Independent market research and competitive analysis of next-generation business and technology solutions for service providers and vendors

HEAVY READING

WHITE PAPER

SDN/NFV Pulse of the Industry: Commercial Realities

A Heavy Reading white paper produced for Netcracker

Netcracker

An NEC Company

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INTRODUCTION

Cloudifying the network with SDN/NFV is a crucial step for communications service providers (CSPs) to deliver on 5G and meet the agility and cost savings needed to remain competitive in the digital economy. It's a big transformation that impacts all facets of the telco business, from the technology they use to the organization that builds and delivers it.

It's taking a lot longer than anyone originally expected, but many CSPs are finally making progress and there are now plenty of examples of real commercial services, with VoLTE and SD-WAN being the most popular. With this in mind Heavy Reading, in conjunction with Netcracker, conducted a comprehensive survey to take the pulse of the industry and determine what progress CSPs have actually made so far, the execution challenges they faced and where they see their main revenue coming from in the future.

Sixty-nine service providers from around the world responded to our survey, which uncovered some very interesting new data that captures the struggles CSPs are facing and key accomplishments they have made. It's clear that many CSPs still have a long way to go to reach their target state, which opens up the possibility of alternative routes to market to help speed up the process.

WHERE IS THE MONEY COMING FROM?

CSPs see the greatest SDN/NFV revenue potential in enterprise markets. Specifically, they now appear to be counting on **5G and industry vertical use cases** to deliver the revenue growth over the next few years as shown in the figure below. This reflects the perceived opportunity that telco cloud and network slicing will bring through building new service offerings that better target vertical markets and a broader ecosystem of partners.

SD-WAN and advanced security services were the next most popular responses, as CSPs (telecom and cable) ready themselves to win a chunk of this competitive market.

Figure 1: Which SDN/NFV services have the greatest revenue potential for your company over the next 2 years?

Service	Score	Rank
5G use cases	106	1
SD-WAN	78	2
Industry vertical use cases (e.g., healthcare, smart cities)	64	3
Advanced security services	37	4
vCPE-based services	35	5
Streaming media services	31	6
Advanced smart home services	26	7
Unified communications	24	8

Source: Heavy Reading survey, September 2018, n=69. Score is a weighted calculation.

We also asked respondents what their top motivations are to adopt SDN/NFV. Even though we have seen fluctuations in this response over the years, the ability to launch services faster and reduce opex still remain the most popular. What our survey now shows is that **improving customer experience has emerged as the third most important driver for SDN/NFV**, surpassing new services for now. Given the increasing number of deployments, especially in the B2B market, this makes sense as service providers start to focus on how to differentiate their offers with a better user experience.

HOW MUCH PROGRESS HAS BEEN MADE WITH VIRTUALIZATION?

CSPs' revenue goals are clear, however their virtualization projects still have a long way to go, with the global average at only 20% today. In fact, almost half of the respondents say they have virtualized less than 10% of their target network functions. On the positive side, there are significant regional differences, with North America making the most progress. For example, AT&T has already reached 55% virtualization (based on public sources).

We also clarified with respondents how much of their network they are targeting for virtualization. The global average was only 40%, which suggests hybrid networks will be important for a very long time.

Figure 2: Target and actual virtualized network workloads by geography

Region	Target for virtualization	How much of target achieved
North America (US & Canada)	43%	28%
Latin America	34%	20%
EMEA	37%	13%
APAC	40%	9%
Global average	**40%**	**20%**

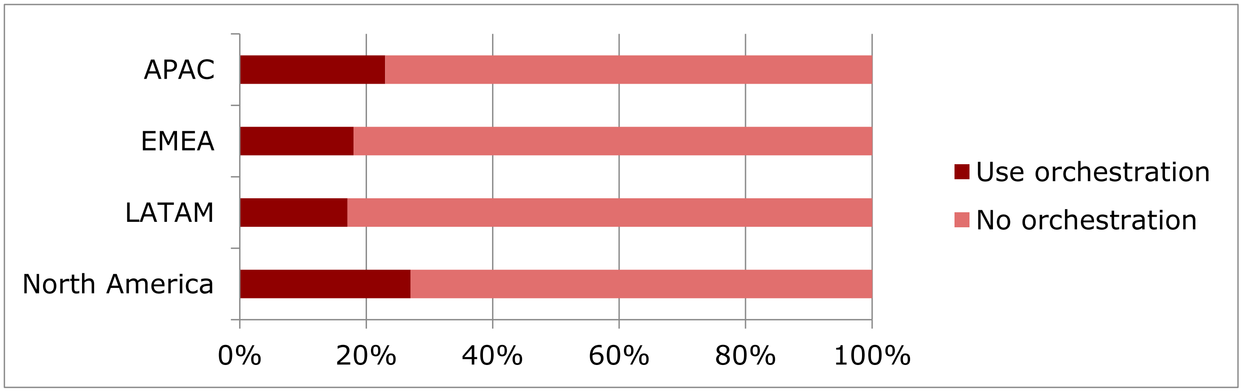
Source: Heavy Reading survey, September 2018, n=68. Target is a weighted calculation.

