Why cloudify your telco network?

Telecom networks and cloud have traditionally been two technological domains that don't mix. Is that still true?

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Like businesses in nearly every sector, telecommunications companies (telcos) have already moved much of their IT infrastructure delivery and maintenance to the cloud. Cloudification is an increasingly important way for any company to reduce IT operating costs and gain the flexibility and agility to survive and thrive in today's competitive business world. However, just a few years ago, the conventional wisdom was that there was no place for cloud computing within telecom networks — which were strictly the domain of specialized, purpose-built appliances.

The first step: virtualizing network functions

The emergence of network function virtualization (NFV) first opened the door to cloud as a core part of future telecom networks and signaled the beginning of the end for dedicated network appliances.

Network function virtualization is a critical step on any telco's journey to cloud. It requires replacing traditional network appliances with efficient virtualized functions delivered using industry-standard IT equipment. Through virtualization, standardized server hardware is employed for multiple purposes instead of relying on bespoke appliances. More recently, two new trends have advanced the cloudification of telecom networks.

First, in addition to pure virtualization, telcos have started to employ **cloud business and cloud management practices** such as Infrastructure as a Service (IaaS) for their network functions.

Second, **cloud-native software** like microservices and Kubernetes containers have become commonplace in the design of virtualized network functions.

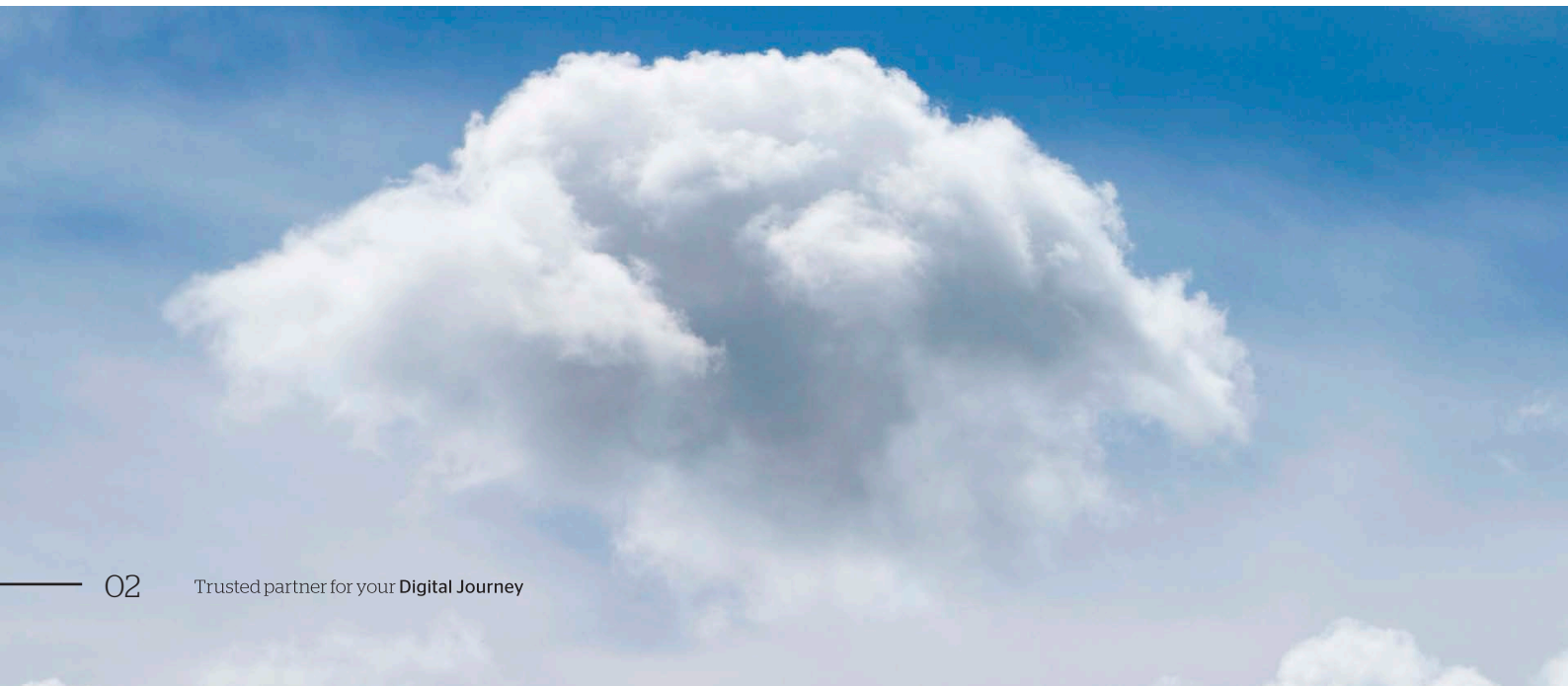
As a result, we have seen the emergence of what we call **network function cloudification** — a game-changer for next generation telecom networks.

What is telco cloud?

Telco cloud encompasses both network function virtualization and network function cloudification, delivering the same kinds of benefits to telecom networks that cloud has already delivered for IT infrastructure. Telco cloud is a highly flexible platform that enables the evolution to a software-defined network and significantly reduces the need for specialized hardware.

While private cloud is almost exclusively employed today, public and hybrid cloud play an increasingly large role in private 5G systems to deliver maximum cost efficiency and agility.

However, cloud isn't just about smart technology: it's also a critical enabler for new ways of thinking and working. Cloud enables agile service management and supports the agile design, development and delivery of new telecom services — using DevOps to accelerate innovation.



