overall economics. With VMware, CSPs have the flexibility to choose from several certified VMware Ready™ for NFV virtual network functions, providing confidence in pretested and pre-certified solutions that can reduce deployment risk.



**Outcome**

- 40 percent reduction in NFV deployment time with VMware NFV infrastructure (NFVI)
- 50 percent reduction in VNF costs with VMware NFVI
- 82 percent of Vodafone sites deployed with VMware NFVI (Europe, Africa, Asia and other Oceania markets)
- 900 VNFs running Vodafone voice core, data core, and data services are supported by VMware NFVI
- Nearly 50 percent of Vodafone's voice and data traffic runs over VMware NFVI

Continued innovation to VMware Network Functions Virtualization Infrastructure, now called VMware Telco Cloud Infrastructure™, including cloud native capabilities and more. Pre-integrated with VMware Telco Cloud Automation™, the recently released VMware Telco Cloud Platform™ creates consistent infrastructure and holistic automation across multi-cloud environments.

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**Solution Type:**

TELCO CLOUD INFRASTRUCTURE

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# MTS

## Customer description

MTS is Russia's leading telco provider. The company provides mobile, fixed, broadband and pay-TV services throughout the country. MTS operates internationally in Ukraine, Armenia and Belarus. Across all services, it has more than 100 million active subscribers. Its core business remains mobile, but the company has a huge number of other interests, from broadband internet to pay-TV to financial services. More recently, it has expanded into cloud services, big data, esports, and cybersecurity.

## Challenges

MTS wants to be faster to market with new services, particularly digital. To do so, it wants to transform its IT and network infrastructure, creating a unified, software- and data-driven, programmable, and automated service delivery platform.

More than this, MTS wants to incorporate digital technologies across its operations. This will include building a new generation of its IT environment, changing customer interaction processes, and developing a flexible and proactive corporate culture.

The challenge is not so much creating such an infrastructure but managing it effectively.

## Solution

VMware vCloud® NFV™ is a fully integrated, modular, multitenant NFV platform. It provides MTS with compute, storage, networking, management and operations capabilities. vCloud NFV helps the business accelerate time to revenue, automate service lifecycle, and simplify operations management—all while reducing network infrastructure costs.

The NFV project involved all areas of the business, from IT to procurement to finance. *“Our approach is split into layers; our hardware platform is unified and different suppliers offer an application-level logic software. There was no resistance from different user groups because we made our worldview known to everyone. We ensured the project was set out in a language that all departments could understand; for finance staff, we provided financial indicators, while technical architects had technical indicators.”*

**Farid Veliev, Service Orchestration Manager, MTS**

### Outcome

Leveraging the world's most deployed, proven and best understood virtualization and cloud technology from VMware, MTS has access to the largest pool of skilled virtualization technicians and proven NFV infrastructure designs. Combined, these deliver the fastest time to revenue, lowest cost of ownership, and lowest deployment risk of any NFV solution on the market, with the largest ecosystem of application and hardware vendors to maintain absolute choice.

Project objectives:

1. Reduce implementation time for new services
2. Reduce infrastructure cost and increase operational efficiency
3. Achieve a high level of readiness for prototyping and the implementation of new subscriber services

*"We managed to achieve them all with vCloud NFV and vCloud Director® for NFV."*

**Farid Veliev, Service Orchestration Manager, MTS**

Continued innovation to VMware vCloud NFV, now called VMware Telco Cloud Infrastructure, including cloud native capabilities and more. Pre-integrated with VMware Telco Cloud Automation, the recently released VMware Telco Cloud Platform creates consistent infrastructure and holistic automation across multi-cloud environments.

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### Solution Type:

TELCO CLOUD INFRASTRUCTURE

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## Telia Company

### Customer description

Telia Company is the largest Nordic and Baltic fixed-voice, broadband, and mobile operator by revenue and customer base. It also owns a TV-media operation that includes TV4 in Sweden and MTV in Finland as well as C More. It operates the world's largest and fastest-growing wholesale IP backbone.

### Objectives

*“We’re constantly looking to make our networks smarter and smoother to give our customers the best possible experience using our services. This requires a reliable technology partner that can help us transform our network to deliver next-generation services—we’ve found that partner in VMware.”*

**Mauro Costa, Director of Network and IT Infrastructure, Telia Company**

### Solution

*“We leverage VMware’s NFV platform to orchestrate and deliver a range of virtual functions and services to millions of customers across six countries.”*

**Mauro Costa, Director of Network and IT Infrastructure, Telia Company**

### Outcome

*“Using a single platform to manage a variety of functions, including the IP Multimedia Subsystem (IMS), voice over 4G (VoLTE), the new Virtual Mobile Packet Core (vEPC) and other value-added services, has helped us streamline delivery of services to customers while reducing operational complexity.”*

**Mauro Costa, Director of Network and IT Infrastructure, Telia Company**

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### Solution Type:

TELCO CLOUD INFRASTRUCTURE





# Manx Telecom

## Customer description

Manx Telecom is the incumbent telecom operator on the Isle of Man. Employing more than 300 people, the organization provides a full suite of telecom services for both individuals and businesses based on the Island, including fixed line, mobile and broadband. Alongside these offerings, Manx Telecom provides world-class data hosting business services, and has a growing portfolio of international smart SIM solutions.

