CSPs: Ensuring efficient business outcomes by using mobile core as SaaS

RESEARCHED BY

OMDIA

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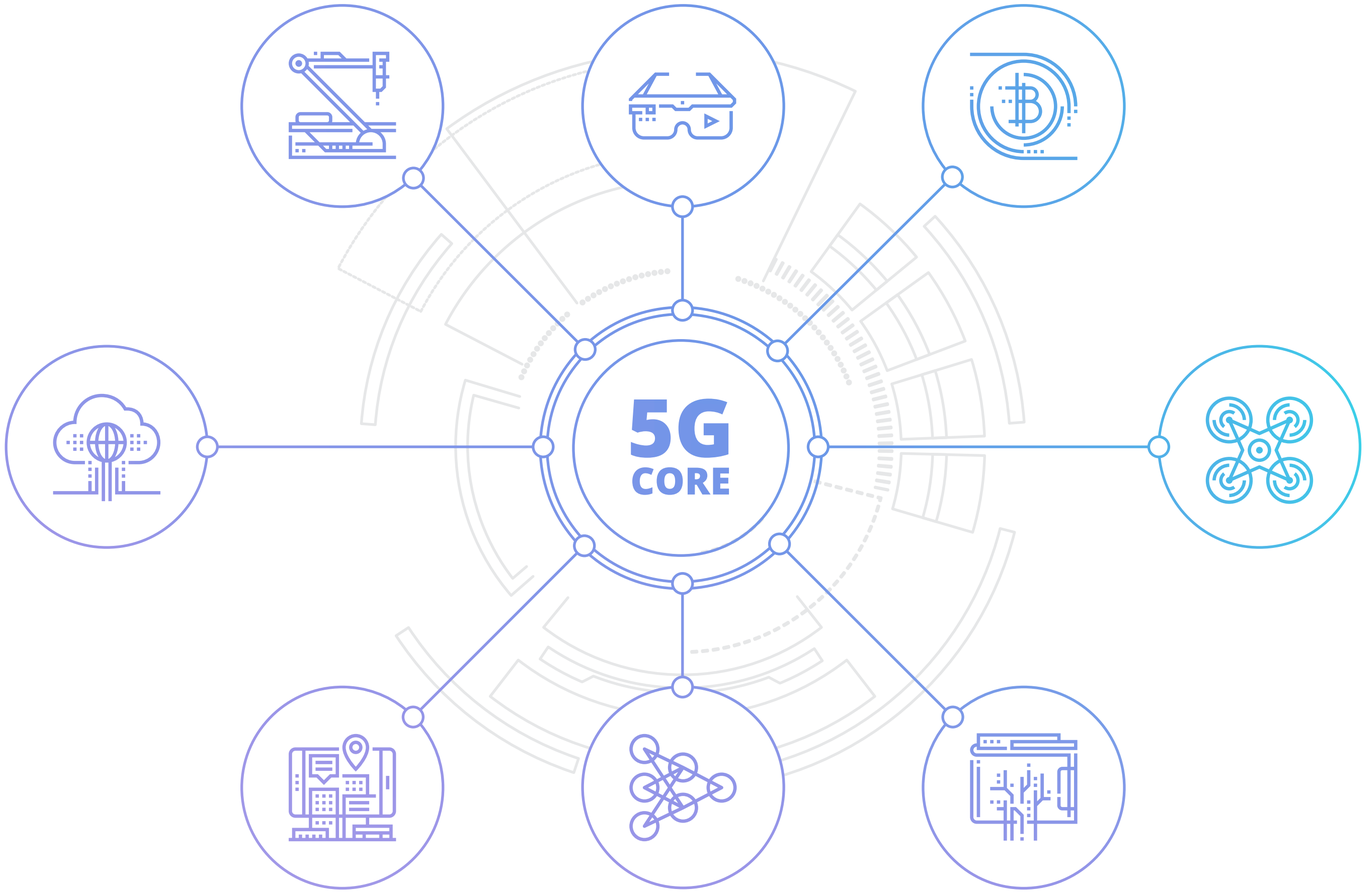
Introduction and key messages

Introduction

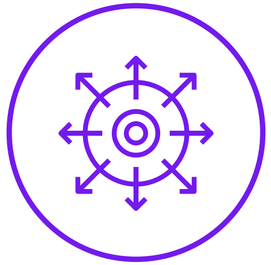
In response to market competition and consumer demand for network capacity, communications service providers (CSPs) have deployed 5G radio access networks (RAN). However, this will deliver limited benefits. CSPs that want to address advanced use cases and differentiate themselves in the market place must proceed to the second phase and deploy the 5G core.

CSPs' finances have also been under pressure for several years, but they must ensure that they can meet the technology and skill-set challenges to deliver new revenue-generating use cases in a timely manner. Nonetheless, deploying and operating the 5G core is complex and beyond the capabilities of many CSPs.

This report, commissioned by Nokia, describes the challenges many CSPs face in deploying the 5G core and outlines how a new core as software as a service (SaaS) can help meet CSPs' challenges.

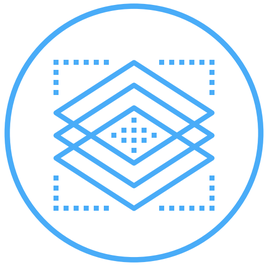


Key messages



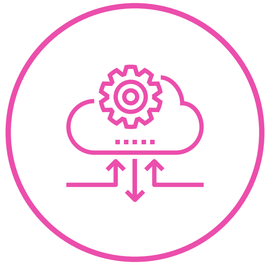
5G core will facilitate new use cases

The next-generation 5G core will be built using cloud-native technologies and will deliver greater network agility, efficiency, and scalability than the previous generation



Few CSPs will manage the complexity

Deploying and operating a 5G cloud-native core is complex, and few CSPs have the resources to do it in a timely manner



Mobile core as SaaS, a new SaaS concept for CSPs

Mobile core as SaaS, a new core network concept delivered on public cloud and paid for by subscription, will significantly simplify CSPs' operations and increase efficiency