When asked which services have been commercially launched, as to be expected, the dominant market was enterprise communications with SD-WAN taking the lead, Cloud VPN coming in third and security in fourth. The second most dominant market was mobile core with VoLTE taking second position and VoWiFi joint fourth with security.

OPERATIONS AUTOMATION IS THE NEXT MAJOR FOCUS FOR CLOUD TRANSFORMATION

Virtualization is clearly underway, however our survey found that 77% of virtualized functions **do not use orchestration** to automate their network and services. This was based on the global average, with North America having a higher orchestration adoption at 27% and EMEA and LATAM below average. Without orchestration, CSPs will not experience the levels of automation they want and will not be ready for the 5G market.

Figure 3: Percentage of virtualized networks using orchestration by geography



Source: Heavy Reading survey, September 2018, n=69. Target is a weighted calculation.

This lack of orchestration and continued use of mostly manual operations will be the reason why an overwhelming **74% of CSPs said they are not yet seeing any operations benefit**, even though faster time-to-market and opex savings were cited in our survey as the top two reasons why CSPs need SDN/NFV.

The problem we uncovered is operational complexity, which was ranked as the biggest obstacle to deploying SDN/NFV. When we dug deeper on this, orchestrating services across SDN, NFV and OSS domains was the standout response and reflects the fact that today's implementations are often silo projects and not well integrated with existing operational support systems or even SDN implementations. Given the majority of network functions are still physical today, orchestrating across these three different environments is a necessary hurdle to overcome to get to real network and service automation.

Figure 4: What are the three biggest operational challenges regarding SDN/NFV?

Operational challenge	Score	Rank
Orchestrating services across SDN, NFV and OSS domains	94	1
Lack of simple tools for service design	79	2
VNF onboarding	65	3
Service assurance	65	4
MANO (resource orchestration)	62	5
VNF license management	45	6

Source: Heavy Reading survey, September 2018, n=69. Score is a weighted calculation.

The next major challenges were lack of tools for service design and VNF onboarding, reflecting that there are no agreed upon standards in place. The whole industry will welcome a speedy resolution here to simplify onboarding and reduce the costs of creating new VNF and network service scripts.