## Challenges

Manx Telecom found it needed to update its IMS service, part of the infrastructure underpinning its voice network services, and arrived at a crossroads. *“When we looked at the evolution path our current supplier had planned for us, it was very much the same as our previous strategy: the same single platform and integrated software approach. We felt the market had moved, and there were more exciting and innovative possibilities.”*

### Kevin Paige, Chief Information and Technology Officer of Manx Telecom

Moreover, Manx Telecom had noted that customer demands were rapidly moving on, and there also were cost and resource considerations.

## Solution

When it came to choosing a technology partner, VMware was the obvious choice. *“Our team was already very familiar with VMware, having deployed cloud and hosted managed services for our customers, so choosing VMware as our platform for NFV seemed a natural fit for our skillsets. Furthermore, with NFV being such a new technology area, we wanted to work with a trustworthy partner who we felt understood our organisational aims and could ensure we achieved them.”*

### Kevin Paige, Chief Information and Technology Officer of Manx Telecom

Overall, building the NFV platform took just under 12 months and, after extensive testing, went live from early 2016. Paige recalls:

*“The day it was up and running was huge for us—it was a notable moment to see all our work come to fruition. Most importantly, it was a remarkably smooth transition to move from our previous platform and into our new NFV system”*

### Outcome

- Since its deployment, Manx Telecom has already received several benefits thanks to its investment in NFV, including scalability, speed to market, a greater level of control, and ultimately a reduction in costs.
- On scalability, Paige explains: *“Every year, we have the Isle of Man TT Races, one of the world’s most popular motorcycle races. The event is accompanied by a drastic uplift in population, sometimes as high as a 30 percent increase. Thanks to NFV, our ability to extend the platform capacity has been radically improved; we can add capacity whenever we need it to scale up and down as demand dictates.”*
- On agility, Gary Lamb, CEO of Manx Telecom, comments: *“We have created a platform that enables us to get our products into the market, and the hands of our customers, as quickly as possible. Our 4G roaming proposition was rolled out last year using the NFV infrastructure 50 percent faster than we would have been able to achieve using our previous solution development method.”*
- For Manx Telecom, the deployment of NFV has been a game-changer, Paige concludes: *“For us, NFV is a story of flexibility and agility. It’s the future of our organisation and the strategic direction that we believe all telecommunications services will evolve toward.”*

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### Solution Type:

TELCO CLOUD INFRASTRUCTURE

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## Premier MSP

### Customer description

When one of the world's leading CSPs needed help managing its enterprise customers' networks, it turned to a Tier 1 European managed services provider (MSP) with a global presence. This MSP has handled IP/MPLS services for many years, providing day-to-day network monitoring and support for the CSP's largest enterprise customers..

### Challenges

The MSP took on the management of the software-defined wide-area networks (SD-WAN) for the enterprises for which it already managed IP/MPLS services. These SD-WAN services were based on VMware SD-WAN™. With tens of thousands of enterprise workers relying on VMware SD-WAN connectivity, often under strict service-level agreements (SLAs), the MSP must be able to monitor the health of these networks and quickly diagnose any issues. However, while this MSP has mature service assurance tools for conventional IP/MPLS networks, it struggled to monitor newer SD-WAN services. The biggest issue: a basic disconnect between the IP/MPLS infrastructure and the virtual SD-WAN networks overlaid on top of it.

When issues arose with a customer's SD-WAN services, determining whether the problem was in the IP/MPLS network or the SD-WAN overlay was a complex, time-consuming process, requiring multiple disparate tools. The lack of visibility across physical and virtual networks also left significant gaps in the reporting the MSP could provide.

### Solution

This MSP has long used VMware Smart Assurance™ to manage the CSP's network services. Now, with VMware SD-WAN integrated into VMware Smart Assurance, the company can monitor all customer network environments—IP, MPLS and SD-WAN—through a single pane of glass.

VMware Smart Assurance provides the operational intelligence the MSP needs to holistically manage virtual, physical and SD-WAN networks to rapidly resolve network performance issues and ensure consistent service delivery to enterprise customers. Today, it uses VMware Smart Assurance for:

- Dynamic discovery – Through API integration with the VMware SD-WAN Orchestrator, VMware Smart Assurance automatically discovers the SD-WAN physical and virtual edge devices, gateways, networks, tunnels, customers/tenants, and services and their interactions.
- Automated root-cause analysis – By understanding cross-domain relationships, VMware Smart Assurance monitors and manages the health and performance of the CSP's physical, virtual and SD-WAN networks as one entity.
- Customer prioritization to optimize SLA management – Combining information from the VMware SD-WAN Orchestrator and the VMware Smart Assurance business impact manager tool, the MSP can assign each customer and service—and even different SD-WAN edge locations for the same customer—a unique business impact and cost score.