Transforming the network

The benefits of employing cloud in the network environment are clear. Telcos can benefit from unprecedented agility and faster time-to-market provided by cloud-native software's programmable infrastructures. In addition, cloud platforms enable telcos to harness AI and automation to begin realizing the vision of an entirely self-adapting network.

Telco cloud also enables virtualization at the edge of the network, providing greater flexibility and efficiency. The idea of virtualizing systems like radio access networks (RAN) would be unthinkable without network function cloudification.

Telco cloud and decarbonization

Telco cloud also offers one noteworthy advantage: improved efficiency and sustainability. With cloud-native network functions built as a mesh of microservices, the number of service instances can be automatically scaled down when network traffic is low. The remaining instances can be consolidated, and any unused hardware assets dynamically shut down.

Conversely, the system dynamically scales back up when the load increases or network traffic spikes due to special events like trade shows or major sporting events. This auto scaling is a key benefit of cloud-native network functions and an important step in building the energy-efficient, decarbonized telecom networks of the future.

Why move to telco cloud now?

The advent of 5G (and soon 6G) means that telcos must be prepared to deliver the flexibility, agility and scalability demanded by innovations like smart city services, connected health and wellbeing solutions and autonomous cars. Telcos will play a vital role in delivering these value-added services to society, and in the process, tap into a valuable new source of revenue.

Yet, some critical challenges remain. Ultra-reliable low-latency communication (URLLC) applications may be so demanding that far-edge data centers will not suffice, and the service must come straight from the network.

Going forward, any carrier with a network dependent on bespoke appliances (versus industry-standard hardware) will be at a disadvantage compared to forward-thinking companies that can successfully implement telco cloud.

By Franz Kasparec

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Franz Kasparec is globally in charge of the digital infrastructure and cybersecurity offerings in the telecommunications, media and technology industries. He spends much of his time advising carriers, media companies, and internet providers on new infrastructure and security trends. One of his specializations is mobile edge computing (MEC) and virtualization of the radio access network (RAN) in telecom. He holds several cybersecurity and business-continuity management certifications.

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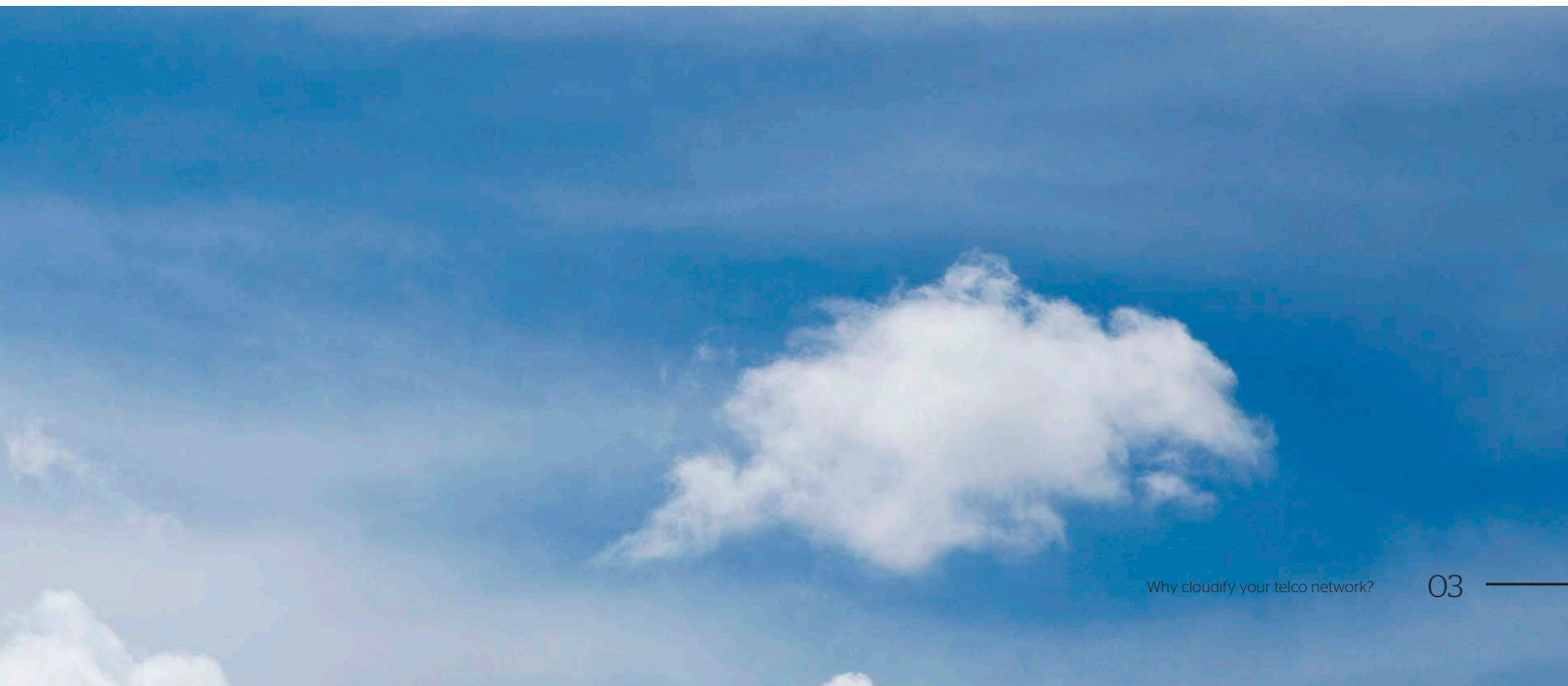

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