

# Four challenges, three phases, and a one-stop transformation solution

For operators, network transformation has four main challenges in its three stages of planning and design, integration and delivery, and O&M. Huawei's one-stop solution enables operators to build a powerful infrastructure with SDN and NFV to overcome challenges in multi-vendor integration and management, carrier-grade reliability, smooth evolution, and rapid fault demarcation and location.

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## High priority

**T**he *dumb pipe* threat facing operators from OTT players is exacerbated by the nature of traditional networks. They slow carriers' response to changes in user needs and are poised to waste decades' worth of investment. Open, decoupled networks can save money through better resource utilization and simpler O&M, and save time by enabling rapid service innovation and faster TTM. Telcos can also enjoy more clout in the industry through increased pipe efficiency and by building extensive industry ecosystems.

SDN/NFV is the network transformation enabler, but it's tough to implement. Multi-vendor integration and management, carrier-grade reliability, smooth evolution, and rapid fault demarcation and location all complicate

transformation.

## One-stop shop

The right partner can help operators analyze business demands and objectives, develop a service architecture blueprint, and take on responsibility for unified network O&M.

To this end, Huawei built its Cloud Open Lab, ICT Support Unified Platform (ISUP), IntOps for integrating operations, and Network Integration Cloud Service (NICS) tools for better efficiency.

The Huawei services based on these solutions are:

**NFV and SDN Integration**  
**NFVI Integration**  
**IES Integration (IES = Infrastructure Enabling System)**  
**Consulting Services**

## Customer Support Managed Services Training

These combine to form Huawei's one-stop, all-in-one solution.

## The three phases

**Planning and design:** Huawei and the operator jointly benchmark business and services, and analyze the operator's market position, business vision, and current network situation. They then develop a timeline for deploying DCs and services for maximum ROI, and formulate a plan for smoothly evolving from the old network to the new one.

Huawei ensures carrier-grade service SLAs and considers Virtualized Network Functions (VNF), integrated telecom cloud, and the IES control platform when designing telecom clouds. As part of this, VNF

indicators are mapped onto the integrated telecom cloud and the control platform. This will guide redundancy planning for the integrated telecom cloud and the development of management policies for resource scheduling on the control platform. The goal is to ensure high reliability when deploying multi-vendor hardware in decoupled layers.

**Integration and delivery:** Huawei will match roles and carry out refined management on roles based on ISUP-defined workflows.

Using the Cloud Open Lab allows pre-integration and the verification of multi-vendor products in advance. This ensures consistency between the ports, protocols, parameters, and data formats of different vendors' products, solving compatibility problems in the lab. By enabling interoperability, project delivery cycles are shortened and on-site integration is simplified.

**O&M:** Huawei employs the multi-vendor SPOC (Single Point of Contact) maintenance and management services to ensure high service availability based on the principle of restore, then resolve.

An MSUP (Managed Service Unified Platform) for converged ICT network architecture sorts and optimizes organizational architecture models.

During actual O&M, daily monitoring methods and active fault injection, sub-health detection, fault isolation, and cross-layer fault demarcation/location capabilities

are dynamically combined. This enables comprehensive network health evaluation that improves network quality, while compatibility management ensures network stability.

In each phase, Huawei continues to build one-stop network transformation service capabilities in SDN/NFV, and completes pre-integration verification using Cloud Open Lab under an extensive ecosystem.

Converged O&M capabilities ensure the stable operation of operators' SDN/NFV network services and support successful network architecture transformation with end-to-end, one-stop services.

## Ooredoo's UNIFY 2020 strategy and Qatar pilot

Under UNIFY 2020, Ooredoo wanted to transform its network into a next-gen infrastructure and provide a digital user experience through simpler, more agile network architecture.

The operator planned to transform its traditional service delivery model through SDN/NFV to, according to the company, "Give any new service to any consumer or business customer anywhere in days at low cost."

Ooredoo carried out a pilot in Qatar, successfully verifying its VoLTE service using NFV provided by Huawei's one-stop network transformation services. For the project, Ooredoo adopted a multi-vendor approach involving Huawei, VMware, and HP. Integrating a variety of service modules

and solutions from different vendors is complex and difficult. Huawei acted as the project's Prime System Integrator (PSI), integrating and managing multiple vendors' systems into a unified NFV infrastructure.

Huawei delivered its one-stop network transformation service solution comprising integrated third-party infrastructure, Cloud OS, and Huawei's CloudIMS application. Integration and deployment during the project were based on the design blueprint of converged ICT infrastructure. A unified management platform was used to enable elastic IT resource sharing, and the co-deployment of multiple tenants and service domains.

E2E deployment involved integrating and deploying multi-vendor architecture on different layers, including coordinating and

streamlining VNFs and the integrated telecoms cloud platform. Ooredoo also used Huawei's Cloud Open Lab for testing and verification to overcome on-site integration and testing issues and enable rapid, agile integration.

With Huawei's assistance, Ooredoo completed the objectives of its UNIFY 2020 strategy in the Qatar pilot, building its cloud DC in less than two months, which gave the operator the ability to share data center resources on demand. This greatly boosted resource utilization, and ensured Ooredoo could complete CloudIMS deployment in just three hours, thus ensuring extremely quick VoLTE deployment. Ooredoo also implemented cross-DC disaster recovery on management clusters and the cross-DC long-distance hot migration of virtual machines. This would enable uninterrupted services, ensuring 99.999 percent availability

for Ooredoo's telecom services.

Moreover, the operator accumulated experience and models that it could replicate on its subsidiary's networks. Thanks to the project, Ooredoo also became the first operator in the Middle East to offer subscribers VoLTE services based on virtual infrastructure.

The Deputy CEO for Ooredoo Group, Waleed Al Sayed, explained the significance of leveraging existing infrastructure for VoLTE services: "We've designed an infrastructure that can evolve and grow using the latest cutting-edge technology, enabling Ooredoo to be the first operator in the region to introduce VoLTE services for our customers. The successful implementation and deployment of these services contributes to Ooredoo's leadership in the era of global ICT convergence." 



## Huawei and Ooredoo awarded GTB Innovation Award for the UNIFY project

Ooredoo and Huawei were jointly awarded the Infrastructure Innovation Award at the Global Telecoms Business (GTB) Innovation Awards 2016 ceremony in London on May 26, 2016. The award was in recognition of Project UNIFY: Transforming Infrastructure with NFV.

Salem Mohammed A. H. Almarri, Ooredoo's Senior Director for Core Network, and Zhai Zhongcheng, Director of NFV Integration Services at Huawei Global Technical Service, accepted the award together.