### Outcome

- Integrated monitoring of MPLS networks and thousands of VMware SD-WAN edges
- Saved countless hours bouncing between network monitoring tools
- Reduced time to remediate issues by automatically identifying 95 percent of problems
- Increased customer satisfaction by improving reliability and performance of SD-WAN services

VMware continues to release valuable innovation to VMware Smart Assurance, now called VMware Telco Cloud Operations™. Designed to bridge the gap between the virtual and physical worlds, VMware Telco Cloud Operations provides holistic monitoring and performance management across multiple layers of the network for rapid insights, lower costs, and improved customer experience.

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### Solution Type:

TELCO CLOUD OPERATIONS

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# Tier 1 North American Service Provider

## Customer description

This Tier 1 service provider manages more than 1,000 enterprise networks throughout North America with industry-leading SLAs and maximum uptime.

## Challenges

The network operations team was wrestling with the challenge of managing hundreds of thousands of network events and alerts happening remotely at different customers' sites each day. When a customer's network wasn't working properly, the operations team wasn't able to rapidly triage the problem.

To add to the challenge, software updates were constantly being deployed, and the network topology changed to meet customers' needs. Each time a change happened, the rules of the network management system (NMS) needed to be manually updated, wasting valuable time and resources.

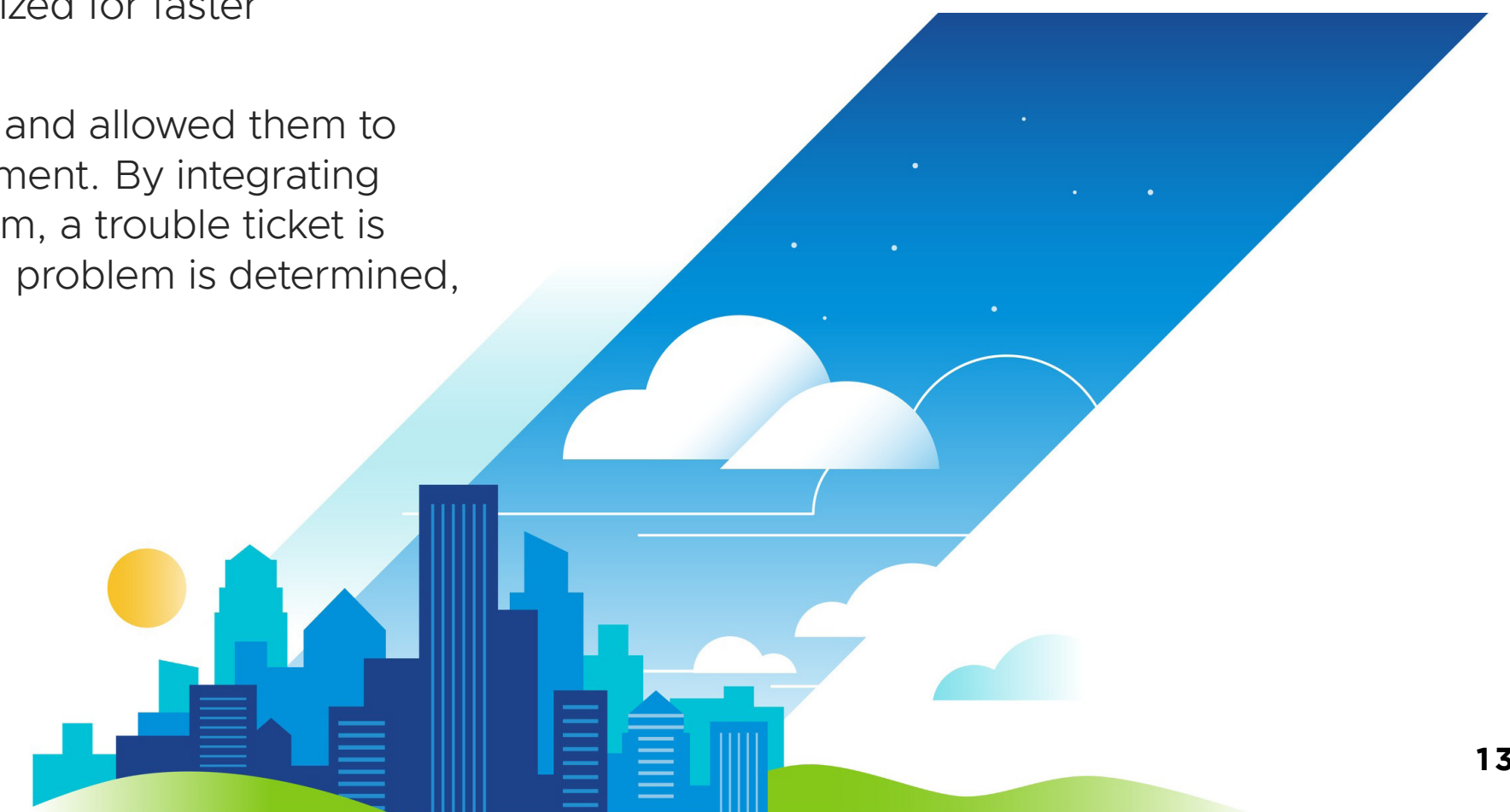
## Solution

After deploying VMware's automated service assurance solution, the MSP was able to rapidly and remotely triage problems in customers' networks, and correlate and analyze alarms so the root cause of the problem is immediately determined. The network operations center (NOC) teams now focus on only the pertinent issues, rather than wasting time sifting through thousands of extraneous alarms.

