A GUIDE FOR TELECOM

How to Leverage the Power of Public Cloud for BSS

CSPs need to ensure they are selecting true cloud-native products to reap the benefits of the public cloud, including agility, flexibility and massive savings.

The Time for Transformation is Now

Telecom has always thought of itself as a special case when it comes to IT. The industry is complex and technology-focused and encumbered with legacy systems and layers of customisations. In many respects, it resembles the banking sector with bare metal deployments reaching end of life for both hardware and software. These are cracking under the strain of modern service demands and fueling disproportionate expenses as the cost of power and cooling spiral upwards.

The notion of running mission-critical applications such as billing or charging on a public cloud had been met with ridicule by CSPs. They preferred to emphasise the telecom industry's uniqueness as highly regulated and heavy in functional and non-functional requirements.

But today, telecom is faced with the need to revolutionise due to economic and competitive situations. Public cloud is considered more mature, and products delivered on the cloud are continuing to gain traction as they deliver the performance, latency and reliability required. Real deployments are demonstrating how the cost of software continues to drop as public cloud economies of scale kick in.

Now is the time to plug into the power of the public cloud.

Public cloud is gaining momentum

Confidence in public cloud is growing as it is recognised to deliver performance and unmatched security. When these items are in place, the potential radical savings compared to traditional approaches makes public cloud migration appealing and drives CSPs' interest in evaluating it further. In fact, in early 2019, Ovum analysts predicted that in the next few years, telecommunications companies would be among the fastest-growing adopters of public cloud. Most CSPs now recognise that many, if not all, of their systems could be operated in public cloud environments.

> *In the next few years, telecommunications companies will be among the fastest-growing adopters of public cloud.*
>
> **Ovum, The Business Value of Re-Architecting Core Applications on the Public Cloud, February 2019**

Cloudification and IT transformation

The IT requirements of just a few years ago are not the same for telecom operators today. Data growth, digital transformation, competition from OTTs and the emergence of a need for a new service delivery ecosystem have ushered in demand for a new approach to IT. And as a result, CSP's attitudes toward public cloud (and any new technology) is changing. They have moved from public cloud being a big "NO" to a phase of exploration and experimentation.

Public cloud now looks like the only viable alternative, and it looks less like a risky move and more like an opportunity to drive a change.

The capabilities public cloud offers — endless and scalable on-demand, innovative software solutions, and automated and managed operations — are key to allow CSPs to gain IT flexibility, save on costs, integrate with partners more efficiently, implement artificial intelligence (AI) and machine learning (ML) easily — and ultimately, serve customers better.

CSPs that are innovative and future-looking are going all in on public cloud and selecting cloud-native core OSS/BSS applications that run on the public cloud. Others are hesitating and trying more conservative approaches — migrating niche applications, moving to private cloud or doing a lift and shift only. Unfortunately, these staged approaches yield little to no benefit and make the journey more complex and longer. In essence, if CSPs migrate a niche application, they will not see major cost savings or achieve better time to market and agility. If they run the same on-prem application on the public cloud without re-architecting, it will not allow them to scale effectively and use the elasticity of the public cloud. Going private cloud is a miss because it is a different creature. The key to gaining the benefits is to go "all in."

But, selecting a true, real, cloud-native application is not a simple and straightforward task. There is confusion in the market, and vendors have many ways of translating the term "cloud native." Often, they offer cloud-ready or cloud-enabled applications that were only lifted and shifted to the cloud without major changes to their architecture. While easier and quicker, they do not offer real value over on-prem deployment.

CSPs must require that vendors follow five key steps to ensure that they fully gain and leverage the results and benefits of public cloud technology.

> *True transformation takes more than a lift and shift or move to private cloud. Ask BP, JPMorgan Chase, Vanguard Group — read their quotes over the past few years. They tried private cloud first, but now, they are 'all in' on the public cloud."*
>
> **Danielle Royston, CEO, Optiva**

Five Key Steps to Ensure Maximum Value

CSPs that follow these five steps can enjoy seamless IT operations and achieve:

✓ Massive savings   ✓ Increased agility   ✓ Faster time to market

They can also benefit from built-in and managed business continuity so they can focus on growing their businesses, rather than on managing enterprise applications.