CSPs need efficiency to be competitive

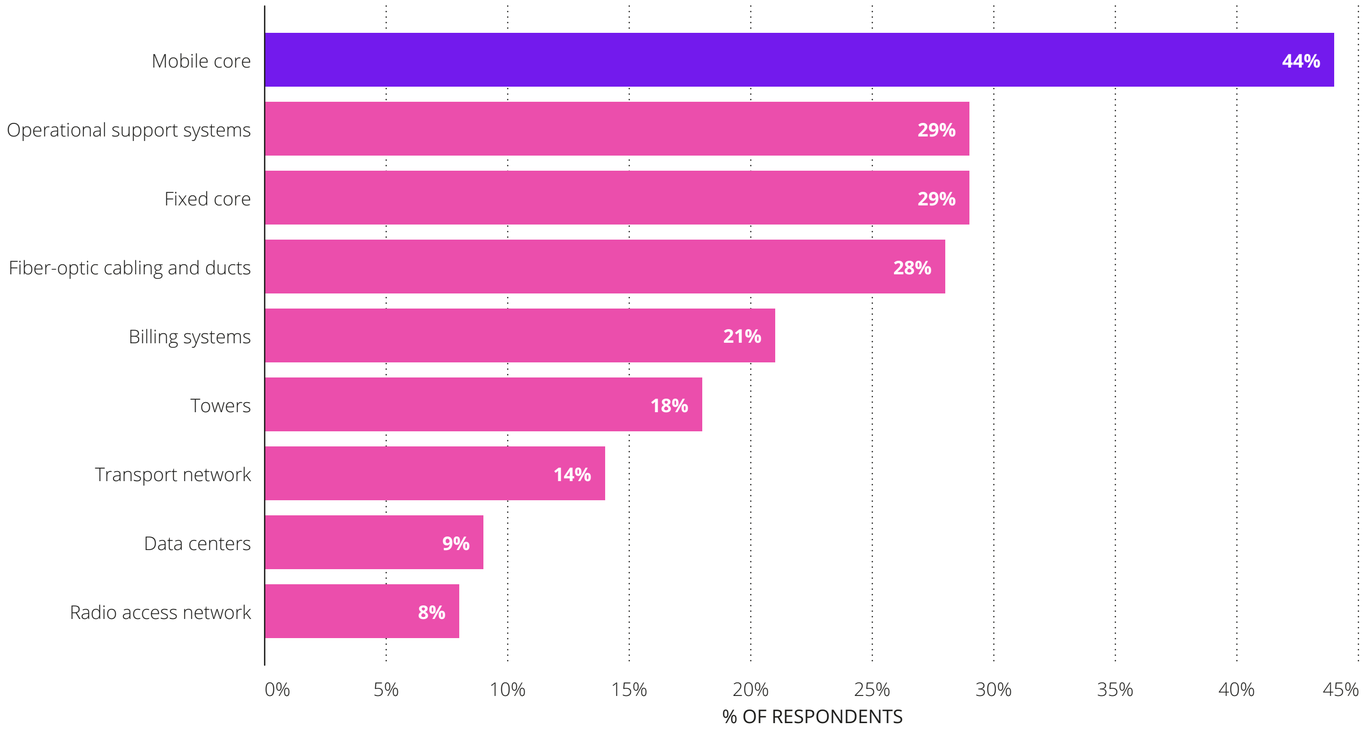
CSPs view the core as a strategic asset

The advent of 5G brings a new and large opportunity for CSPs to capture revenue from new services and use cases, targeting not just the consumer market but also the enterprise segment. To ensure they have the ability to remain competitive and deliver new use cases, such as mobile gaming and low-latency-based augmented reality / virtual reality (AR/VR), CSPs will need to invest in the 5G core.

Omdia conducted a survey of CSPs, which revealed that almost 50% of the survey respondents understand that the mobile core is the most valuable CSP asset, much more so than the other domains, including the billing systems and even the radio access network (RAN).

A few fast-moving CSPs have deployed their 5G core, but they remain in the minority. Other CSPs must move quickly if they are to benefit from their new 5G network investments.

Mobile core is CSPs' most strategic technology asset



NOTE: N=100
SOURCE: OMDIA

5G cloud–native core represents a paradigm shift for CSPs

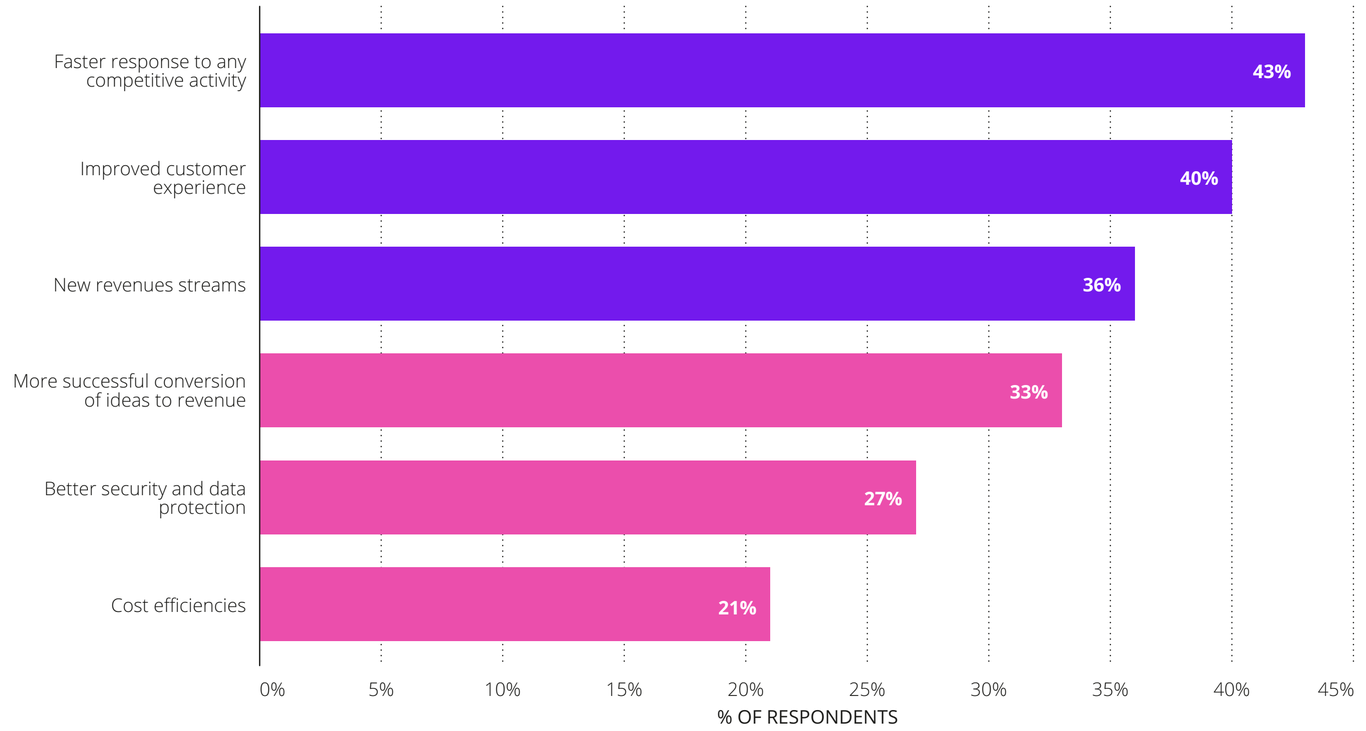
In the new world, CSPs must be able to respond to changing customer needs and requirements. Unlike with previous mobile generations, CSPs must automatically orchestrate new slices and deliver the right key performance indicators (KPIs) to address new revenue streams.

