



## The hybrid reality - Why the ability to master complexity is critical for NFV success

**Communications service providers (CSPs) are about to enter a revolution that will transform their businesses through virtualisation. However, to realise the benefits they must master the complexities of the orchestration layer, writes Justin Paul**

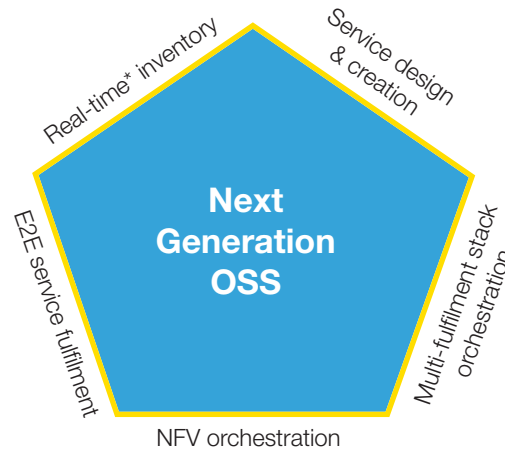


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**T**he telecoms industry is approaching a period of revolution that will change its world. The impact of network functions virtualisation/software-defined networking (NFV/SDN) will deliver significant benefits to CSPs in terms of business agility and reduction in operational and capital expenditure. Ultimately, this revolution will drive down the total cost of network ownership. However, to realise these benefits they must be able to master the complexities of the orchestration layer because without such mastery, the actual benefits of NFV/SDN deployments could be minimal.

### **NFV drives OSS transformation**

NFV is highly disruptive. In particular, NFV will have a significant impact on the operational support systems (OSS) deployed today. OSS will have to evolve to support NFV introduction, and future OSS systems or next generation OSS must support a number of functions that are merely optional today. This means a significant disruption in the OSS market is inevitable over the next few years, with major vendors making significant investment in OSS development as they look to launch OSS for hybrid networks. For others, the advent of virtualisation will see an accelerated decline in their business, as their OSS becomes ►



\*Note: Near real-time

increasingly unable to support the requirements of the new technologies. We will also see some new entrants to the market, but these typically provide niche NFV orchestration systems rather than providing the breadth and depth required of a next generation OSS.

### Where are we in the NFV/SDN hype curve?

2014 was, arguably, the peak of the hype curve. Recognising the potential, many CSPs outlined their strategic vision to embrace NFV/SDN but now, a year later, there is also recognition that these technologies create significant operational challenges. Without doubt, the potential for NFV is huge. One use case I've discussed with many CSPs is the ability to spin up new Distributed Denial of Service (DDoS) servers in response to an attempt to disrupt a corporate organisation.

This is a great demonstration of NFV because it is simple and effective. The use case involves purely virtualised network functions (VNFs) which are instantiated based on a simple trigger. Unfortunately the reality is that 99% of the telecoms market is much more complex than this because of the huge installed base of existing equipment, some of which will remain operational for the next 20-30 years. Service providers need to accept that NFV/SDN will increase complexity while it runs in parallel with their existing networks. These hybrid networks, combining physical and virtual network elements, create a serious challenge to our utopian vision.

### The best partner for the future networks journey

There are four main contenders in the NFV/SDN arena: cloud vendors, network equipment providers (NEPs), virtualisation specialists and operational support system (OSS) vendors, each with their own specific strengths and weaknesses. The NEPs have a strong affinity to the VNFs (virtual network functions) that replace their current physical network elements, while cloud vendors understand virtualisation at the server level, and many of the specialists provide best-in-class capabilities in niche areas. However, in hybrid networks, Amdocs believes that OSS providers are set to dominate with their ability to manage and orchestrate physical, logical and contextual networks. This is because these providers have experience and expertise in managing the complexity of today's multi-vendor, multi-technology networks, which puts them in the best position to manage these more complex networks of the future.

### Evolution of OSS

The impact of NFV/SDN on our industry will be huge. At the OSS level we believe significant changes need to take place to realise the full benefits of these new technologies. Currently, OSS systems are not required to be real-time. They were never designed for a constantly changing network environment where standard computing platforms change functionality and parameters in response to planned and unplanned network events. This is a fundamental

change. In the future, networks will dictate how they are configured based on network performance. The advent of hybrid networks requires a different approach to OSS and is driving the development of next generation OSS to meet the needs of these next generation networks.

### Emerging capability for OSS

The OSS of the future will have five key functionalities over and above those seen today. Firstly, OSS functionality will be focused on the rapid on-boarding of new VNFs and the agile design and creation of new services. Time to on-board and to design new services will be cut to just days, and service implementation to minutes or seconds. These processes will obviously have to cope with the complexity of hybrid networks.

Secondly, to support dynamic, ever changing virtualised networks, the OSS must work in near-real time and be able to recognise the changes to the network configuration as they happen. It must also provide visibility across all domains and vendors to ensure a holistic view to support fulfilment and assurance of dynamically changing services. Thirdly, the evolved OSS must be able to orchestrate not only VNFs, but also SDN controllers and physical systems. One of the important precepts of NFV is the ability to rapidly create new services, particularly in the enterprise domain. The fourth functionality is the creation and management of complex end-to-end fulfilment from order to cash across multiple service stacks.

The final functional area for next generation OSS is the ability to fulfil services. Service fulfilment has become more complex, and will become even more so in the future. Services themselves have become more complex, the fulfilment environments are more complex and the introduction of SDN/NFV requires fulfilment across hybrid networks. Strong service fulfilment capability is an essential functionality for next generation OSS.

### Mastering complexity

NFV/SDN will deliver great benefits to CSPs who are able to overcome the operational challenges of managing and utilising these complex hybrid networks. While we see many worthy new entrants into the NFV/SDN domain, the vendors who are evolving their OSS are best placed to manage the complexity of hybrid network orchestration, because they can combine a solution designed for virtual networks with their experience and expertise in managing today's existing complexity.

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