To accurately determine the true cause of issues, VMware Smart Assurance continuously discovers and updates the topology relationships between devices, protocols and services running on them.

Additionally, VMware Smart Assurance provides the MSP the ability to prioritize issues by customer (tenant) and SLA, assigning different impact scores to each customer and service. In this way, tenants paying for more stringent SLAs and higher-level services are prioritized for faster resolution.

This shift has transformed the way the teams work and allowed them to move to a proactive approach to network management. By integrating VMware Smart Assurance with their ticketing system, a trouble ticket is automatically issued as soon as the root cause of a problem is determined, without the need for human intervention.



**Outcome**

- Reduced the mean time for isolation of incidents by 11 minutes per event
- Identified more than 99 percent of alarms in real time
- Elevated 75 percent of the team to higher-level functions
- Gained 2x efficiency
- Removed the need for the NOC team to manually update rules in the NMS, saving them thousands of hours

VMware continues to release valuable innovation to VMware Smart Assurance, now called VMware Telco Cloud Operations. Designed to bridge the gap between the virtual and physical worlds, VMware Telco Cloud Operations provides holistic monitoring and performance management across multiple layers of the network for rapid insights, lower costs, and improved customer experience.

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**Solution Type:**

TELCO CLOUD OPERATIONS

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2.

## Building a Flexible IT Foundation for Agile Operations

# Telkom Indonesia

## Customer description

Telkom Indonesia is the largest telecommunications provider in Indonesia, serving more than 100 million customers in the nation. With its vision to become a leading player in the telecommunication, information, media and edutainment service (TIMES) in the region, Telkom Indonesia has been transforming the focus of its business, infrastructure, system, organization, human resources, and corporate culture since 2008 to remain competitive.

## Challenges

Telkom Indonesia needed a partner to realize the company's strategic goal and commitment to having better broadband access throughout the nation. The goal was to build a data center spanning across 100,000 square meters, 75,000 kilometers of nationwide broadband backbone, and 20,000 broadband access lines, ensuring 24x7 service delivery.

Varying levels of infrastructure development across the country impeded the efficiency and quality of service rendered. With the network and technical complexities across the vast geographical reach of Indonesia, Telkom Indonesia needed a robust IT infrastructure that enables fast delivery of services with a high level of availability to sustain rising business growth. With high IT investments, including the 100,000-square-meter data center and more, Telkom Indonesia needed to ensure its assets were operating at high levels of efficiency and low total cost of ownership (TCO) while ensuring 24x7 service provisioning. This meant a high level of availability and performance, and the flexibility to cater to changing business requirements that were easily, securely and centrally managed for efficiency.

## Solution

Telkom Indonesia began its software-defined enterprise journey with VMware's virtualization solution, VMware vSphere®, and virtualized its IT infrastructures from platform to servers across various operating systems and applications. At present, nearly all of the core applications—such as operating support systems, and business support systems that include SAP Finance and SAP CRM—have been virtualized. The deployment of VMware's virtualization solution allowed Telkom Indonesia to consolidate all of its IT resources, including its legacy systems, into a virtualized environment with the ability to expand quickly with growth in capacity requirements of its subsidiaries.

To enable the delivery of 24x7 always-on service, Telkom Indonesia also deployed other VMware technologies, including VMware vCenter Server®, VMware Horizon®, VMware Site Recovery Manager™, VMware vCloud Automation Center™, VMware vRealize® Suite, and VMware NSX®, to establish the software-defined data center (SDDC) environment. This afforded Telkom Indonesia with the ability to perform application management at a high level of availability, security and scalability, while optimizing and managing the infrastructure on the storage, network, cloud and compute fronts.

**Outcome:**

On the back of high growth and the need to ensure 24x7 connectivity and service delivery, the adoption of VMware's virtualization solutions enabled Telkom Indonesia's always-on capability:

- The company managed to achieve almost 100 percent (99.99 percent) service availability with its always-on data centers at high performance across its business.
- In addition, Telkom Indonesia now has the capability to store and manage 7 years of data, a critical function for ensuring regulatory compliance for the telecommunications industry.
- Virtualization and consolidation of IT infrastructures not only simplified management with centralized control, but, improved business agility and reduced enterprise costs. Instead of 8 hours, Telkom Indonesia now only requires less than 30 minutes for IT to determine and provision virtual machines, reducing time taken to respond to new service requests.
- Centralized control provided the group with easier and simplified management of assets across subsidiaries while meeting growing needs, thereby reducing total cost of ownership by 40 percent.

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**Solution Type:**

SOFTWARE-DEFINED DATA CENTER

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# Telefónica

## Customer description

Telefónica Global Solutions manages the multinationals, wholesale and roaming business units within the Telefónica Group worldwide. The Wholesale unit provides global telecommunication services for fixed and mobile operators, ISPs and content providers. Its competitive portfolio includes voice, IP, capacity, satellite, mobility, IT and platforms.

## Challenges

Telefónica Global Solutions needed to guarantee service continuity to all its customers and to more than 140 offices around the world. The telecom provider was facing two key challenges: the inherent complexity of its geographically dispersed offices, and the scope and disparity of customers requiring guaranteed services around the world—with no compromise on performance or scalability.

