

IDC PERSPECTIVE

HPE 5G Core Stack and Edge Orchestrator for Telcos

Kevin Restivo

EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: HPE 5G Core Stack and Edge Orchestrator for Telcos

HPE is a well-established provider of solutions for communication service providers operating in Europe. This IDC Perspective addresses the company's recently announced 5G network core and edge orchestration software that were highlighted at virtual events for industry analysts. The note focuses on the business problem operators are trying to address in Europe and HPE's take on telco enablement.

Key Takeaways

- European mobile network operators will deploy advanced versions of 5G networks in 2021/2022, with operational efficiencies and new revenue from enterprises in mind. Early returns may be difficult to achieve given continued economic weakness in Europe and limited demand for commercial 5G services.
- There is a greater opportunity for differentiated approaches to mobile network architecture given the ban on Huawei equipment in the U.K., which makes HPE's solutions worthy of consideration.
- HPE's cloud-native 5G Core Stack and Edge Orchestrator software can help telcos scale to meet demand while maintaining 4G networks. Operators pay per 5G subscriber, which is a fundamentally different pricing model that could accelerate telcos' adoption of software-defined infrastructure.

Recommended Actions

- Network migration isn't a one-size-fits-all proposition. Mobile operators looking to generate 5G revenue from new services, including low-latency uses at the network edge, by implementing a 5G core should consider a cloud-native approach to maximize the scalability and flexibility of network functions. Those content with mobile broadband offerings for the meantime won't need to move as quickly.
- Telcos should also consider a cloud-native approach given the ban on Huawei equipment in U.K. mobile networks, meaning alternative approaches may be more appropriate. Several factors, such as spectrum availability and infrastructure investment schedules, will determine transition to cloud-native networks.
- 5G-focused partners should be considered by operators without the necessary in-house staff to assist with the transition to a cloud-based architecture.

Source: IDC, 2020

SITUATION OVERVIEW

Europe is a leader in commercial 5G network deployments. Over half of Western European countries have live 5G networks, and more are expected to be launched by year's end. France and the Netherlands, for example, are prime candidates for commercial 5G service availability this year.

Unlike previous generations, the telecoms industry has done well to establish the necessary standards in relatively short order and ensure 5G-ready handsets were accessible from the time next-generation networks were made available, thus ensuring greater use to enterprises.

Nevertheless, the primary benefit of early 5G networks remain faster data connections rather than use cases such as connected vehicles, which are often associated with 5G. While speeds of current 5G networks are impressive, early days/non-standalone networks (NSA) that have been introduced in Europe don't come close to fulfilling the promises of 5G. Vehicle infotainment and other advanced Internet-of-Things (IoT) use cases that are highly dependent on advanced versions of 5G aren't yet possible. Such 5G services won't be offered until 2021 at the earliest in Europe.

Operators expect the preponderance of new revenue opportunities to be generated from their enterprise customers in Europe. Revenue from enterprises can be bolstered with the capabilities of next-generation networks as 5G standalone (SA) networks can enable new applications that weren't previously possible or difficult to create. For now, 5G mobile networks can support high-volume applications such as high-definition video streaming and the sharing of medical magnetic resonance imaging (MRI) scans and engineering drawings with the help of enhanced mobile broadband, with data throughput rates up to several hundred megabits per second (Mbps) and the potential for data rates in the gigabits per second (Gbps) range.

However, the 5G SA networks that will be deployed in Europe in the years to come are expected to enable new use cases for enterprises once ultra-reliable low-latency communication (URLLC) and massive machine-type communication (MMTC) capabilities become available.

Operators are faced with a significant challenge given concurrent priorities. There's a desire to tap into a large, 5G enterprise services opportunity, a transition to multi-access edge computing to make in addition to a transformation of the RAN and the core network.

However, Europe's mobile network operators need to upgrade their networks if they are to expand the role of cellular in the enterprise. The next stages of 5G network development should help in this regard. Additional capabilities of SA network operators are expected to deploy over the next years will result in the creation of applications that have not previously been possible, such as remote command-and-control of things such as construction site equipment, drone aircraft, and robots. A growing percentage of mobile-connected devices are not smartphones, but rather sensors, actuators, and other devices that are used in IoT applications such as smart metering, waste management, and factory automation. As more IoT devices connect to mobile networks, cell sites will need to manage demands far greater than what is expected today.