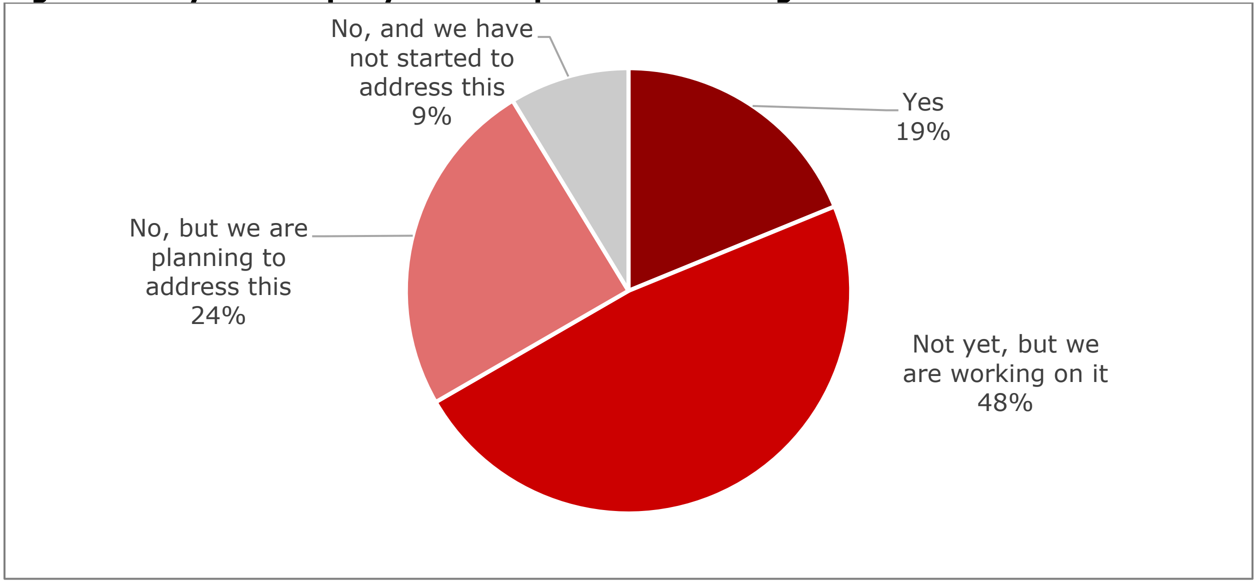
MONETIZATION CHALLENGES ARE IMPEDING SDN/NFV PROGRESS

When asked about the top business challenges CSPs are facing, the most popular response was **a lack of knowledge on how to market SDN/NFV services to their customers**. This is a new business challenge and shows that for some CSPs the focus is less about the technology and more about how to market new services, such as SD-WAN. In our survey, 61% of respondents are struggling with this issue, which shows a lack of people skills in defining and executing a compelling go to market strategy.

Ranked equally high was the issue of working with multiple partners. This has long been a concern for many CSPs as SDN/NFV enables an open environment for best-of-breed solutions but dealing with the technical and commercial aspects, including who is responsible for what, is still problematic.

We also probed our respondents about their BSS readiness for SDN/NFV and confidence was low. A staggering **81% of respondents say their BSS is not yet ready** to support virtualized services, although 48% are working on it, which is encouraging. CSPs are struggling with the decision to create a new BSS stack or integrate with existing BSS and modernize later on.

Figure 5: Is your company's BSS capable of handling virtualized services?



Source: Heavy Reading survey, September 2018, n=69

Continuing the monetization theme, we asked respondents about their BSS priorities. Self-service portals were the most popular response (from 66% of respondents) followed by customer management and enterprise e-commerce portals, highlighting the importance of customer experience (now the 3rd motivator for SDN/NFV). Customer expectations, both consumer and enterprise, have been set by the webscale giants. Unless CSPs can present their services in an effortless interface (including open APIs for large enterprise customers), they are not going to be able to capitalize on new services such as SD-WAN.

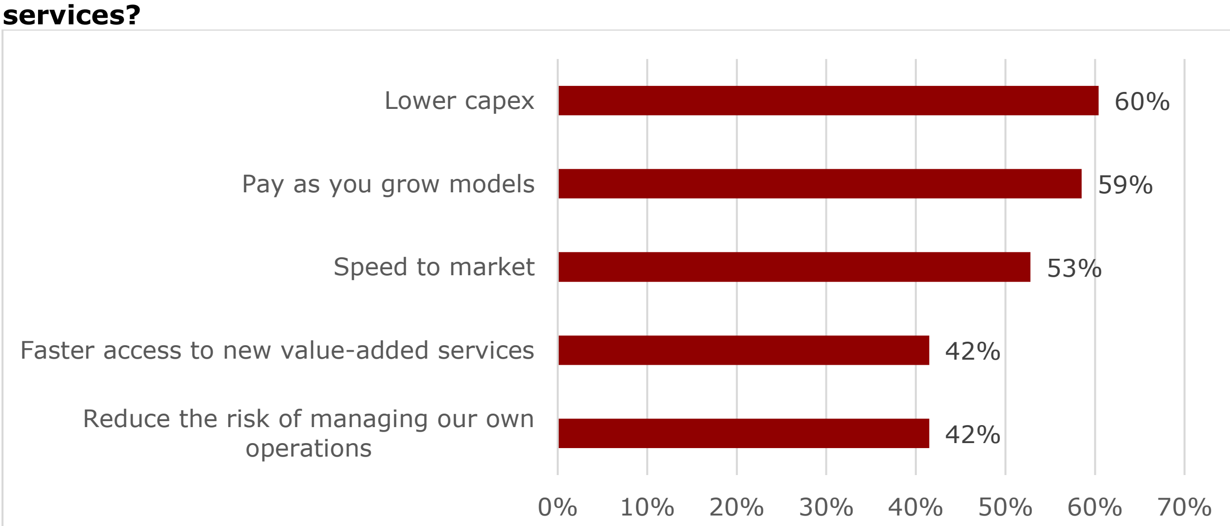
CSPS ARE WARMING UP TO THIRD-PARTY HOSTING

Given the operational and business complexities of moving to SDN/NFV, we found in our survey a significantly high proportion of CSPs, 77%, **expressed an interest in outsourcing** part of their solutions to third-party vendors.