Telefónica Global Solutions was under pressure to meet stringent SLAs, recovery point objectives (RPOs), and recovery time objectives (RTOs) by delivering business continuity for CSP— its mission-critical platform for leading enterprises and global organizations.

## Solution

VMware's technology met all current requirements, while enabling future cloud extensibility on VMware products:

- Extend VMware solution stack availability to cloud providers in partnership with Telefonica
- Make improvements to multi-cloud services and platforms, fueled by AI and big data
- Increase capacity to help Telefónica to monetize advanced services

## Outcome

*"Virtualisation has enabled us to accelerate project delivery times, centralize services and operations, and increase resource management flexibility."*

### Óscar Muñoz Fernández, Wintel & Clouds Manager, Telefónica Global Solutions

- Increased growth by more than 25 percent annually since the partnership initiated
- Guaranteed service without compromising on performance or scalability
- Improved project delivery times
- Centralized services and operations
- Increased resource management flexibility

## Solution Type:

HYBRID CLOUD



## Orange Polska

### Customer description

The Orange Group is a leading telecommunications provider in Poland. Since 2013, it also combines the expertise in building and supporting telecommunications networks with delivering state-of-the-art infrastructure-as-a-service (IaaS) solutions for business clients. In Q3 2019, Orange's revenue from such services and from system integration grew by 62 percent year over year, showing a clear strategic evolution of the brand.

### Challenges

*"We want to develop our portfolio of digital services, especially cloud services, which are fully tailored to the business needs of our customers. We believe that the cloud is the future of Polish companies, which want to keep up with modern trends, the key ones being speed and flexibility. It is the cloud that enables people to innovate, adding value and change dynamically to business conditions."*

#### Jakub Bryła, Cloud Solutions and Marketing Manager at Orange Polska

Companies' needs nowadays change at breakneck speed. For example, the speed of launching a new business application may determine the company's position, and that speed often depends on having state-of-the-art IT infrastructure. Orange Polska needed technology that enabled it to deliver its customers a range of IT services that can be launched without configuration changes on corporate servers. In the same time, all the services should be provided from the company's three data centers in Poland that meet the highest security standards. In addition, the new infrastructure needed to be managed using remote platforms.

### Solution

To meet this challenge, Orange Polska decided to expand its Integrated Computing Standard cloud service by adding VMware Cloud Director™, which makes it possible to build a new environment, even in a few minutes. VMware Cloud Director enables delivery of services across a multi-cloud environment and also offers Orange a high level of availability. Thanks to the vMotion® functionality, live migration of virtual machines between hosts translates into service continuity. However, the key differentiator of the implemented technology is its flexibility. VMware Cloud Director is a tool that enables Orange to immediately increase the resources of launched applications. Thanks to infrastructure-as-code tools, it is also possible to implement applications with the use of programming code describing cloud infrastructure.

### Future

Nowadays, the cloud powers almost everything that enabled us to function relatively normally in times of isolation. Therefore, Polish companies will more and more boldly invest in such technologies.

*"We must prepare for this new reality. This is why we want to focus on the consistent and constant development of cloud services, which perfectly meets the needs of efficient business functioning in changing conditions. Based on VMware technologies, we have the ability to constantly add new functionalities to remain an attractive partner for Polish organizations."*

#### Jakub Bryła, Cloud Solutions and Marketing Manager, Orange Polska

Orange also plans to expand its services by adding VMware technologies necessary to integrate on-premises and hybrid environments with the clouds of major global players, including AWS.

### Solution Type:

CLOUD INFRASTRUCTURE  
MANAGEMENT



# Lumen Technologies

## Customer description

Lumen Technologies, formerly known as CenturyLink, is a technology leader using its platform to deliver edge computing, hybrid cloud connectivity, adaptive networking, and network-embedded security solutions to customers around the world. It is dedicated to furthering human progress through technology and helping enterprise customers take advantage of the emerging technologies of the Fourth Industrial Revolution.

## Challenges

Increasingly, customers want to leverage the 31 Lumen private cloud locations, more than 2,560 third-party and Lumen data centers, approximately 170,000 on-net buildings, around 450,000 miles of fiber with direct connections to major cloud providers, and experts with more than 100 cloud certifications combined. Benefits include agile solutions on application-optimized clouds, connected by adaptive networking, and the right balance of public cloud, private cloud, and hosted services, with access to a complete portfolio of managed services to support IT needs. To enable this, Lumen required the following capabilities:

- Reduce time and cost for packaging and deploying private cloud services to Lumen enterprise clients
- Streamline process for architecting, testing, monitoring and managing the infrastructure
- Have a customizable, build-to-order private cloud with automation to allow for rapid deployments and a single interface for controlling all resources

## Solution

*“Combining VMware Cloud Foundation with the vCloud Director interface allowed CenturyLink to create a hosted private cloud infrastructure product that scales from a small to a very large number of virtual machines with all the controls from one interface. Our enterprise customers are requiring hosted private clouds with the agility that a software-defined networking and hyperconverged infrastructure provides.”*

