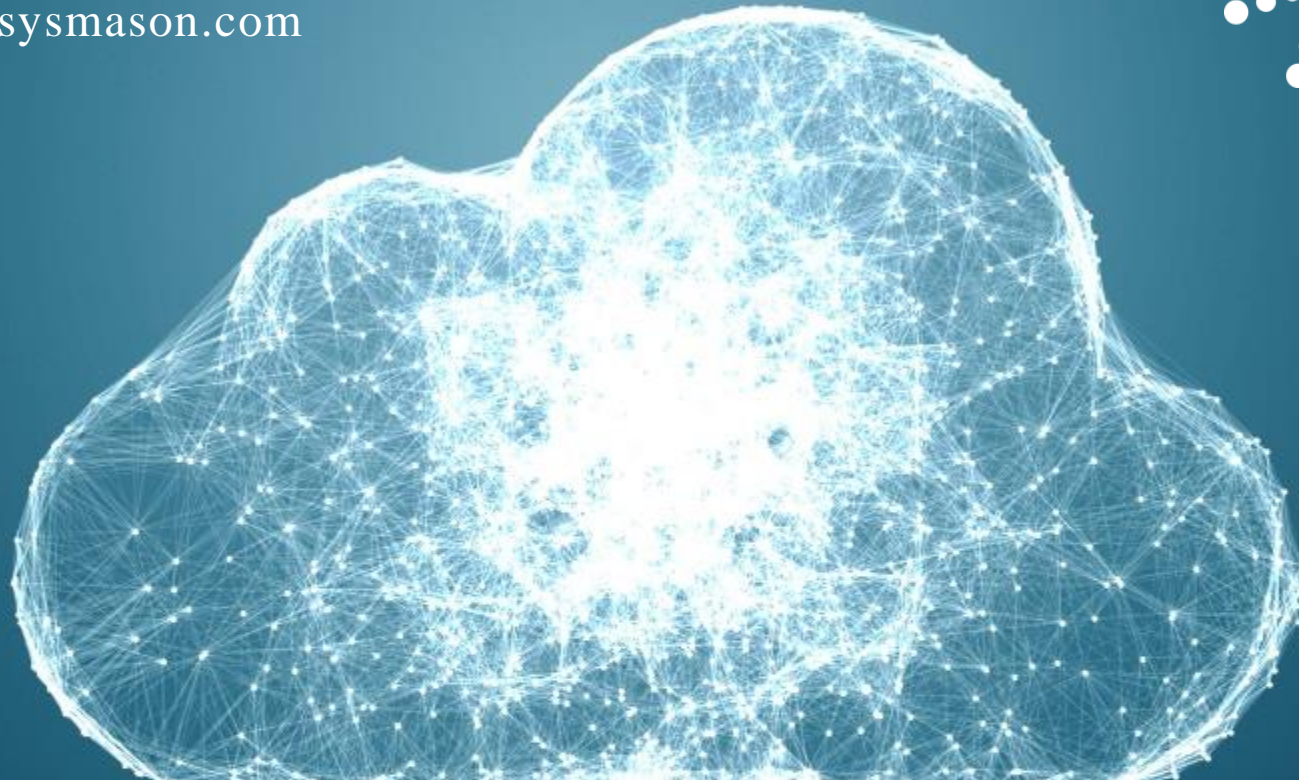


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RESEARCH STRATEGY REPORT

CLOUD-NATIVE COMPUTING FOR TELCOS: DEFINITIONS, CHALLENGES AND OPPORTUNITIES

JOHN ABRAHAM AND CAROLINE CHAPPELL

About this report

This report provides a high-level definition of cloud-native computing and explains why it is important to communications service providers (CSPs) considering or already engaged in digital transformation. The report argues that CSPs that wish to become digital service providers (DSPs) must engage with cloud-native computing as soon as possible to catch up with the software capabilities demonstrated by leading DSPs, such as Facebook, Amazon, Netflix and Google (collectively known as the FANG companies).