The Path to Public Cloud

Traditional/ Legacy → 1 Containerize & decompose → 2 Embed cloud database → 3 Apply open architecture → 4 Productize application → 5 Deploy SaaS & multi-tenancy → **Future-Ready BSS**

Step 1: Containerize and decompose

In the telecom industry, the journey of change and modernization includes the complex transformation of a traditional monolithic architecture. The first step to a cloud-native architecture is to decompose the monolith into modules and macro services, e.g., separating processing and storage. Then, function and execution are decoupled and containerized using Docker technology in macro services. This way, CSPs get the benefits of a non-monolith application, without splitting into microservices that are unmanageable and difficult to operate.

A continuous integration, continuous deployment (CI/CD) pipeline is implemented to manage the application using a Kubernetes container-orchestration system for automating application deployment, scaling and management. The combination of decomposition, containerization and management using a Kubernetes pipeline allows for fast and automated testing and the rollout of new functionalities without the risk of affecting overall application performance and availability. It also enables the replacement of proprietary software with open-source public cloud tools and technologies, including database, AI and ML.

Step 2: Embed cloud database

Traditional database management systems are one of the main limitations of legacy applications. They were not designed with flexibility in mind. Therefore, they fail to address and manage data-related tasks they were not originally built for and do not have scalability, especially horizontal scalability. They also present cost challenges.

In recent years, new database management capabilities better answer the unique requirements of solutions, including real-time, online charging or full BSS, horizontal scalability, built-in resilience and a cost-effective, fully managed offering. These databases are available ONLY on the public cloud. Google Cloud Spanner, AWS Aurora or Azure Cosmos are examples. Such databases support high capacity and distributed

requirements with strong consistency sufficient to support five 9s SLA at a cost-effective enterprise-grade operation. Cloud database management solutions also include automated, built-in redundancy and disaster recovery, and they support performance to scale with the ability to handle massive increases in data traffic.

Adopting cloud database management allows telecom to employ a simplified landscape that supports dynamic scaling and use a single database for multiple purposes with significant economic benefits. These benefits are becoming well known, and Gartner has predicted that by 2022, 75% of all databases will be deployed or migrated to a cloud platform.

Step 3: Apply open architecture

Open architecture is a key foundational element of cloud migration and a major source of cloud benefits. By applying the use of standard, rest-based open-application program interfaces (APIs), CSPs can easily embed software that is available only on the public cloud, including analytics, AI and ML, and add new capabilities that improve customer experience. CSPs can access continually evolving, open-source driven, democratized solutions, such as Google TensorFlow, the leading ML solution for data scientists, which is offered as a software as a service (SaaS). New AI and ML applications, which provide inputs such as real-time scoring for customer churn or process optimization, can be readily enabled by this open architecture.

These applications allow for greater agility, flexibility, cost efficiency and faster time to market. CSPs will be positioned and prepared — future ready with open architecture geared for AI and ML models.

Open-architecture means that CSPs can easily achieve integrations with other applications in their architecture landscape. That is thanks to standard, open APIs, such as TM Forum's Open Digital Architecture (ODA) standards, and efficiencies that many telecom solutions are committed to. Open architecture also allows CSPs to add new capabilities quickly and enhance offerings with partners and other complementary solutions to maintain and enhance the customer experience.

STEP 4: Productize application

When CSPs move to the public cloud using cloud-native architecture, they gain the automation tools and ability to manage and operate everything from a single place. This makes solution productization the next logical step in efficiency. It is not a trivial move, but not because of any technical limitations. Instead, it is because of the mindset of vendors and CSPs. Vendors want to maintain their customisation revenue stream, and CSPs believe that customisations are the only way to get their requirements executed quickly.

Migrating to the public cloud gives CSPs the option to change this dynamic. They can move away from continually customizing proprietary software to better use of the configurable options in the software. This change in mindset requires a vendor that has included

functionality that was part of the customisation layer in the core product, and also a CSP that understands the value of minimizing required customisation and using more of the product's core functionality — even if it meets only MOST of their requirements and not ALL.

By doing so, operators get more efficient products and cut the stream of costly change requests. Also, they benefit by implementing a managed CI/CD pipeline and gain speed to market for new functionality through automated rollouts of new feature releases on a daily, weekly and monthly basis. With zero customisation, their product remains aligned with the vendor's generally available product on the public cloud, and it can easily "inherit" new features released. This increases agility and decreases costs.

STEP 5: Deploy SaaS and multi-tenancy

What allows a BSS application to be offered in a true-SaaS model is the combination of cloud-native architecture in a product that uses cloud solutions and cloud computing with a pay-as-you-go subscription model. This creates a commercial model that allows CSPs to consume BSS functionality most cost effectively and gain commercial flexibility. The model also reduces risk because CSPs can pay only for what they actually use (and not buy BSS resources in advance that might not be used). Once they become cloud native and use more tools from the cloud, the increased savings enabled by moving to compute power instead of physical servers become substantial. They're engaged in a new commercial model where they pay a subscription fee and have the flexibility to pay as they grow, which is vital for the new generation of services, such as IoT.

