How software-defined networking will power the future of work

The future is exciting.

Ready?

vodafone

Software-defined networking:

building the Gigabit Society

This whitepaper explores how software-defined networking (SDN), network function virtualisation (NFV) and other emerging technologies can be used to supercharge your existing physical network capability.

It also looks at how they're set to transform enterprises and help build the Gigabit Society, and why enterprises should start developing a strategy for adopting a next-generation network now.

A defining moment

SDN automates and simplifies network configurations through self-serve portals and APIs, enabling fixed networks to become more agile, efficient and secure. As a result, it enhances application performance and user experiences — critical to meeting the real-time demands of cloud services, digitisation and mobility.

NFV is a complementary technology that takes the functions of dedicated, vendor-proprietary hardware such as firewalls and routers and makes them available through software. This enables greater efficiencies for the enterprise, due to the reduced hardware deployments as they move to virtualisation.

Responsive networks drive agile operations

In the past, configuring a network involved manually updating routers in different locations, and adding capacity, network functions and security services often required multiple site visits.

Looking ahead, network managers will have greater control and visibility of the network and will be able to provision wide area networks (WANs) much faster, enabling the enterprise to rapidly respond to market conditions.

SDN automates the supply chain and facilitates a consumption-based, on-demand network experience that's more responsive to different applications and user types.

Tomorrow's enterprises will deploy less hardware and pay only for the capacity and services they need — when they need them. And with more network and security services available from a greater number of vendors, organisations will accelerate innovation.

The SDN/NFV growth story

While analysts agree that the SDN/NFV market will grow, their predictions vary significantly:

IDC suggests a compound annual growth rate (CAGR) of **53.9%** and forecasts a market worth nearly **$12.5 billion** by 2020

IDATE believes the market will be worth **$23 billion** by 2020

The adoption rates of different verticals go some way to explaining these forecasts – industries like utilities and the public sector are naturally more risk-averse than retail or manufacturing.

Giving yourself
the best start

Some enterprises are still at the early stages of a long-term contract cycle and are busy maximising the value from their existing assets. But, it's important for enterprises to prepare — through consultations, network audits and application discovery — their transition path to SDN.

More importantly, the organisation must have a desire for change — typically driven by opportunities to reduce costs, deploy cloud services, mobilise the workforce, expand nationally or globally, or enhance processes and customer experiences.

Network devices and
functions, simplified

A top driver for NFV deployment is the adoption of virtual Customer Premise Equipment (vCPE) services. These replace many physical devices, such as routers, switches and firewalls, with a single device. This one device connects to the WAN, enabling every function to be accessed by software within the network or locally using compute resource within the virtual CPE or at the customer site. The result? Reduced hardware deployment, increased energy efficiency and simpler access to a wider range of functions.

Complete control
of network resources

Software-defined WANs (SD-WANs) are on the rise, providing more affordable higher capacity. They connect enterprise branches via the cloud and are programmed to steer connectivity over the top (OTT) of hybrid fixed, internet and mobile networks. Soon, SD-WANs will also interact with the underlay transport and physical networks, which will increase control of the underlying network infrastructure allowing for precise resourcing of network capacity and workloads. Ultimately, SD-WANs will provide end-to-end control of the entire software-defined network.

Introducing
Vodafone
Ready
Network

It's a new portfolio of network solutions providing intelligent connectivity to enable the digital enterprise.

It delivers an open and interconnected, software-defined network that connects the enterprise and the cloud, with in-built security and end-to-end SLAs, including the underlying fixed and mobile networks.

Offering multi-vendor choice and flexibility, Vodafone Ready Network provides innovative, future-proofed network and security services for today's demands and tomorrow's big trends, such as robotics and artificial intelligence.

Network facts and figures

Our extensive global and local, fixed and mobile networks are the foundation for SDN and NFV.

73 countries
Fixed network capability now reaches 73 countries, including 28 African markets.

1M kilometers
Our global optical transport network leverages 1 million kilometres of Vodafone fibre.

100 Gbps in 25 countries
High-speed, low-latency Ethernet network services available in 25 countries.

75% faster
Vodafone Ready Network is set to reduce provisioning cycle times by 75% and make 50% of network changes possible through self-service.

500+ Million mobile customers
One of the world's largest mobile networks with 4G coverage in 154 countries.

Three benefits of transitioning to Vodafone Ready Network

1. Powering uninterrupted business
Connect with confidence

With exponential growth in connected devices and communities on the network, greater levels of cloud adoption and a higher risk of cyber attacks, today's enterprises need security embedded across all points. To meet tomorrow's challenges, they'll require:

- Visibility of network activity and services to pre-empt attacks and issues
- A strategy for deploying cloud-optimised security
- In-built analytics to identify abnormal network events or utilisation breaches
- Proactive measures to ensure reliable, secure network performance.

2. A network to accelerate the future of work
Speed to market

The network of the future will act as a hub, giving enterprises access to a global catalogue of multi-vendor functions and services. Without the need for a high volume of dedicated hardware devices on site, organisations will be able to:

- Test and upload services and applications onto the network in self-serve mode.
- Improve service performance to customers, employees and stakeholders
- Develop, test and co-create services using API within incubation zones.

3. A responsive network that makes digital transformation simple
Scale, flexibility and control

The global scale of Vodafone's fixed and mobile networks delivers a consistent service experience, as well as local flexibility. This means enterprise IT teams can manage every aspect of their network and benefit from:

- Faster provisioning and greater agility
- Self-serve portal to activate functions in minutes
- Simpler control of bandwidth usage, firewall policies, user access and so on.

The network

as a digital enabler

SDN technology is maturing. And as standards are ratified, rolled out and adopted, providers will soon be able to offer a truly open, multi-vendor, interoperable network – but there is still some way to go.

In 2016, we decided to make our Common Service Model APIs available as open source through the TM Forum, and these are now being adopted by the wider ICT industry. These standards will help ensure wide interoperability and connectivity.

As customers digitise their processes and channels to market, and discover how their workforce can be more productive, we want them to think of SDN as the most adaptive solution that can evolve with their organisation to deliver the optimum services they require. Ultimately, whether your organisation is looking to deploy SDN and NFV in the short-term or the long-term, the benefits are clear.

Vodafone can simplify this transition by providing the overlay and underlay technologies – our global fixed, mobile and internet connectivity. And our consultancy services will help you evaluate your current readiness for adopting these technologies. From scoping to discovery, analysis and recommendations, we can bring together your business and technology strategies, enable digital transformation and ensure Vodafone's Ready Network capabilities meet your specific use case requirements.

Talk to your Vodafone Account Manager about the benefits that SDN and NFV can bring to your network capacity and operations.

Some products and services are unavailable in some territories. Please contact your Account Manager for details.