

OOREDOO QATAR'S PROJECT UNIFY: TRANSFORMING INFRASTRUCTURE WITH NFV



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Like a number of global operators, Ooredoo is in the process of transforming its network architecture to a next-generation infrastructure. Ooredoo's UNIFY strategy is about driving ICT transformation to deliver a digital customer experience through more simple and agile IT. As part of the strategy, the company is working to transform service delivery through a variety of new technological initiatives.

Ooredoo aims to be able to deliver any service that customers – both consumer and business – desire, anywhere, in days instead of months, and at a disruptive and previously unprecedented price point. In addition to offering network-based applications, the company wanted the network to be capable of managing new advanced services, including high definition Voice over LTE (VoLTE), Internet of Things and other innovative solutions.

Ooredoo wanted to implement leading-edge NFV technology, which can alleviate challenges faced by legacy systems. NFV has been much heralded in recent years for its promise to deliver scalability, agility, flexibility, reduced costs and more to operators looking to virtualize their network infrastructure and its specific functions. To achieve the shift to NFV, Ooredoo worked with Huawei to deliver some key components, as well as overall solution integration and deployment of the NFV cloud, as part of its broader multi-vendor strategy.

Integrating a variety of services and solutions from different industry vendors comes with inherent complexity and a unique set of challenges for every scenario. Ooredoo selected a multi-vendor approach consisting of Huawei, VMware, HP and Cisco in projects across Qatar and Kuwait. In addition, Huawei was selected as Prime System Integrator (PSI) with the task of orchestrating and integrating the multiple vendors' systems into one functional and cohesive NFV infrastructure.

The virtual IMS (vIMS) project based on NFV took place in two countries – Qatar and Kuwait. While both projects used Huawei's telecom application (IMS), two different approaches were taken. In Kuwait, the existing IT infrastructure was reused; whereas in Qatar, Huawei took the role of prime system integrator (PSI) delivering an end-to-end solution consisting of third party infrastructure, Cloud OS and Huawei's own IMS application. The two deployments were based on the same design blueprint of converged ICT infrastructure, shared elastic IT resources, multi-tenant and multi-domain system with a single management platform.

The partnership between Ooredoo and Huawei for the projects across Kuwait and Qatar was comprised of four core steps for successful operation. First, there was the strategising and clarification of the requirements of each project. In Qatar, Huawei was tasked with acting as the prime systems integrator over a multi-vendor horizontal architecture – coordinating VNFs and NFVIs from both VMware and HP, delivering the whole project end-to-end. In Kuwait, Huawei worked as part of a broader Ooredoo-led systems integration project supported by other vendors, where it contributed to VNFs on the application layer, along with VMware.

Ooredoo's UNIFY ICT architecture was developed based on leading IT technology and industry best practices,

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enabling Ooredoo to host IT, NFV and public cloud. The approach is different from other approaches in the industry because it is fully ICT convergent, so that the same platform is used for all domains and services versus having different IT and NFV siloes. The company believes that true ICT deployment is the only way to optimise cost structure, maximise synergies and implement the required agility.

Recognising the challenges involved for Ooredoo and its vendors to take on these ambitious projects, especially while Ooredoo was early in its transformation journey, close partnerships between Ooredoo and the vendor community was of prime importance. Close collaboration and alignment with vendors was the key to success in piloting UNIFY in Qatar and Kuwait. Huawei proved its system integration capabilities in Qatar by effectively coordinating with Ooredoo's other vendors' infrastructure and cloud OS. The solution was successfully demonstrated to Ooredoo's Group Technology Leadership (GLT) team.

Ooredoo now has two live deployments of the first instantiation of UNIFY architecture that can run IT and NFV services on the same platform. VoLTE and VoBB are the first two NFV services, but Ooredoo has a roadmap to migrate other services, such as data and legacy voice, and plan on proliferating the UNIFY architecture across the Ooredoo footprint.

Elsewhere in the coordination of the partnership, the two parties agreed on utilising Huawei's open NFV lab in Xi'an to test solutions, while overcoming on-site integration and testing challenges formed the remaining parts of the project's remit.

The primary challenges Huawei encountered during the project focussed on the end-to-end integration and delivery of these third-party NFV-infrastructures, including installation and testing. A high level of customisation in software from VMware provided an additional challenge; the entire E2E NFV solution included new versions of VMware with previously unseen features and functionality.

To help manage these challenges, Huawei leveraged what it refers to as prime system integration, a means of delivering complete systems integration, covering data centre design and delivery through management and orchestration of third-party NFVI services (network functions virtualization infrastructure).

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Additionally, Huawei leaned heavily on the aforementioned NFV open lab in Xi'an to begin developing the solution for the ICT and telecoms integration outcome Ooredoo desired in Qatar. In the lab, the telco-over-cloud architecture feasibility was validated and tested in a synthesised live environment. Also validated in the lab was the availability of certain functions and features, such as disaster recovery capabilities; while it also validated the integration and feasibility of new features by VMware, such as the distributed logical router (DLR) and edge service gateway (ESG)

The benefits to Ooredoo of this extensive testing was the ability to manage a multi-tenant environment sharing the UNIFY infrastructure; it had a heavily secured NFV environment to protect virtual functions; a unified IT cloud management portal capable of managing multiple data centers in isolated sites; and a full NFV solution implemented capable of meeting the requirements of existing IT and telecoms applications.

Huawei also worked extensively to provide virtualized network functions (VNFs) to Ooredoo in order to bolster its service delivery offerings; of significant note was a virtualized IP Multimedia Subsystem (vIMS), which is required in the delivery of IP-based services over LTE. In this instance, Ooredoo was able to deliver one of the Middle East's first VoLTE services on a virtualized infrastructure.

As a result of achieving its UNIFY ambitions, Ooredoo could enable ICT cloud data centre construction in less than two months, with capability of sharing data centre resources as and when required, thus enabling a complete vIMS deployment within just three hours – leading to rapid deployment of VoLTE.

Waleed Al Sayed, Deputy CEO, Ooredoo Group, explained the significance of VoLTE as an enabler for the operator to take advantage of its existing infrastructure. "The successful deployment of Voice over LTE is another compelling indication of the strength and superiority of our network," he said. "We have designed our infrastructure to evolve and grow with the latest cutting-edge technology, which enables Ooredoo to be the first to introduce these important new services for our customers. The success of this implementation contributes towards Ooredoo's leadership position on the global innovation path towards fully-converged Information Communication Technology (ICT)."

One of the most important aspects of NFV delivery is continuous availability, and high levels of performance. In delivering Ooredoo's managed NFVI service, Huawei needed to ensure high reliability design of the virtual layer, the physical resources and the applications in question to ensure of 99.999% availability of Ooredoo's telecoms services. It also delivered performance indicators which could be tested and measured, to stress-test applications and ensure an ability to withstand carrier-grade service demands.



**Waleed Al Sayed, CEO
of Ooredoo Qatar
and Deputy CEO of
Ooredoo Group**



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