To facilitate the new era, the 5G core will be built using cloud-native technologies, which for the first time will enable CSPs to behave more like the hyperscalers and deliver greater network agility, efficiency, and scalability. But for CSPs to be successful, the core must operate with simplicity, openness, and confidence.

Nonetheless this is a paradigm shift for CSPs and a step change from operating physical infrastructure or even the virtualized deployments used for 4G networks.

Forty-three percent of respondents expect the new cloud-native technology to facilitate a faster response to competitive activities and address new revenue streams.

CSPs' expected benefits from migration to cloud-native



NOTE: N=67
SOURCE: OMDIA

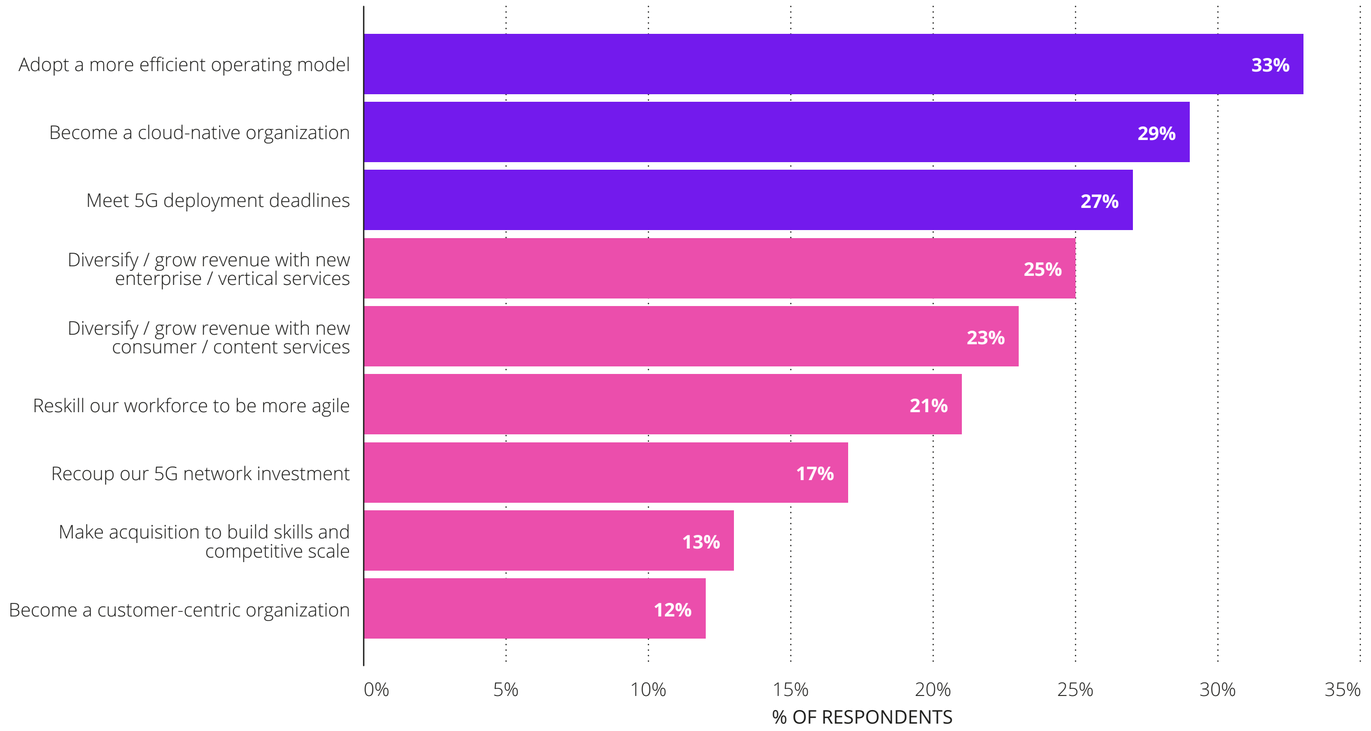
CSPs need to transform to deliver services in timely and efficient manner

The network deployment and operations challenges of 5G are significant and more complex than with previous generations. Mobile traffic is expected to grow by more than 10 times, while the number of configurable parameters is set to see a 100-fold increase. CSPs can no longer be expected to operate these networks manually as was done in the past.

CSPs must embrace automation and a more efficient operating model. This will require reskilling the workforce to become a cloud-native organization. Furthermore to build new services and applications in response to customer needs, CSPs must avoid silos between operations and development teams.

Some Tier 1 CSPs have gone through years of painful transformation, but many smaller Tier 2s, Tier 3s, and MVNOs will not have the resources to carry out this transformation in a timely manner.

CSP organizational priorities over the next 24 months



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SOURCE: OMDIA

CSPs that cannot manage the transition must look to other solutions

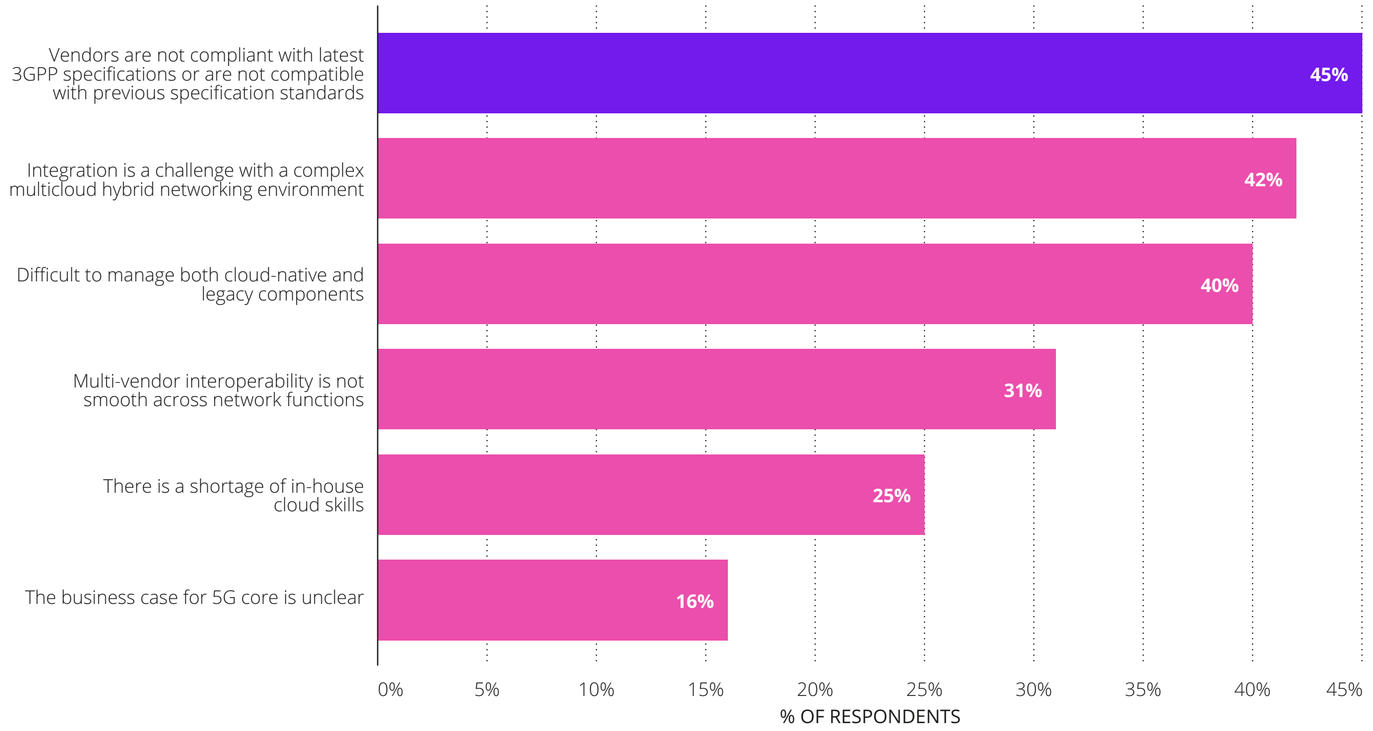
One multinational Tier 1 CSP told Omdia that 5G will require the integration of several clouds, and while it has teams of developers, it cannot innovate as fast as the hyperscalers.