The third phase of 5G deployment capabilities, also known as massive machine-type communications, is designed to ensure the connection capacity of cell sites will grow into the hundreds of thousands range.

However, a 5G network core – with service-based architecture (SBA) to authenticate, monitor, and operate a variety of devices – is necessary. As such, telecom service providers must ensure the infrastructure deployed (i.e., standalone networks) can lead to the creation of new services for enterprises in their search for growth from the enterprise segment.

Over the next couple of years, the 5G core will enable service providers to take advantage of the ultra-reliable, low-latency, and connection-density capabilities of their 5G networks. The range of services that 5G can support will expand to encompass those that need a very responsive network with high availability, such as remote control of site equipment and online virtual reality.

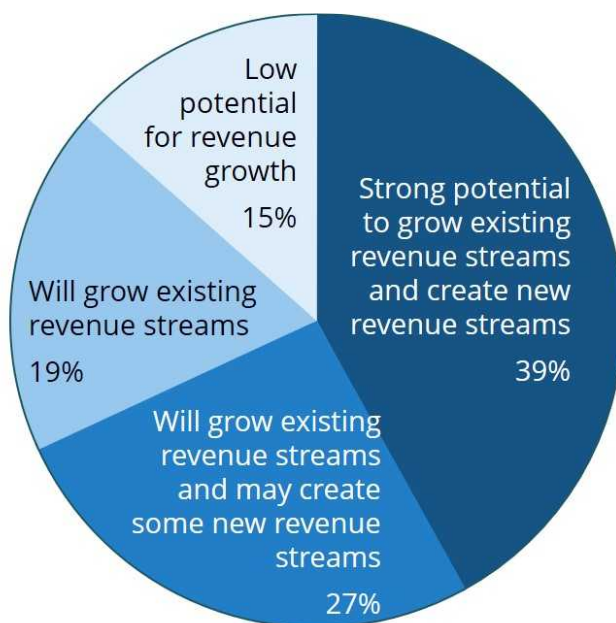
As a result, operators will be able to provide networks involving specific applications and businesses with guaranteed performance levels without interference from other applications running on the network. Network slicing will therefore enable mobile networks, for the first time, to support mission-critical connectivity and enterprise service-level agreements. Furthermore, virtualized network functions that are controlled and orchestrated by software-defined networking (SDN) to enable network slices will be possible.

Enterprises are looking to operators for help with such services. Demand from enterprises for 5G services from operators was tangible as far back as 2018, before commercial 5G was even available in Europe. At that point, almost a fifth of operators said enterprises were pushing for specific 5G-enabled services to be delivered by them.

FIGURE 2

Operators as Primary Source of New 5G Services

Q. Please indicate how strongly you expect 5G to drive business opportunities with enterprise and SMB customers



Source: IDC, 2020

Such demand is good news for operators that are working to generate new revenue from next-generation networks, now that commercial 5G services are more commonplace in Europe; forward-looking enterprises are making 5G connectivity a part of their transformation initiatives.

With those needs in mind, HPE recently introduced a series of uniquely positioned, interrelated solutions for telcos. For starters, the company's HPE 5G Core Stack is an open, cloud-native solution that comes pre-integrated with multivendor network functions. It's meant to ease carrier migration challenges from legacy networks as it integrates with previous-generation networks and enables future software upgrades from 5G standards milestones.

It's built on a shared data environment (SDE) using a cloud-native, microservices architecture to simplify the creation of end-user services by exposing network capabilities to operators' services. The SDE can be used as a common base for cloud-native network functions.

Given the company's stated mission to support hybrid environments, HPE Service Director is an essential element of the 5G Core Stack. It's designed to support service orchestration from edge to core as well as slice management. It drives HPE's data collection function.

Furthermore, the Aruba Air Pass and Aruba Air Slice are meant to facilitate the integration of the network and customer edges by virtue of seamless roaming between 5G cellular and enterprise WiFi networks. These solutions provide core-to-edge networking and management capabilities to customers with the 5G Core Stack.