**Steve Nolen, Senior Product Manager, Lumen Technologies**

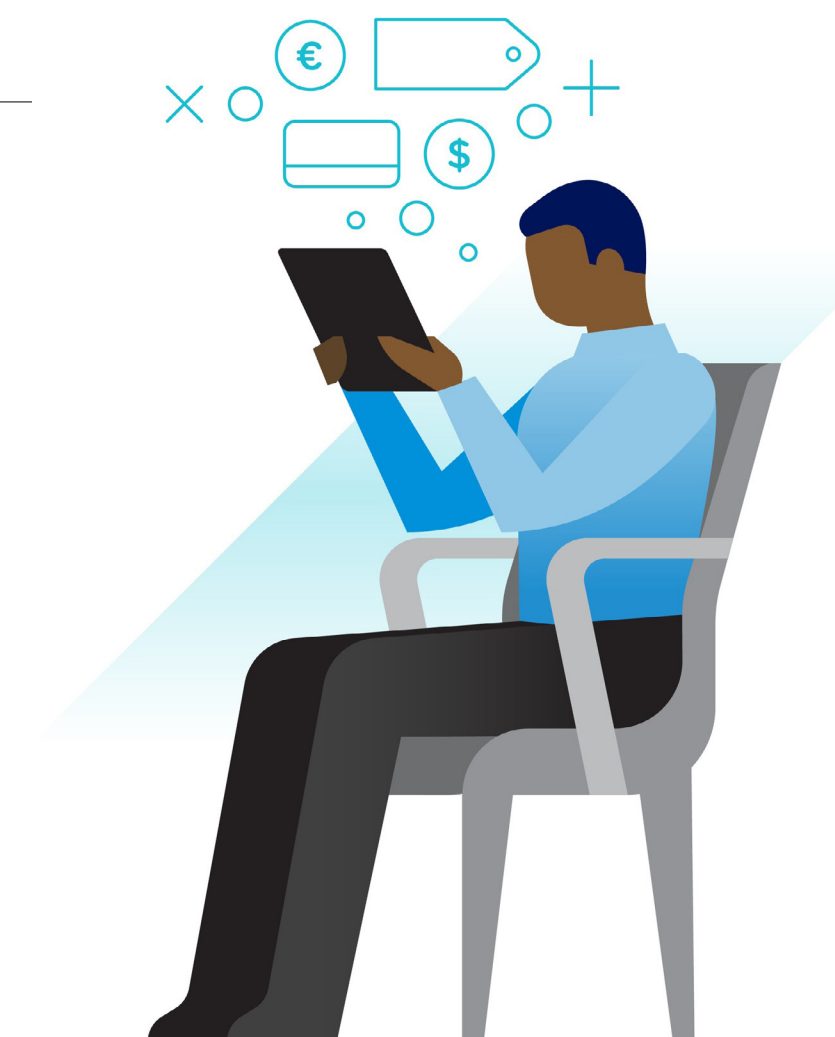
## Outcome

- Highly customizable infrastructure that reduces deployment timelines from months to weeks
- Flexible architecture allows Lumen to meet a broad range of customers' requirements

(source - <https://www.lumen.com/en-us/about.html>)

## Solution Type:

CLOUD INFRASTRUCTURE  
MANAGEMENT





3.

Leveraging  
Revenue-Generating  
Digital Services

## TPx Communications

### Customer description

TPx is the nation's premier managed services provider, delivering unified communications, managed IT and network connectivity to more than 50,000 customer locations across the country. Its proven, industry-leading customer service focus has powered more than 17 years of uninterrupted growth—all driven by earned referral, not advertising. TPx evolved as technologies and marketplaces began to change so it could always be there for its customers. TPx is able to put together the comprehensive solutions they need, with guaranteed performance, so that they can compete, grow and focus on managing their businesses, confident that TPx is there for them.

### Challenges

TPx jumped in to help the communities affected by Hurricane Harvey. Many of the communities hardest hit were small, and the bulk of the businesses in the area were categorized as small to medium that relied on local patronage to survive. Without the ability to order supplies or process transactions, these SMBs, the true identity of the towns in which they reside, would not last long.

TPx knew that providing City Hall with connectivity to the community and to organizations outside the community that could help with support was the priority. And for TPx, it wasn't about just helping its own existing customers. It was helping the entire community, regardless of whether or not they were customers or would become customers afterward.

The affected communities needed life support to keep beating. There were no large enterprises that could help with infusions of money to get the towns back on their feet. The towns and their SMBs would need to do this themselves and they needed a solution, fast.

### Solution

With its history of working with VMware SD-WAN, TPx knew that the technology and its infrastructure would be a game-changer for these communities. The ease with which it deployed, the connectivity that it delivered, and the speed at which it could be rolled out would be the conduit to change.

First, TPx connected two VMware SD-WAN Edges at City Hall that would allow the entire building to quickly gain access to the internet to begin communicating with the outside world, disseminating information to the community, accessing recovery information, and processing paperwork.

Next, TPx began to deliver VMware SD-WAN Edges to organizations that needed access. To receive service, businesses did not need to be an existing TPx customer, so TPx waived charges and created temporary contracts that were spliced, abbreviated, and designed for short-term implementations. Service was then dropped at each location with a VMware SD-WAN Edge, and as long as some electricity could be accessed, the business could begin accessing the internet and processing transactions, returning to business as usual.