Other challenges that CSPs face include a lack of standardized tool sets across all their vendor partners, which makes multi-vendor integration across network functions and the underlying hardware platform complex to manage.

Beyond the requirements for software skill sets lies the need to manage multiple new software releases. Additionally, apart from in a few greenfield deployments, most CSPs must manage multiple generations of networks.

Deploying 5G Core on public or hybrid cloud addresses primarily the cloud infrastructure's challenges. For example, the cloud infrastructure's timeliness, geographic availability, and its ongoing updates, upgrades, and maintenance. However, this accomplishes little for a CSP's own preparations and actions to deploy and operate their 5G Core. Such a CSP continues to own & manage their 5G Core, yet such operations are a complex, hard problem. **The timeliness and operational challenges could be solved by Core SaaS.**

CSPs' challenges in migrating to cloud native



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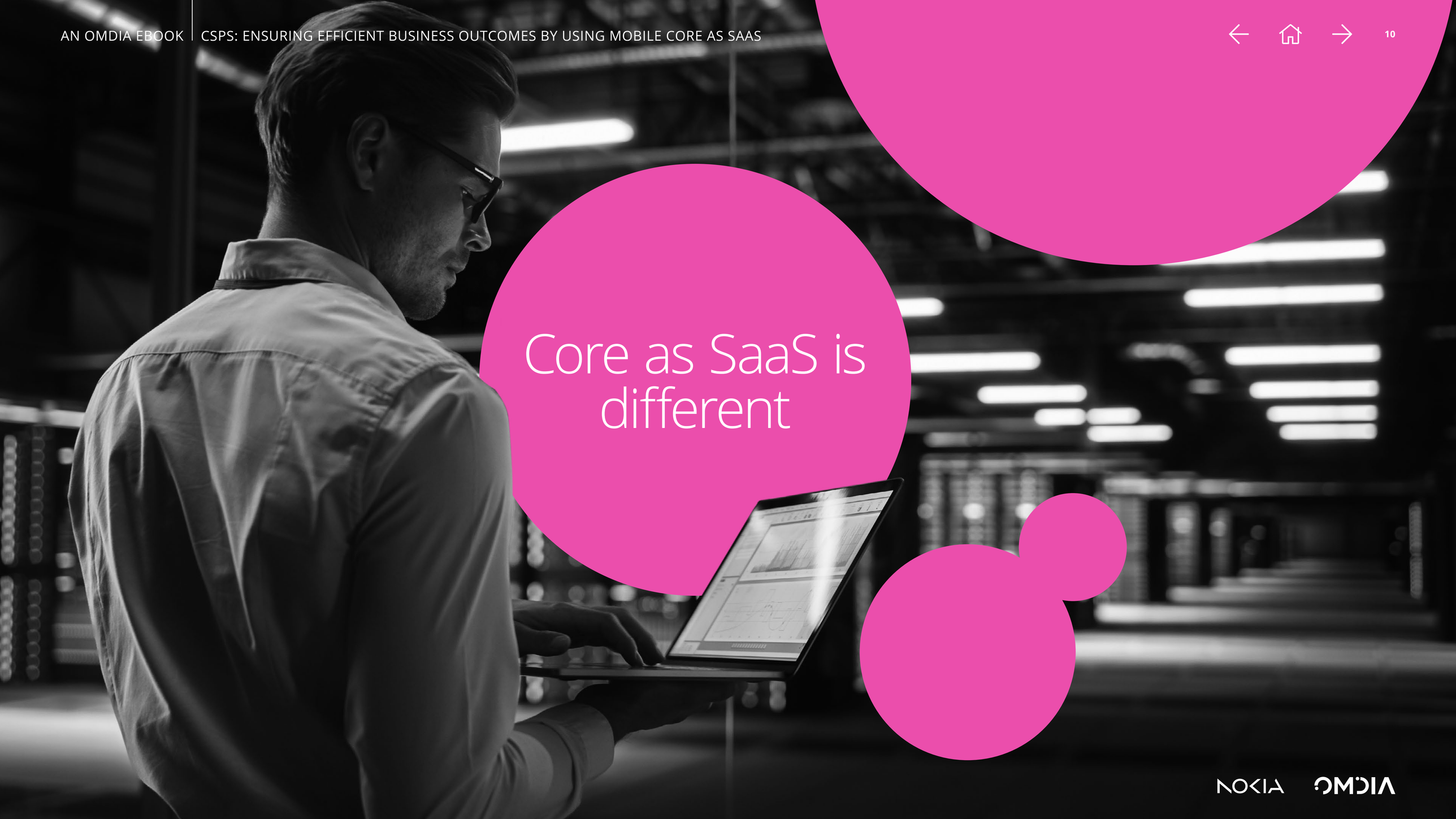