The report provides CSPs and vendors with recommendations depending on the strength of their desire to become DSPs. It is based on several sources:

- interviews with leading CSPs that are investigating cloud-native technologies
- interviews with the following cloud-native technology organisations and vendors:
 - Canonical
 - CNCF¹/Kubernetes
 - Mesosphere
 - Rancher
 - Red Hat
 - VMware
- desk research.

¹ Cloud Native Computing Foundation

KEY QUESTIONS ANSWERED IN THIS REPORT

- Why should CSPs and vendors care about cloud-native computing?
- What is cloud-native computing and who are the important players?
- Must every CSP engage with cloud-native computing immediately?
- What can CSPs do to accelerate cloud-native adoption?
- What are the key drivers for cloud-native computing?
- What are the business risks for both CSPs and vendors?

WHO SHOULD READ THIS REPORT

- C-level executives in CSPs who wish to understand why cloud-native computing is important
- All kinds of telecoms vendors as they will need to adapt their products to run cloud natively within DSPs
- IT vendors and cloud-native specialists wanting to sell a digital transformation narrative to operators
- Telecoms services vendors that will have a large role to play in helping hybrid CSPs adopt cloud-native computing capabilities.

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Executive summary

Web-scale companies pioneered cloud-native computing as the fastest and most efficient way of developing and deploying software in the cloud. CSPs must also adopt cloud-native computing across their businesses if they aim to become DSPs.

CSPs want to transform themselves into DSPs due to one or more of the drivers shown in Figure 1. Not all CSPs have these concerns, but those that do must adopt the software approach that has contributed to the success of web-scale companies.

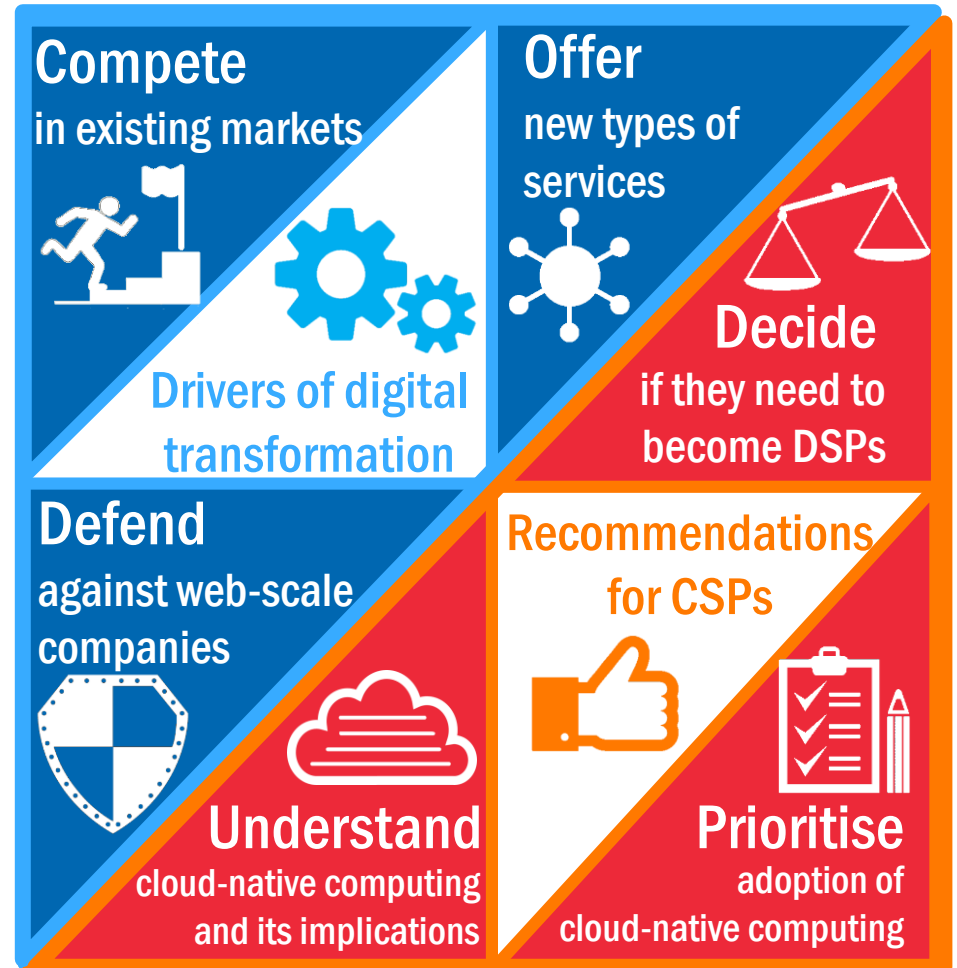
This report explains the following critical steps in CSPs' adoption of cloud-native computing:

