



White paper

SaaS delivery models will transform CSPs' monetisation platforms

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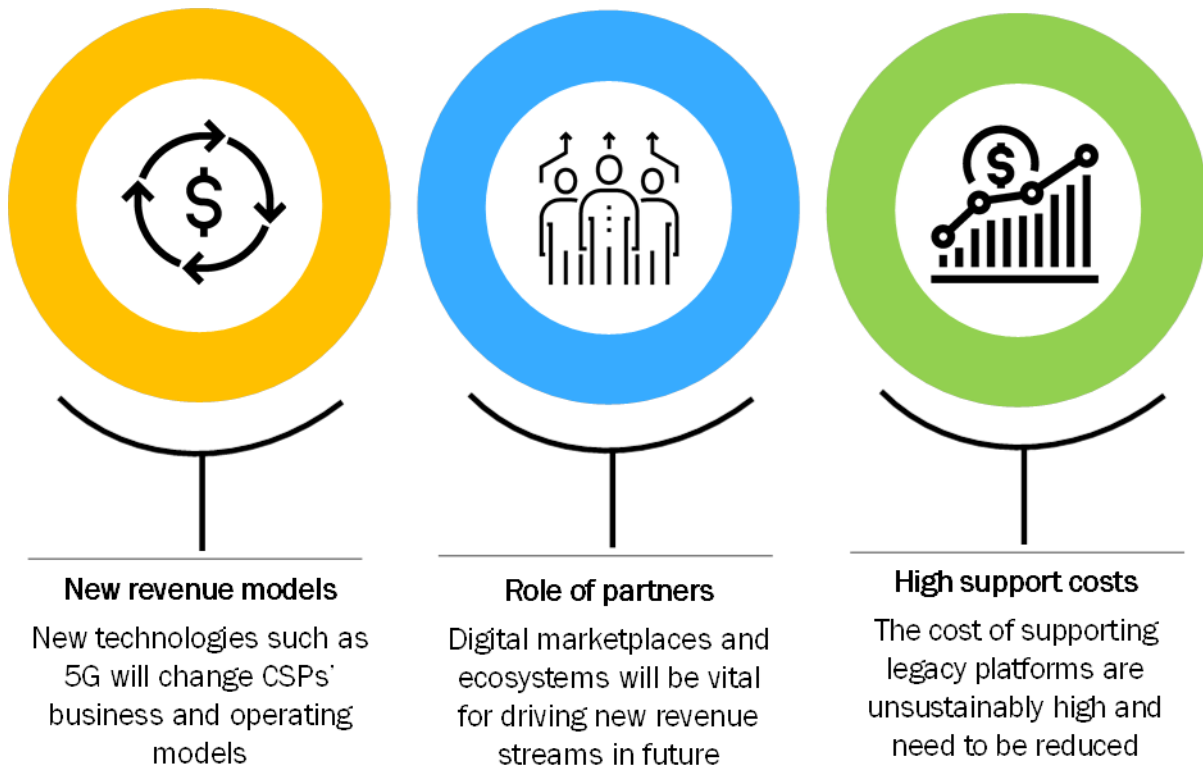
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1. Executive summary

Communications service providers (CSPs) are facing many operational challenges: customer behaviour is changing, competition from digital-native service providers is increasing and network infrastructure requires urgent and significant investment. CSPs are also on the cusp of radical change to business and revenue models, thanks to the effect of the digital economy and 5G deployments. Therefore, CSPs are examining alternative models of software infrastructure development, deployment and management.

The main objective of CSPs, from an architecture design perspective, is to establish an agile, flexible and cost-effective foundation for the future. This is vital for mission-critical, customer-facing functions, such as those related to monetisation. Many CSPs continue to run monetisation systems on legacy platforms that are expensive to maintain and manage. The evolution of business and operating models and emerging use cases are forcing CSPs to accelerate transformation of their monetisation systems (see Figure 1). In this regard, CSPs want to ensure that their investments are future proof, the architecture is simplified and systems operate at a reduced cost. A growing number of CSPs are evaluating and deploying applications delivered in a software-as-a-service (SaaS) model. SaaS is increasingly viewed as the delivery model of the future and has been widely adopted in other industries such as retail and enterprise.

Figure 1: Key drivers of change to incumbent monetisation systems



SaaS is a product-centered approach to creating, deploying and managing software in which a software application vendor makes the application's functionality available across a network. SaaS upends traditional software design and deployment approaches because it uses a delivery model that is fully based on a cloud-

based infrastructure with the application provider taking complete responsibility for the software and the infrastructure, which significantly reduces CSPs' overheads. The SaaS delivery model fosters a 'start small and grow' approach, which enables CSPs to control their spending, and supports flexible configurations without requiring expensive customisations and removing need for infrastructure management.

The benefits of the SaaS model make it an important consideration for CSPs that are preparing to transform their monetisation systems. The agility, configurability, upgradeability and operability of SaaS-based monetisation platforms can help to address many of CSPs' monetisation-related pain points. This white paper looks at the factors driving extensive change in CSPs' approaches to monetisation, the essential traits of monetisation platforms of the future and how SaaS has emerged as a viable alternative to traditional deployment models.