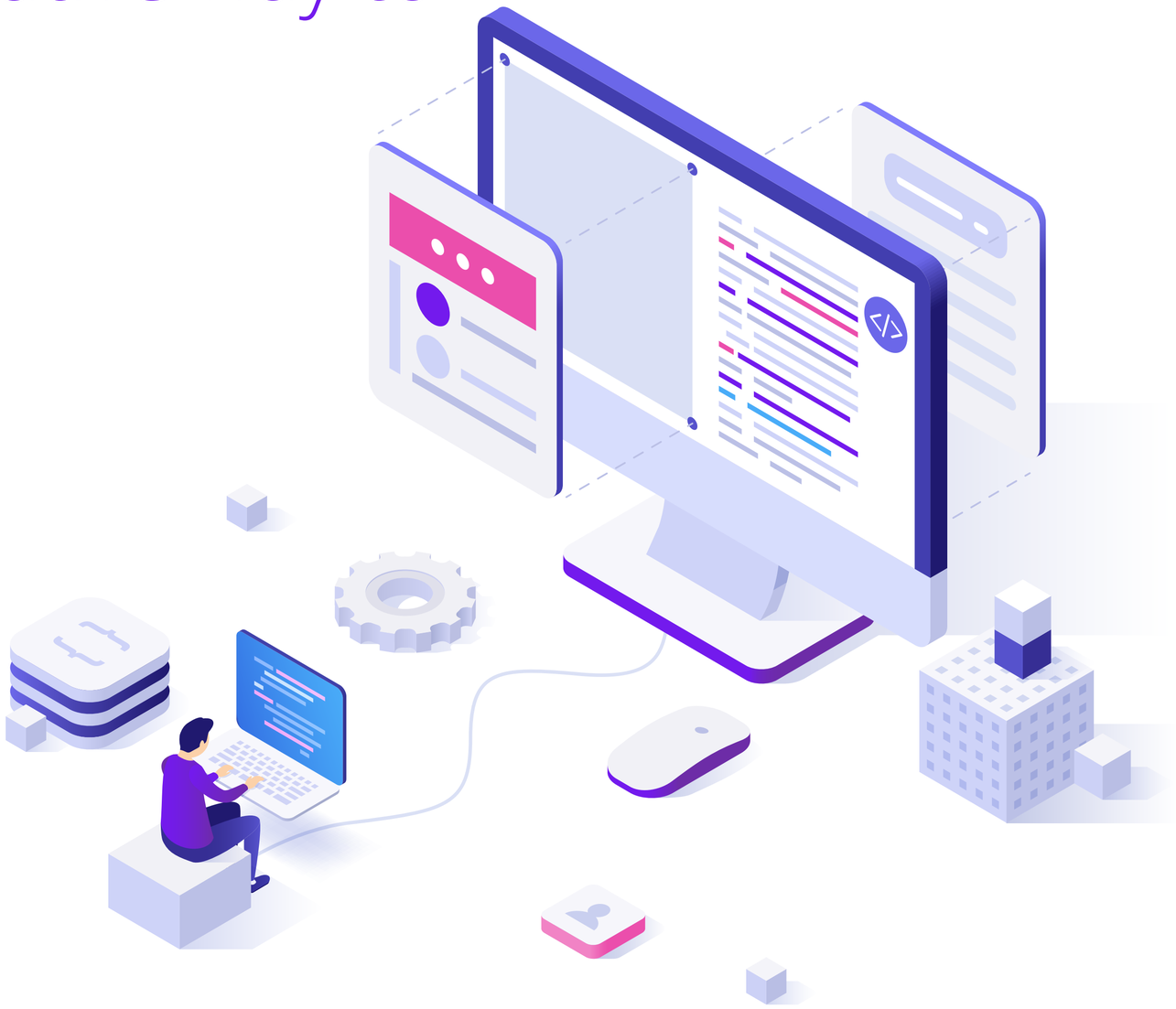
Core as SaaS is different

Mobile Core SaaS: An innovative way to build core networks

The core is the heart of the mobile network, and it manages all aspects relevant to the subscriber, including mobility management, routing, data download speeds, and charging. Traditionally, CSPs have run their core functions on private (on-premises) cloud infrastructure managed by their own staff, although maintenance and management tasks may be outsourced to the vendor as managed services.

OMDIA DEFINITION OF CORE SAAS

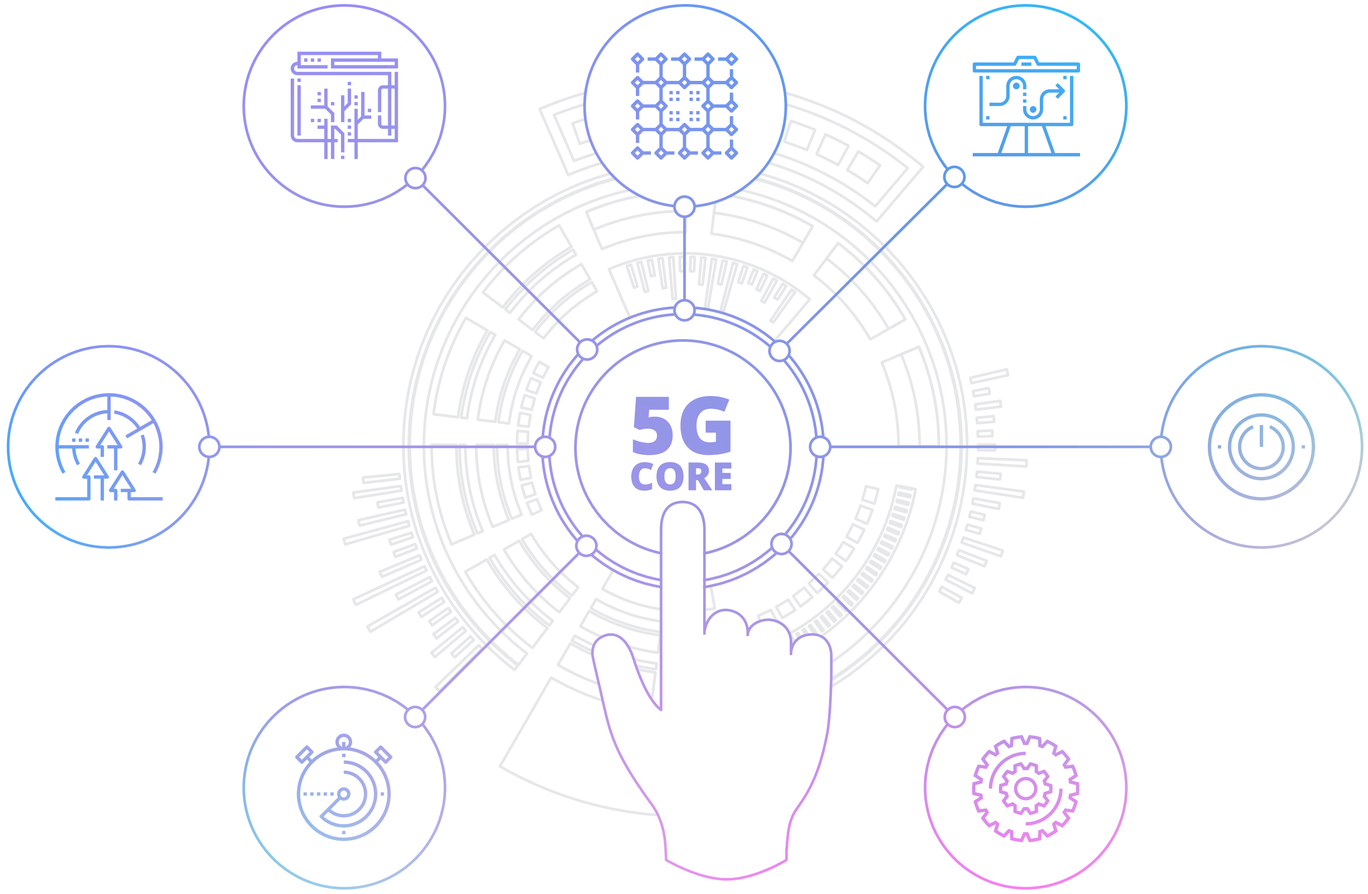
Omdia defines core SaaS as a core network solution provided on a scalable public cloud infrastructure, where the vendor is responsible for both the operation and the maintenance of the software and for ensuring that the cloud-based infrastructure can deliver the required network performance. The customer pays for the service on a subscription-based or consumption-based model.