HPE recently announced its Edge Orchestrator software – created to help telcos provision services at the edge of the network, thus closest to users – complementing its 5G Core Stack in that it's meant to enable telcos to capitalize on 5G networks and edge infrastructure.

5G networks are essential if telcos and enterprises want to improve application performance at the edge, reduce expenses involved with the transport of traffic, or help organizations bring new use cases to the fore. HPE's Edge Orchestrator software is meant to obtain those goals by helping telcos deliver low-latency cloud services, increased security, and augmented end-user experiences at the edge via an app catalog. The offering is meant to facilitate the deployment and configuration of customer applications, provided as virtual machines or containers, at geographically distributed edge locations owned by telcos such as existing central offices or on customer premises.

HPE 5G Core Stack will be available in the second half of the year; HPE Edge Orchestrator is available to telcos as of July 31. The products are part of HPE's shift to become a supplier of edge-to-cloud infrastructure solutions delivered on an as-a-service or consumption model basis. The operating model is based on the premise that enterprises won't offload all workloads to the cloud; HPE believes enterprises will operate workloads on-premises and in the public cloud.

Regardless, 5G networks can be the catalyst for change. Network development cycles can potentially be accelerated through an open, cloud-native architecture and DevOps approach. For telcos, the cloud-native aspect of 5G core networks provides an opportunity to rebuild the telco infrastructure and offer services in the way they see fit. However, a change of mindset is required on the part of the operator. It also offers a chance for vendors to potentially update infrastructure monthly and reduce costs, if not increase flexibility.

As such, HPE's 5G and edge services solutions represent a unique and potentially welcome take on telecoms infrastructure. The as-a-service delivery and corresponding pricing represents a potential paradigm shift in the field of communications infrastructure. Typically, network functionality is embedded within equipment that is custom built for specific tasks. Upgrades are infrequent and pricing is reflective of larger, one-time purchases of capacity. However, the 5G Core Stack is designed to make future software upgrades from 5G standards milestones possible, unlike previous generations.

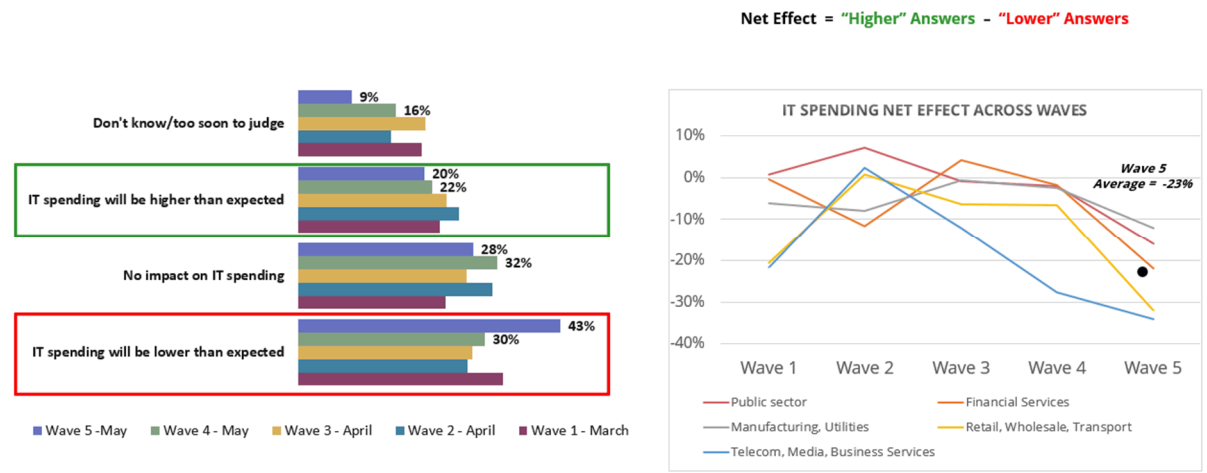
Consumption-based pricing is also part of HPE's disruptive approach and complements the delivery. The 5G Core Stack and the Edge Orchestrator will be available by workload on an as-a-service basis. This enables customers to choose the most appropriate service on a pay-as-you-grow basis. In the case of the 5G Core Stack, telcos pay per 5G subscriber, meaning the carrier's 5G customers are the primary determinant of costs. The delivery and pricing of the 5G Core Stack and Edge Orchestrator reflect the company's broader move to charge telcos in accordance with subscriber tallies. HPE has pledged to make its products available on an as-a-service basis, like Edge Orchestrator, by 2022.