This is perhaps a sign of the times as the technical and commercial hurdles are resulting in a long transition period to SDN/NFV. In our survey, CSPs said they are taking an average of **18 months to launch the first commercial services**, with 25% of respondents reporting it takes greater than 2 years.

Given the strong competition, especially in the enterprise market, CSPs do not have time on their side. Third-party alternatives to host and manage the solution can be a good way to get them up and running faster, improve the business case and ease the technology and organizational challenges as shown in the figure below.

Figure 6: What would be the main benefits of using third parties to host virtualized services?



Source: Heavy Reading survey, September 2018, n=69

When asked which functions they would consider using third parties to host, service orchestration and SD-WAN were the most popular with almost 50% of our respondents selecting these. The results reflect the time-to-market issue CSPs face today in the enterprise market. Enterprises have a choice on where to source their SD-WAN solutions from, including doing it themselves or outsourcing to system integrators and vendors, resulting in stiff competition.

The next set of functions CSPs are considering for third-party hosting are VNF and SaaS marketplaces and self-serve portals. These highlight the importance of not only differentiating services with a digital user experience, but also having the capability to broaden the CSP's portfolio into the SaaS market. And yet none of these functions are considered a strength for CSPs today.

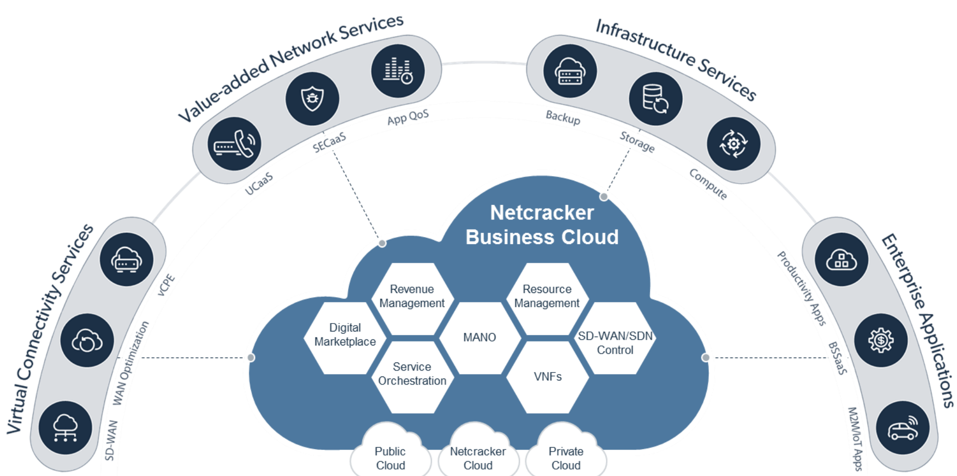
NETCRACKER'S APPROACH TO TELCO CLOUD TRANSFORMATION

Netcracker is a market leading vendor in BSS, OSS and orchestration with the experience, methodology and technology to help CSPs evolve to a cloud-native environment and monetize their new services with a digital customer experience.

Hybrid Operations Management (HOM) is Netcracker's solution for automating services across virtual and physical domains. Netcracker recently enhanced HOM to support domain orchestration – enabling the network and services to be deployed in self-sufficient domains, including all the components it needs from SDN, NFV and OSS, to maximize operational efficiency. With its next-generation BSS solutions, Netcracker is in a position to help CSPs differentiate their service offerings by focusing on the end customer's buying experience.

The recently launched Business Cloud makes Netcracker's SDN/NFV/IT stack available as-a-service to help CSPs significantly reduce the time-to-market and eliminate the cost and complexity of digital transformation. By using their own data centers or a multi-cloud offering, CSPs can launch services in weeks with minimal upfront investment.

Netcracker Business Cloud



With the platform's modular, microservices-based architecture, CSPs can choose to use only the parts they need and replace functionality with their own systems if they prefer. CSPs can also onboard their own applications into Netcracker Business Cloud and combine them with the 200+ VNFs and industry vertical IT applications in Netcracker's partner ecosystem. Netcracker expects some customers to augment its ecosystem with their own, for example IoT marketplaces and vertical industry-centric marketplaces, as the Netcracker Business Cloud community grows.

This type of cloud offering is the first of its kind in the industry, and this new approach can help CSPs better compete in the digital economy and provide an important foundation for new 5G services.