CSPs can leverage mobile core SaaS to deliver on business results…

Mobile core SaaS: This is an alternative solution for CSPs that lack the required skill sets and resources to deploy an on-premises 5G core in a timely and cost-effective manner. This option has a lower setup cost and a faster time to market than an on-premises option. It is, however, less customizable.

Telecom networks are complex with high reliability requirements and are often described as having to achieve "five nines" (i.e., 99.999%) availability. Mobile networks, a subset of telecom networks, are even more complex given the additional workloads necessary to deliver mobility and subscriber management.



...and avoid the complexities of an on-premises 5G core

CSPs also have to abide by strict regulatory restrictions on their handling of sensitive customer data. These are some of the reasons why CSPs have built their mobile core on-premises to maintain control over the infrastructure and deliver reliability. Furthermore, until now they regarded public cloud as too costly and unreliable to deliver on the necessary performance and security requirements, but this attitude is changing.

IT SaaS: This is another type of SaaS, where reliability requirements are less stringent than for mobile networks. They are used for business-related use cases such as email applications and have been around for several years. These applications run in the vendor's own data centers, on vendor-provided on-premises servers, or more recently, on public cloud and are paid for on a consumption-based or subscription-based model.

Mobile core as SaaS will reduce CSPs' operational complexities

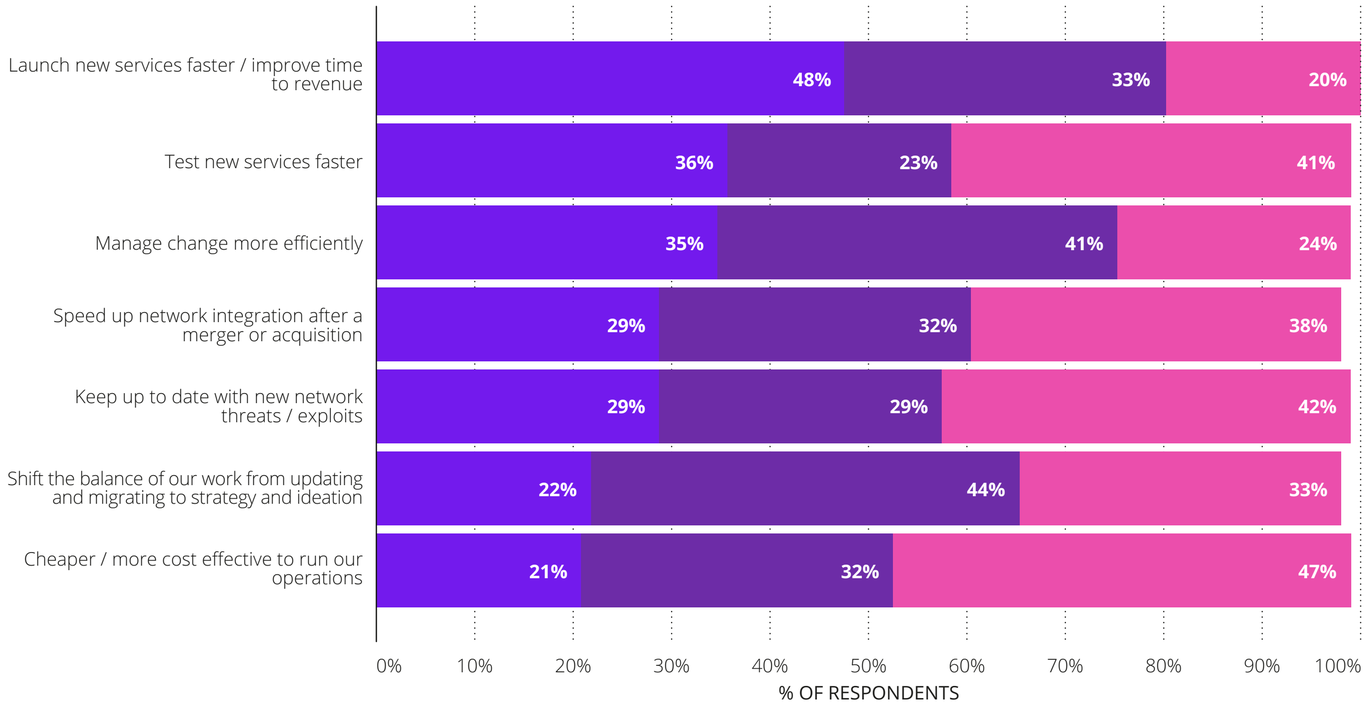
The survey asked about the attractiveness of buying network functions as a service, and 48% of those responding ranked launching new services faster as the most important.

The CSP's operations staff must carry out significant manual tasks such as updating network functions software and maintaining databases. For this reason, 44% of respondents ranked the shift of work from manual tasks to strategy and ideation as the second most important.

Interestingly, 47% of respondents ranked cost as the third most attractive reason to buy network functions as a service.

This survey result indicates that CSPs are more concerned about launching new revenue-generating services to compete in the market than with cost-reduction measures.