- deciding on a business strategy
- developing an understanding of cloud-native computing
- adopting a plan to implement cloud-native computing.

We have analysed the opportunities and difficulties associated with cloud-native computing and recommend that CSPs should:

- decide whether they want or need to deal with the disruptive changes required to become a DSP
- understand what cloud-native computing is and its implications within a telecoms context
- be prepared to make adoption of cloud-native computing a strategic priority.

Figure 1: Drivers of digital transformation and recommendations for CSPs



Source: Analysys Mason

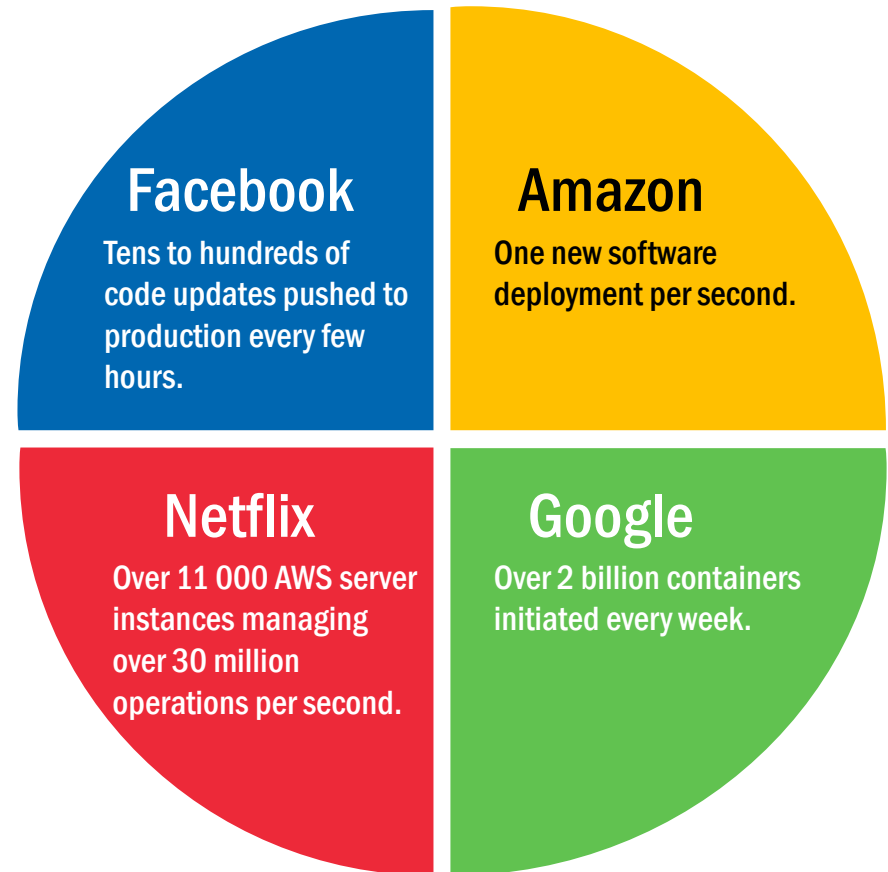
Mastery of cloud-native computing is critical for DSPs, but adoption is fraught with challenges

Operators are failing to achieve the status of DSPs, because they and their vendors have yet to adopt the cloud-native architectures and tools that power the software-driven businesses of the FANG companies. The ability to deploy and develop software at cloud-native speeds and cost efficiencies will become the new benchmark for both CSPs and vendors.