Instead of buying and rebuying hardware and software every 3-5 years, a SaaS model enables CSPs to run fully managed services with public-cloud-embedded computing power and compute hosting (instead of server hosting). CSPs can also enjoy operational expertise, e.g., site reliability engineering (SRE), which is provided by the cloud vendor and is expensive to obtain independently.

The software benefits of a SaaS offering, such as Optiva BSS Platform™, include an automated, constant flow of new features and there is no longer a need to plan for end-of-life activities or upgrades.

How Optiva Works

With more than 20 years of experience and more than 100 customers worldwide, Optiva provides revenue management products that have been re-architected to be cloud native and delivered on the public cloud. Optiva does not use the public cloud just for hosting but believes that the ultimate value of public cloud lies in its ability to integrate more tightly with its offerings and use more public cloud democratized products and software solutions.

Optiva offers its OSS/BSS products in a SaaS model:

Optiva BSS Platform™
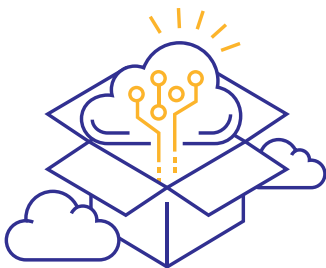
- Fully managed, end-to-end, best-of-suite
- Cloud native on public cloud
- Pre-integrated, SaaS, multi-tenant
- Rapid deployment
- Worry-free, pay-as-you-grow model

Optiva BSS Platform™, which has been re-architected and decomposed, is now available on the public cloud as a service. The multi-tenant platform is a fully managed, end-to-end, cloud-native product. Therefore, it allows customers to focus on their business, not on deploying and managing enterprise software or hosting infrastructure. CSPs can design marketing plans, load subscribers and deploy their services without having to install any software on premise.

Optiva Charging Engine™

- Best-of-breed charging solution
- Cloud native on public cloud
- Open integration framework
- Flexible, robust
- 10x faster at 1/10th the cost of Oracle

Optiva Charging Engine™ capabilities are productized, flexible and configurable, and they include charging, policy and user experience. The product enables CSPs to support new services to capture new revenue streams and monetization models. CSPs can also better serve their customers in ways that are aligned with their business. The online converged charging product supports core telecom services, partnerships and OTT. Robust and scalable, it meets CSPs' existing and future needs with processing speeds 10 times faster than legacy database technologies of up to 500,000 TPS when deployed on Google Cloud Platform (GCP) with Google Cloud Spanner.

In addition to its disruptive public cloud offerings and mindset and the maturity of its SaaS offering, Optiva offers a depth of experience in delivering complex projects worldwide. Included in this is a Customer Success approach with the intent to become a trusted partner to customers.

Optiva cloud experts will build a personalised TCO model so that CSPs can analyse the comprehensive costs of their current on-premise implementations while forecasting future savings on the public cloud.

As part of that, Optiva showcases and offers its analysis via a web tool called the TCO Estimator. By answering a few simple questions, CSPs can discover their potential high-level savings with the public cloud — and then engage further with Optiva cloud consultants to get a more accurate TCO model for their specific characteristics.
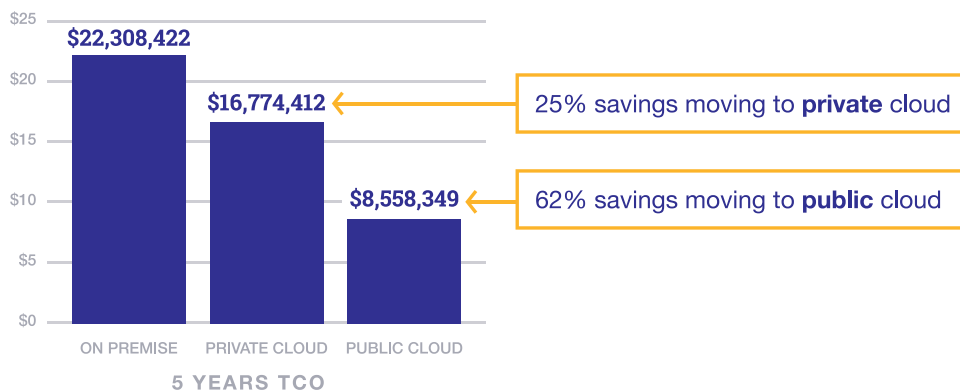
LOWER TOTAL COST OF OWNERSHIP