Attractiveness of buying network functions as a service



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SOURCE: OMDIA

CSPs' concerns about core as SaaS must be addressed

Telco SaaS misconceptions impede a fast route to market

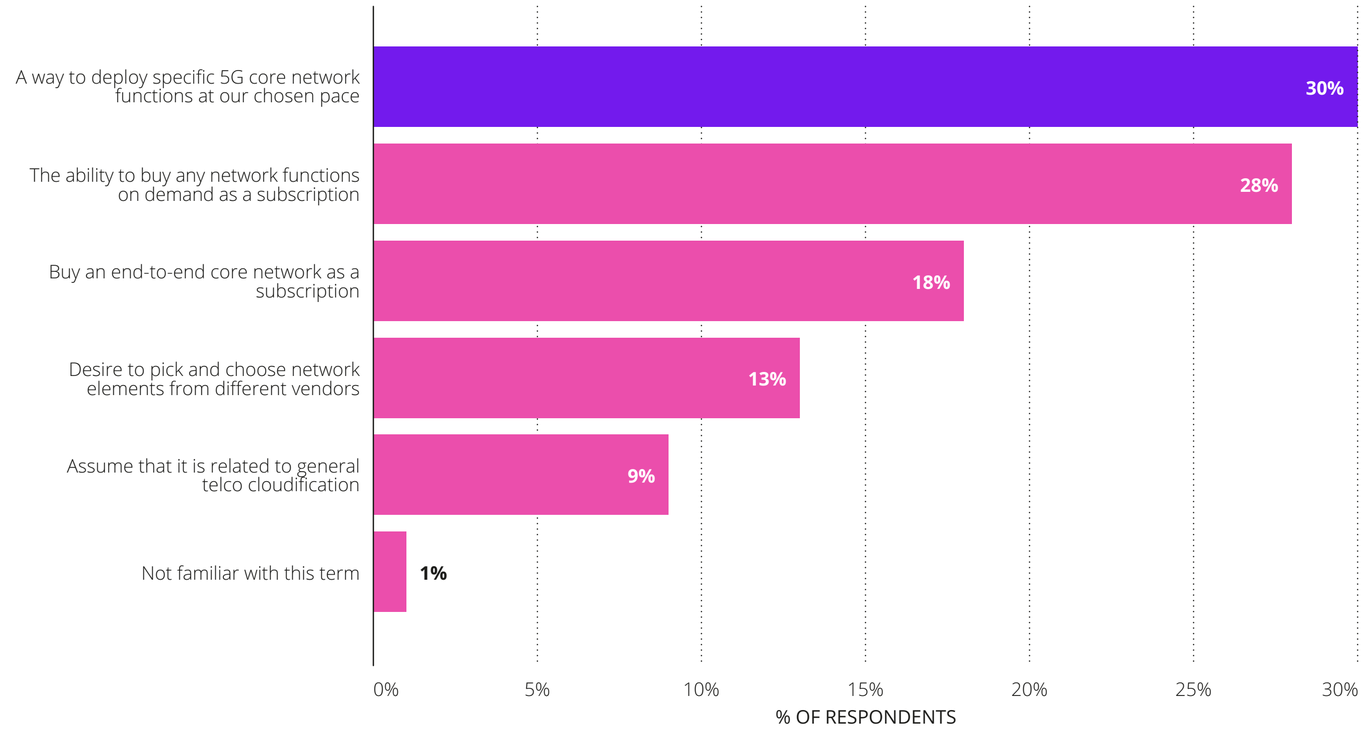
When asked about their understanding of the term telco SaaS for 5G core, respondents indicated their perceptions were wide ranging and disparate.

More than 50% of respondents believe that telco SaaS for core means the ability to deploy specific 5G core network functions at their own chosen pace or the ability to procure network functions on demand and as a subscription. A further 13% of the respondents believe that telco SaaS will facilitate a multi-vendor combination of network functions.

Only about 20% view the term telco SaaS as the ability to buy an end-to-end core network solution as a subscription-based service.

Core as SaaS will eliminate deployment and day-to-day operational complexities by bundling all functions in a single delivery package, managed through a portal.

What is your understanding of the term telco SaaS?



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SOURCE: OMDIA

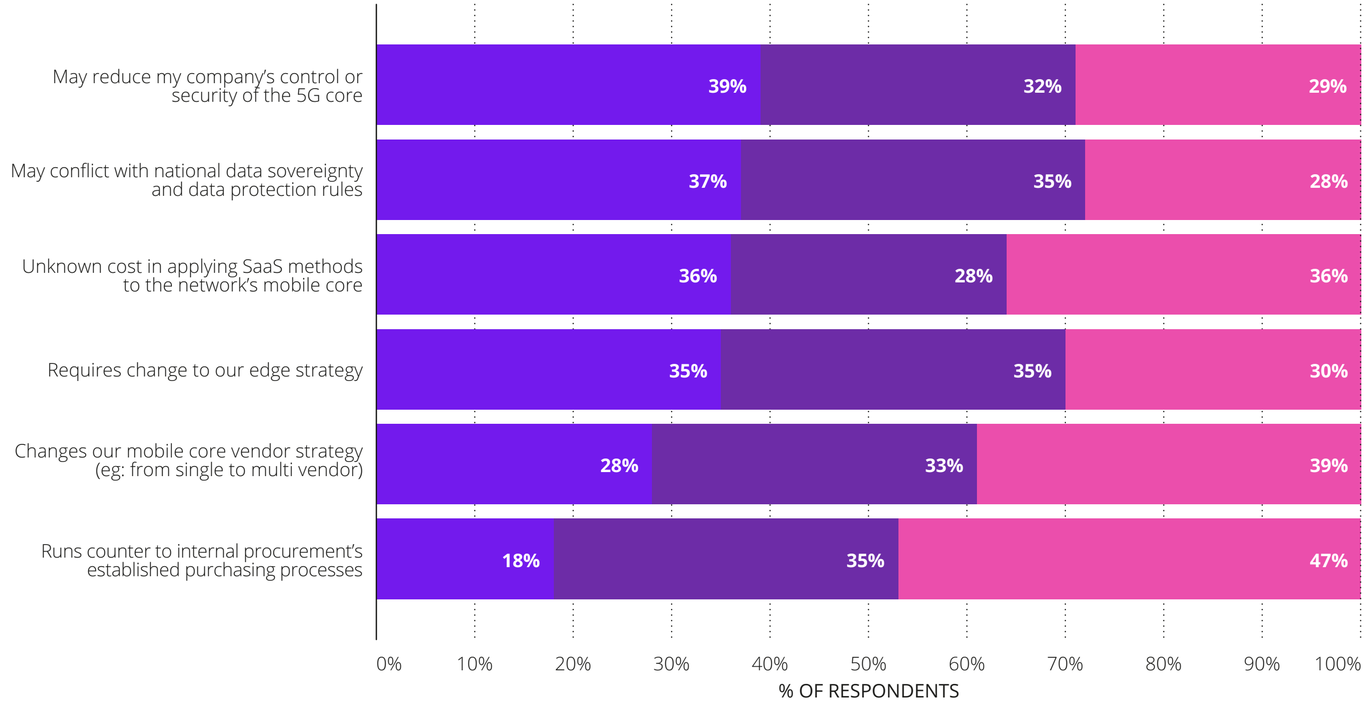
Significant barriers remain, but vendors can help ease these concerns

When asked about barriers to buying mobile core SaaS, 39% of respondents ranked top the risk of reducing control or security of the 5G core, 37% selected the conflict with national data sovereignty and protection rules, and 36% said their primary concern was the unknown costs.

