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WHY IMS
NEEDS TO BE
"ANY CLOUD-NATIVE"

INDUSTRY INSIGHT

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Communications Services Providers (CSPs) are now asking for network and service automation solutions deployed in the public cloud. The transformation has begun, whether they are migrating all voice services to the public cloud or using it to complement their existing private clouds to better handle spikes in demand or temporary business needs. What is driving this trend, what operational shifts are needed, and which clouds should be used?

The Long Journey from COTS to Web-Scale Operations

The telecom industry has been on the journey to cloud operations for over a decade, but to what end? Initially, the main driver was all about CAPEX savings. First, there was a move away from proprietary hardware in favor of commercially off-the-shelf (COTS) hardware. This shift made it possible to take advantage of ever-evolving server technology by continually improving performance vs. price in processing power, memory, and storage.

Next, decoupling software from the hardware had many benefits but also required changes to the decades-old legacy operations. However, until the manual processes are updated, the true value is never seen.

Then Software Defined Networking (SDN) and Network Functions Virtualization (NFV) promised to improve operational efficiency and address the growing OPEX problem. The benefits of SDN offered a more intelligent, programable networking solution. NFV allowed CSPs to automate the life-cycle management of application workloads, delivering "zero-touch" operations. Adopting these new IT cloud technologies has given CSPs new confidence in cloud operations, reliability, and security, but the journey is not over. Step by step, the promise of transforming CSPs into web-scale businesses is emerging.

The next phase started as CSPs began adopting the new IT cloud technology based on Kubernetes and containers. In this environment, IMS must also evolve to support these new cloud deployments.

5G is Driving the Urgency for Web-Scale Transformation

There is a fundamental paradigm shift happening in 5G, which is more complex than previous generations of technology. CSPs are more committed than ever to becoming nimble, independent, and creating a foundation for innovation that lets them imagine, experiment, and deliver like an internet company. The need for CSPs to evolve and modernize their operations is becoming more urgent as the industry transitions to the 5G era.

In a 5G environment, human consumption no longer drives the network design. This requires reimagining the old ways of planning, building, and operating networks. In the previous technology generations, operations paradigms also centered on the human consumption of services. Humans are predictable; there was a high call volume hour, traffic patterns that followed population density, and operational changes scheduled at night when most people were sleeping. All these old planning, building, and operational paradigms, tailored to human consumption, must shift in the new 5G world. 5G supports all kinds of non-human use cases that require different network characteristics in terms of latency, bandwidth, and mobility.

Traffic demands and patterns will vary widely based on the use case. Costs will need to be adjusted for each new use case based on the required performance or Service Level Agreement (SLA). As a result, network planning and operations need to evolve and accommodate this new dynamic. Why is that relevant to IMS since it is used mainly for communication services? The reason is that IMS services are evolving along with the 5G packet core and adopting the same operational paradigms. This means IMS technology must evolve to fit into this new, developing web-scale paradigm.

The Decision to Stay Private or Go Public

Cloud evolution is driving major decisions. Do CSPs continue constructing private clouds or leverage the expertise of hyper-scalers such as Amazon Web Services (AWS)? While they believe this number is inflated, GSMA reports a massive jump in the number of operators that claim to be deploying network functions in the public cloud (48% in late 2019 to 71% in mid-2021) suggests strong progress.

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Previously, the conventional wisdom was to stay private. Many CSPs believed they would retain control of the infrastructure, perceived cost advantages, and security. Building, operating, and maintaining private clouds, on the other hand, has proven more complex and costly than anticipated. To benefit from the latest and greatest server and cloud technology, you have to continually refresh your infrastructure. This cycle means buying new servers and upgrading cloud infrastructure more frequently. The tradeoff between private or public cloud is similar to driving the latest car model; does it make more sense to lease or buy a new car every two or three years?

Building the automation framework needed to realize web-scale architecture is another significant consideration. As previously mentioned, "zero-touch" operations need more than NFV and SDN alone for true success. The automation framework to support the cloud technologies such as network orchestration, CI/CD pipelines, and advanced observability tools are required. All this is also true when moving an NFV private cloud to Kubernetes. As a result, CSPs may turn to hyper-scalers, such as AWS, who have a lot more experience in cloud operations.

The Importance of ANY Cloud

With so many cloud evolution strategies to consider, the last thing CSPs need is for their IMS solutions to be part of the problem. That is why IMS needs to be "cloud-native," but more importantly, be "ANY cloud-native." IMS workloads are going to be operating in different cloud environments simultaneously. We already see this today.

Migration from NFV to Kubernetes takes time, so operational personnel must manage the transition. Alternatively, a hybrid strategy may be used, where IMS is deployed in an existing NFV private cloud with expansions completed in Kubernetes in the public cloud.

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Because of this, the term "Any cloud" can't be a "one or the other" choice. IMS workloads must run in "this" environment AND "that" one. This cloud AND that cloud simultaneously. Operations will invariably have to manage IMS services in different cloud environments for extended periods. Unless the IMS solution operates across multiple clouds simultaneously, this task can be impossible. Operating simultaneously in multiple clouds means that IMS workloads must have the same architecture, defense mechanisms, operational metrics, interfaces to other nodes, and most critically, feature parity regardless of the cloud infrastructure.

Mavenir's Cloud-Native IMS solutions are designed to enable seamless service experience and operations across any different cloud environment, removing at least one headache along the ever-evolving cloud journey.

About Mavenir

Mavenir is building the future of networks and pioneering advanced technology, focusing on the vision of a single, software-based automated network that runs on any cloud. As the industry's only end-to-end, cloud-native network software provider, Mavenir is transforming the way the world connects, accelerating software network transformation for 250+ Communications Service Providers in over 120 countries, which serve more than 50% of the world's subscribers.

> For more on Mavenir Solutions please visit our website at www.mavenir.com