BACKGROUND:
- Tier 2 operator
- Middle East
- ~3M subscribers

PRODUCT:
Optiva Charging Engine™
for prepaid, postpaid
and enterprise

$22,308,422 (ON PREMISE)

$16,774,412 (PRIVATE CLOUD) — 25% savings moving to **private** cloud

$8,558,349 (PUBLIC CLOUD) — 62% savings moving to **public** cloud

5 YEARS TCO

In addition, Optiva's Cloud Time Machine enables CSPs to evaluate how long it will take to migrate their BSS to the public cloud and when they will gain its full benefits. **Optiva's hands-on customer consultation also includes helping CSPs explore options and paths for migration.** The cloud consulting team offers best practices for embarking on the public cloud journey, including a thought leadership workshop, 1:1 on-site customer consultation, customer forums and Optiva Insiders events at conferences.

CASE STUDY: Truphone leverages the power of public cloud for agility, innovation, and cost savings

TRUPHONE

Truphone is a global mobile network operator, providing mobile connectivity to consumer and IoT devices. Its patented technology serves more than 3,500 multinational enterprises, and it is renowned for technological breakthrough products offered worldwide.

Previously, some of Truphone's BSS components were legacy systems deployed on bare metal across a few data centers and countries. They suffered from slow time to market to implement changes, cumbersome and complex operations processes and long cycles to implement new hardware. In short, these BSS components were costly, ineffective and diverted Truphone from focusing on its business.

When fully implemented in the summer of 2020, Optiva Charging Engine with cloud-native architecture built on Google Cloud will enable Truphone to enjoy:

✓ Online and converged charging and 10x faster database performance with Google Cloud Spanner

✓ Always-on, customer-experience-driven, public-cloud capabilities

✓ Complete, end-to-end CI/CD from vendor to operator to react quickly to market needs

✓ Agile, scale-up capabilities to support significant growth projections

✓ TCO that is nearly 60% lower than the previous on-prem deployment

Truphone is an agile, disruptive operator. It aims to perfect the customer experience when it comes to connecting people, business and devices. Before shifting to the public cloud, the burden of managing infrastructure, hardware, data centers and vendors affected its ability to be agile, nimble and innovative. The move to Optiva cloud-native charging and public cloud is allowing Truphone to become leaner, more dynamic and future focused — to charge onward and achieve even greater innovation and business success — all while saving on its TCO.

Moving Forward

CSPs, by nature, are cautious. Now, several years have passed in which enterprises of all types have benefitted from public cloud. This, along with the understanding that contained deployments in private clouds cannot yield savings benefits, has seeded the ground for CSPs to evaluate public cloud further. CSPs are becoming more serious about adopting public cloud in mainstream areas of their businesses. The benefits — up to 80% savings on TCO, 2-3x times speed to market, 10x faster database performance and more — are stacking up, and the reasons not to adopt public cloud are diminishing.

CSPs are at a junction of shifting IT trends, large scale digitisation and a generational change in underlying technology. In this new world, they need to break free from the constraints of traditional software architecture, evaluate the OSS/BSS products offered and determine if the full, maximum results of public cloud can be gained.

Public cloud provides the agility and flexibility CSPs need to compete in new markets cost effectively, securely and at carrier-grade quality. But in order to reap those benefits, a truly cloud-native architecture should be adopted and used.

Read more and **contact Optiva** to discover the proven results, cost savings and full value of moving BSS to the public cloud.

Optiva Inc. is the leader in providing communication service providers (CSPs) worldwide with cloud-native revenue management software on the public cloud. MNOs and MVNOs can integrate our best-of-breed charging engine into a BSS stack or deploy our fully managed, end-to-end, SaaS platform.

Optiva products offer unmatched speed, scale, security and savings. Our market knowledge, analytical insights and unique Customer Success Program ensure telecoms are equipped to achieve their strategic business goals.

Established in 1999, Optiva Inc. is on the Toronto Stock Exchange (TSX: OPT).

Find out more visit www.optiva.com

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We also publish five regular eNewsletters to keep the mobile industry up-to-speed: The Mobile World Live Daily, plus weekly newsletters on Mobile Apps, Asia, Mobile Devices and Mobile Money.

What's more, Mobile World Live produces webinars, the Show Daily publications for all GSMA events and Mobile World Live TV – the award-winning broadcast service of Mobile World Congress and exclusive home to all GSMA event keynote presentations.

Find out more www.mobileworldlive.com