Most CSPs also have established procurement processes. For this reason, 35% of the respondents ranked their concerns that core as SaaS procurement on a subscription or consumption-based model could run counter to internal procurement practices as the second and third biggest barriers.

Vendors have a role to bring both CSPs and public cloud partners together to reassure them why modern mobile core as SaaS can meet requirements and resolve challenges.

CSPs' biggest barriers to buying mobile core in a SaaS model



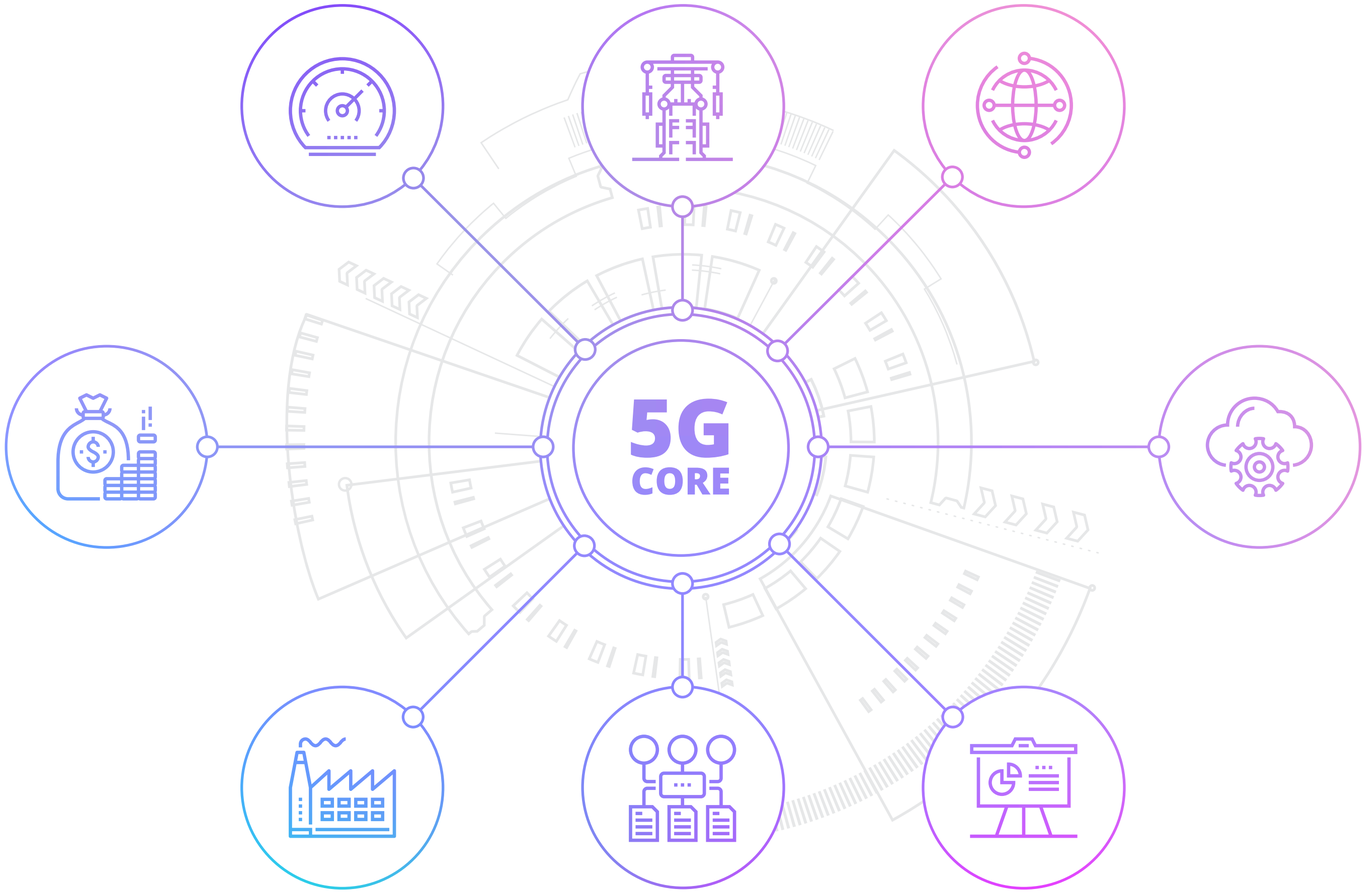
NOTE: N=100
SOURCE: OMDIA

Outlook

According to Omdia's *World Cellular Information Series* (WCIS) there are more than 900 CSPs globally, but if we add MVNOs and MVNEs, this number balloons. Many have deployed 5G RAN, but very few have thus far deployed the 5G core. But the 5G core is the most important domain, which will enable CSPs to build new revenue-generating use cases.

Deploying the 5G core in a timely manner is, however, complex and requires skills and resources that most CSPs do not have. These CSPs should seek other solutions, such as mobile core as SaaS, which is delivered as a bundled package to reduce complexity. CSPs can then meet their customers' requirements, make modifications, and build new services as required through a portal.

Many CSPs are, however, concerned about the payment model given they still pay for infrastructure using a capital expenditure model. They should consider transition to a subscription-based or consumption-based model, which is a model used by their enterprise customers.



Appendix

About

Nokia

At Nokia, we create technology that helps the world act together.

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Omdia is a global technology research powerhouse, established following the merger of the research division of Informa Tech (Ovum, Heavy Reading, and Tractica) and the acquired IHS Markit technology research portfolio*.

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Our exhaustive intelligence and deep technology expertise enable us to uncover actionable insights that help our customers connect the dots in today's constantly evolving technology environment and empower them to improve their businesses – today and tomorrow.

*The majority of IHS Markit technology research products and solutions were acquired by Informa in August 2019 and are now part of Omdia.

Methodology

Omdia conducted a dedicated survey of CSPs from all regions in the world on the topic of 5G mobile core as SaaS. The operators were diverse in terms of size, use of 5G Core and 5G deployment plans. In addition, Omdia used its extensive research and from its Mobile Infrastructure research practice.

Further reading

Mobile Infrastructure Market Tracker – 2Q22 Analysis (September 2022)

Market Landscape: Core vendors (June 2022)

Mobile Infrastructure Tracker – 1Q22Analysis (June 2022)

Operators' voice service continuity in 5G era and cost-saving strategies are contingent on IMS implementations (November 2021)

2022 Trends to Watch: Mobile Infrastructure (October 2021)

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