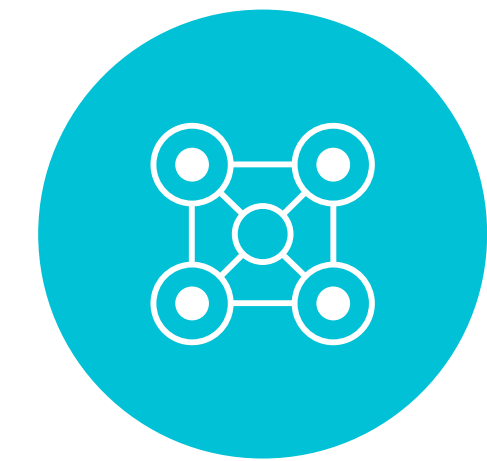
### Outcome

- Area SMBs gained internet access and were able to return to business as usual and continue transacting; field engineers were able to deploy connectivity to several businesses in a single day
- Users found the VMware SD-WAN Edge to be extremely energy efficient, drawing very little power to operate
- The economic impact of entire towns being offline and inaccessible was reduced
- Impacted areas were enabled to receive aid and information to begin rebuilding after the devastation

(source - <https://www.tpx.com/about/company-overview/>)

### Solution Type:

SD-WAN



# Deutsche Telekom

## Customer description:

Deutsche Telekom is one of the world’s leading integrated telecommunications companies, with some 184 million mobile customers, 27.5 million fixed-network lines, and 21 million broadband lines.

Deutsche Telekom provides fixed-network/broadband, mobile communications, internet, and IPTV products and services for consumers, and information and communication technology (ICT) solutions for business and corporate customers.

Deutsche Telekom is present in more than 50 countries. With a staff of some 211,000 employees throughout the world, it generated revenue of 80.5 billion Euros in the 2019 financial year, about 66 percent of it outside Germany.

## Challenges

Deutsche Telekom enterprise customers were troubled with understanding what the digital transformation meant for their business. To support its customers’ transformation journeys, the service provider wanted to create a device-management-as-a-cloud service offering to help its customers to keep pace with the changing expectations of the workforce, while simultaneously reducing complexity and related costs of their IT departments. To enable customers to be attractive to potential new employees, Deutsche Telekom wanted to allow its customers’ employees to work with the devices they prefer while always being certain that the required business functionality is guaranteed and secure.

## Solution

The Deutsche Telekom cloud platform, based on VMware Workspace ONE®, provides unified endpoint management (UEM) as a service. It enables the company’s customers to allow their employees to work with the devices they prefer, from anywhere, securely and quickly.

## Outcome

“While testing our new product concept, our customers noticed a remarkable productivity and usability increase at the workforce. Therefore, we decided to turn this service idea into a revenue generating offer for our enterprise customers. They save money and still get a future-proof and secure device management system for all their devices—mobile and fixed.”

**Michael Paschek, Product Owner Unified Endpoint Management, Deutsche Telekom**

- A new Mobile Enterprise Services business field was built with the Workspace ONE products
- The company’s cloud offerings portfolio has been extended with UEM by Workspace ONE as a service

<https://www.telekom.com/en/company/company-profile#:~:text=Deutsche%20Telekom%20is%20one%20of,and%2021%20million%20broadband%20lines.&text=But%20at%20the%20same%20time,new%20growth%20opportunities%20for%20us.>

## Solution Type:

DIGITAL WORKSPACE





## velcom

### Customer description

velcom is a mobile and fixed-line ICT service provider in Belarus. Among velcom's subscribers are the largest enterprises and organizations in the country, as well as representatives of small and medium-sized businesses. velcom has 87 branded sales and service centers in 32 locations across Belarus. Since 2007, it has been part of the A1 Telekom Austria Group.

### Challenges

velcom has nearly 5 million customers, and a strong presence among the SME sector. But its ambitions are greater than the domestic market.

As part of its growth strategy, the business plans to acquire smaller, regional competitors and expand beyond mobile and fixed-line business. velcom has opened Belarus' largest data center, launched Voka, an interactive digital TV business, and is behind Belarus' largest solar power project.

*"The role of IT is to integrate acquired services as fast as possible, provide new services to subscribers and offer new cloud services."*

#### **Anton Lushchikov, Head of Infrastructure Development and Operations Department, velcom**

The IT team wants to create an infrastructure capable of scaling as the business grows, enabling rapid integration of new acquisitions. In addition, it wants to simplify device management across its operations, delivering a consistent user experience and paving the way for mobile working.

### Solution

VMware Horizon 7 provides velcom end users with access to all of its virtual desktops, applications and online services through a single digital workspace.

VMware vSphere 6.7 builds on the technological innovation delivered by vSphere 6.5. It provides exceptional management simplicity, operational efficiency, and faster time to market, all at scale.

VMware vSAN™ powers industry-leading hyperconverged infrastructure solutions with a vSphere-native, high-performance architecture. It is a core building block for the software-defined data center. In addition, vSAN for remote office/branch office is a per-virtual machine licensing model. This model reduces the overall cost of the solution and provides deployment flexibility.