It's a differentiating factor that may prove advantageous to telcos given the sharp downturn of European economies this year. Consumption-based pricing is potentially more palatable to telcos as 5G uptake is likely to be gradual at best, given poor macroeconomic conditions and ongoing network rollouts. To wit, European decision makers surveyed by IDC believe their firms will generate significantly lower revenues and have IT budgets cut in the wake of the pandemic (Figure 3).

FIGURE 3

COVID-19 Expected to Impact European IT Spending Less Than Company Revenue

Q. Compared to your organization's originally budgeted IT spending plans, which of the following best reflects your opinion of how COVID-19 will impact your organization's actual IT spending for the year 2020?



Source: IDC, 2020

Nevertheless, operators need to remain competitive by upgrading to standalone versions of 5G networks. However, the cost to do so can be considerably harder for telcos to swallow given uncertain demand for 5G services in the short term.

ADVICE FOR THE TECHNOLOGY BUYER

Economic weakness in Europe and the recent ban on Huawei equipment in the U.K. can lead to additional competition in the market for mobile network equipment suppliers.

For one, IDC research suggests when companies are forced to maintain IT budgets at their current levels or make cutbacks during economic recessions, technology suppliers such as HPE will see greater demand for as-a-service pricing from technology buyers in Europe.

It's an option that can be advantageous for telcos as pricing based on the compute needed and invoiced can potentially be more palatable rather than purchasing blocks of capacity, only to have significant portions of it go unused. HPE's offering gives telcos in Europe additional options and potentially quickens the uptick of 5G SA network rollouts that are dependent on software-defined infrastructure and new multi-edge computing service offerings.

To that end, telcos will be looking at a range of players to replace Huawei in the U.K.'s mobile networks, if not others in the rest of Europe, given the recently announced ban on the company's equipment by the U.K. government.

The decision gives telcos and HPE additional opportunities as it does for traditional vendors to accelerate the adoption of open, multivendor 5G solutions that telcos can potentially leverage.

HPE's work with telcos in the past puts it in good stead to enable telcos with the infrastructure necessary to provide enterprise-centric offerings that help operators drive new revenue. Operators will need to trust HPE can properly assemble and manage its best-of-breed vision of network management and infrastructure.

LEARN MORE

Related Research

- *How Will COVID-19 Impact SMB Spending on 5G This Year?* (IDC #EUR146333920, May 2020)
- *COVID-19 Pandemic Implications in the European Edge Scenario* (IDC #EUR146207919, April 2020)
- *5G Goes Commercial: Early Experiences and Future Prospects* (IDC #EUR146160120, April 2020)
- *5G Outlook in Europe: A New Era of Telecommunications Emerges* (IDC #EUR145973220, February 2020)

Synopsis

This IDC Perspective highlights the HPE 5G Core Stack and Edge Orchestrator solutions and pricing model. It details HPE's solutions in relation to mobile network operator needs, European ICT budgets in the wake of the pandemic, and the market for telecoms equipment.

"European operators are at an inflection point," said Kevin Restivo, research manager, 5G and Enterprise Mobility at IDC Europe. "Operators need to deploy 5G networks while maintaining 4G networks despite considerable deployment costs, complexity, and weak macroeconomic conditions. HPE's solutions address a variety of needs, including revenue generation from enterprises such as the enablement of edge services, but do so in a way that makes the cost more palatable to operators."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

IDC U.K.

IDC UK
5th Floor, Ealing Cross,
85 Uxbridge Road
London
W5 5TH, United Kingdom
44.208.987.7100
Twitter: @IDC
idc-community.com
www.idc.com

Copyright Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, telebriefings, and conferences. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/offices. Please contact the IDC Hotline at 800.343.4952, ext. 7988 (or +1.508.988.7988) or sales@idc.com for information on applying the price of this document toward the purchase of an IDC service or for information on additional copies or web rights.

Copyright 2020 IDC. Reproduction is forbidden unless authorized. All rights reserved.