CSPs are weighed down by the legacy software architectures that proliferate across their organisations, including in their foundational asset – the network. This software has not been designed for DSP infrastructure (the cloud) and CSPs' software capabilities cannot compete with those of the FANG companies as a result. The latter have pioneered the tenets of cloud-native computing: horizontal scalability; reusable, loosely-coupled and open components; continuous integration and delivery, and container-based deployment. These characteristics result in the highest levels of efficiency, resilience and speed when delivering software in the cloud.

CSPs and their vendors must achieve similar characteristics if they are to become software-powered companies capable of taking on, or equipping their telco customers to challenge, DSP competitors. However, cloud-native computing requires cultural, organisational and technology changes that are radically different to current practices in the telecoms industry. Such changes represent a large barrier to adoption by CSPs and their vendors alike and the rewards may not yet outweigh the transformational risks.

Figure 2: Benchmarks for cloud-native computing KPIs set by FANG companies



Source: Analysys Mason

Telco industry players should prioritise cloud-native computing if they are committed to becoming DSPs

Those CSPs determined to become DSPs must move faster and push their vendors harder to acquire cloud-native computing capabilities. They must articulate compelling business cases for becoming cloud native and accelerate their ability to support new services built using a cloud-native approach.

CSPs that are currently unconvinced of the value of cloud-native computing to their business should ensure that they understand the risks of neither acquiring digital capabilities nor interacting with other players in a digital way. They must keep their decision under review, should market signals suggest that other telcos' DSP strategies are paying off. Vendors will want and need to support both camps, and an early shift in product and service strategy to support cloud-native computing will give vendors an advantage regardless of the strategy their customers choose. Vendors will find it more cost-efficient to build and deploy the software that goes into their own products cloud-natively than otherwise. They will thus position themselves well for customers' mass adoption of cloud-native technologies in the future.

CSPs and vendors that prepare for cloud-native computing now will build the knowledge and software skills that are critical to producing competitively differentiated digital services at speeds rivalling those of market-leading DSPs.

Figure 3: Three ways in which CSPs should advance cloud-native network function virtualisation



Source: Analysys Mason

Key recommendations

1

CSPs must understand both the drivers that influence whether or not they need to become DSPs and the implications and risks associated with digital transformation.

A DSP needs the same digital behaviours as FANG companies, including their level of software mastery. Becoming a DSP and acquiring cloud-native computing skills may not be the right strategy for every telco, depending on their market circumstances and business strategy. True believers must have strong faith that their digital transformations will pay off, as the business benefits of applying cloud-native technologies to the telco environment are unproven.

2

CSPs must understand what cloud-native computing is and its current benefits and constraints in order to challenge vendors intent on putting cloud-native labels on products to which they do not apply.

The cloud-native computing market is being driven by enterprise use of the technology, which does not reflect telco interests and requirements. Vendors also often apply the term 'cloud native' to products that do not match the CNCF's definition, due to the early state of the market. CSPs and other players in the broader telecoms ecosystem should collaborate to understand and agree upon a definition of cloud-native computing in a telecoms context.

3

CSPs that are determined to become DSPs should make the adoption of cloud-native technologies a strategic priority.

CSPs should identify use cases and service opportunities that will benefit from a cloud-native approach and use them to test and showcase the capabilities of the technology. CSPs should drive adoption of cloud-native computing at the corporate level and clearly articulate a timeline and roadmap with which they expect their vendors to comply. They should also join and influence key cloud-native communities, such as the CNCF.