### Outcome

Lushchikov says this latest extension to the relationship with VMware strengthens velcom's position in the market:

*"Deploying vSphere 6.7 allows us to accommodate an explosive growth in quantity and variety of applications, from business-critical apps to big data to new intelligent workloads."*

Lushchikov says vSAN was chosen because it was the most flexible option, integrating transparently with the vSphere virtual infrastructure:

*"After this integration, servers were acquired, which helped cut costs, relative to the hardware part, compared with classic storage hardware and the deployed VMware vSAN infrastructure. This infrastructure means we can flexibly adjust policies pertaining to the fault tolerance speed of the virtual machines. It helps velcom remain a leader in the Belarus market among companies with a virtual infrastructure."*

- Faster access to IT resources; servers spun up in hours, not days and deployment of a new machine takes less than five minutes
- Fewer resources spent on maintenance of hardware, more on developing new services
- High availability between clusters ensures business continuity

### Solution Type:

DIGITAL WORKSPACE



# Unifying Operations with a Common Platform

The VMware communications service provider telco cloud portfolio simplifies network operations by unifying network and IT architectures. By removing manual processes, vendor-led long innovation cycles, and resource silos, a common VMware platform creates the flexible foundation required to accelerate service innovation and delivery. Across the data center, core, edge and clouds, VMware solutions deliver the agility, scalability and resiliency required for digital service providers to thrive in the digital era.

**For more information, please visit [telco.vmware.com](https://telco.vmware.com).**

# VMware Telco Cloud Products

## VMware Telco Cloud Platform

VMware Telco Cloud Platform is powered by field-proven compute and networking coupled with VMware Telco Cloud Automation and a telco-grade Kubernetes distribution. VMware Telco Cloud Platform empowers CSPs to rapidly deploy and efficiently operate multi-vendor containerized network functions (CNFs) and VNFs with agility and scalability across 5G networks that span from the core to the edge.

## VMware Telco Cloud Infrastructure

VMware Telco Cloud Infrastructure is the next evolution of VMware vCloud NFV, a modular NFV platform that several of the world's leading CSPs rely on to develop modern cloud computing stacks to support new revenue streams while lowering costs. The ETSI-compliant NFVI platform supports a broad range of VNF applications, creating a large ecosystem for CSPs to rapidly deliver innovation at scale. The platform's consistent horizontal architecture enables CSPs to deploy various network functions and services for 4G and 5G networks, from core to edge.

## VMware Telco Cloud Automation

VMware Telco Cloud Automation is an orchestrator that accelerates time to market for network functions and services while igniting operational agility through unified automation, across any network and any cloud. It applies an automated, cloud-first approach that streamlines the CSP's orchestration journey with native integration to VMware Telco Cloud Infrastructure.

## VMware Telco Cloud Operations

VMware Telco Cloud Operations is a real-time automated assurance solution designed to bridge the gap between the virtual and physical worlds. It provides holistic monitoring and performance management across multiple layers of the network for rapid insights, lower costs, and improved customer experience.

## Uhana by VMware

Uhana™ by VMware correlates and enriches high volumes of streaming data from mobile network elements to provide comprehensive insights at a subscriber level. Using AI, Uhana by VMware automatically determines the root cause of network issues and recommends remediations.





# VMware IT Network Products

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## VMware vSphere

vSphere delivers essential services for the modern hybrid cloud. The new vSphere has been rearchitected with native Kubernetes to run existing enterprise applications alongside modern containerized applications in a unified manner.

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## VMware vCloud Suite

VMware vCloud Suite® is an enterprise-grade cloud infrastructure and management solution that combines the industry-leading vSphere server virtualization platform and the vRealize Suite multi-cloud management solution, delivering modern infrastructure for modern applications.

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## VMware vCenter Server

vCenter Server is advanced server management software that provides a centralized platform for controlling your vSphere environments, allowing you to automate and deliver a virtual infrastructure across the hybrid cloud with confidence.

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## VMware Horizon

Horizon 7 is a solution that simplifies the management and delivery of virtual desktops and apps on premises, in the cloud, or in a hybrid or multi-cloud configuration through a single platform to end users. By leveraging complete workspace environment management and optimized for the software-defined data center, Horizon 7 helps IT control, manage and protect all of the Windows resources end users want, at the speed they expect, with the efficiency business demands.

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## VMware vRealize Suite

vRealize Suite is a multi-cloud management solution, providing IT organizations a modern platform for infrastructure automation, consistent operations, and governance based on DevOps and machine learning principles.

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## VMware NSX

Enable your virtual cloud network to connect and protect applications across your data center, multi-cloud, bare metal, and container infrastructure. VMware NSX Data Center delivers a complete L2-L7 networking and security virtualization platform, providing the ability to manage the entire network as a single entry from a single pane of glass.

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# VMware Enterprise Services Products

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## VMware SD-WAN

VMware SD-WAN delivers high-performance, reliable branch access to cloud services, private data centers, and SaaS-based enterprise applications.

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## VMware Digital Workspace

VMware Workspace ONE combines Zero Trust conditional access control with industry-leading modern management to help IT proactively secure their digital workspace of users, apps and endpoints.

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