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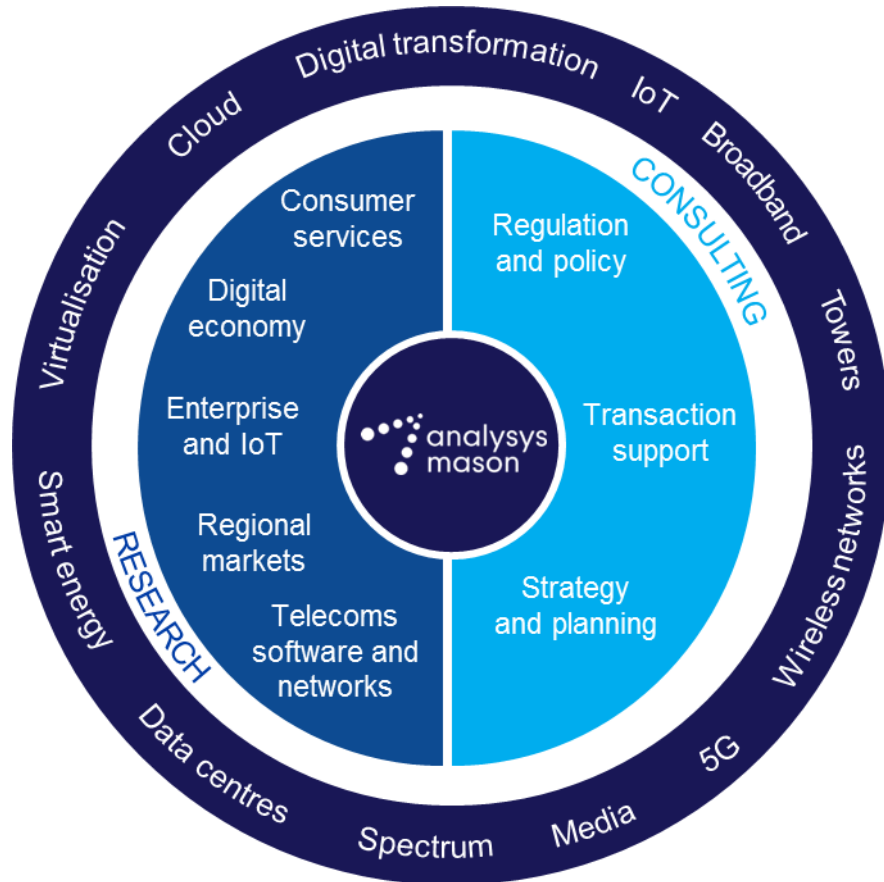
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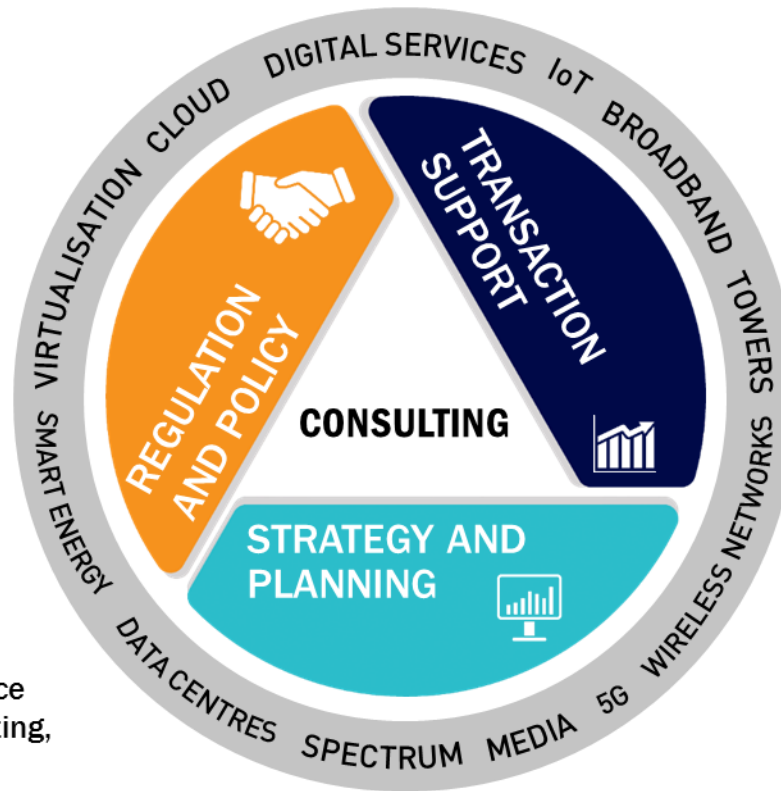


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