2. Disparate systems, legacy frameworks and complex delivery models limit CSPs' ability to embrace new opportunities

Monetisation systems software typically account for around 1% of CSP revenue worldwide and over 25% of the CSP spending on telecoms software and services. This segment has seen many investment waves in the past decades, driven primarily by CSPs' focus on monetising their services effectively as subscriber growth slowed down in many developed markets. The investments have mostly supported new products or offerings and have seldom followed any long-term strategy to homogenise the architecture. The lack of a long-term strategy has created what is often the biggest impediment to most CSPs' transformation plans today – a complex array of incumbent systems. These systems are expensive to maintain because they are highly customised with proprietary software and hardware. They are also prone to failures due to multi-vendor environments, and in some cases, the systems in use are no longer actively supported by the vendor in question, which adds to the cost and complexity of maintaining these systems.

Other challenges related to monetisation platforms for CSPs that are seeking to transform their operations and embrace digitalisation are captured in Figure 2.

Figure 2: Key challenges of legacy monetisation systems

Item	Description	Impact
Monolithic products deployed within siloed architecture framework	Legacy architecture framework is disparate and relies on siloed systems with limited interconnections.	CSPs are unable to make timely introductions of new products and services and effectively monetise existing services as every change is not isolated and may involve multiple components and influence the entire ecosystem.
Complex multi-vendor environments	CSP environments typically have multiple – and sometimes duplicate – vendor solutions that are often highly customised.	Support and maintenance costs are disproportionately high.
Inconsistent and inflexible data models	The data models play an important role in how products and services are defined and how effectively CSPs can monetise new opportunities.	Long lead times for launching new products and services.

Item	Description	Impact
Widespread use of proprietary, non-standardised interfaces	Interconnections between systems play an important role in facilitating new services.	Legacy monetisation systems mostly rely on proprietary API interfaces, which are expensive to set up and tend to break often. They also limit the ability to connect to third parties and promote a digital offering.
Managing the end-to-end lifecycle of monetisation systems software	Managing the life cycle of different and disparate applications – including the core, software framework and related customisation – is complex and expensive.	The IT organisation often gets distracted by products and applications lifecycle administrative tasks, which affects their ability to deliver business efficiency and functionality.
Limited ability to 'open up' for third-party solutions	Interoperability and support for third-party solutions is an important driver for new revenue opportunities and deeper customer engagement.	Legacy systems were not built to support extensive interoperability and often require new interfaces, making the system clunky and slow. Absence of support for ecosystems can be detrimental to launching new services, scale and winning new customers.

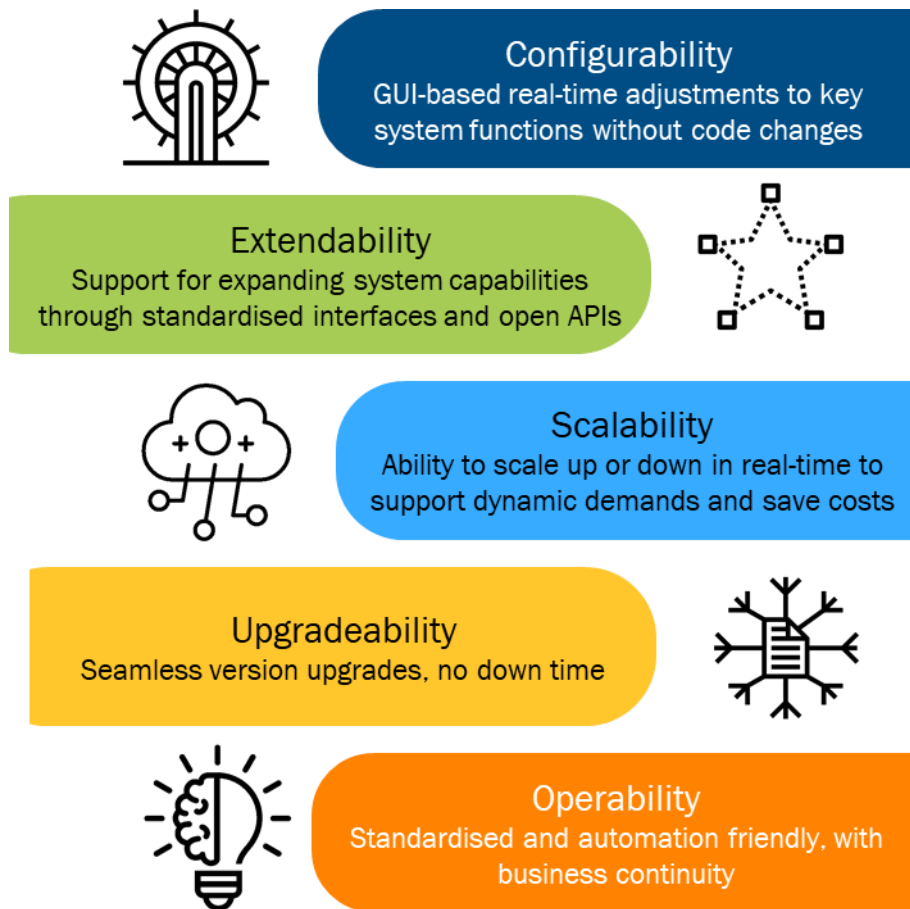
These factors negatively affect the customer experience and competitiveness of the CSP, and add to the cost of operations. The delay in launching new products and services due to the inability to dynamically respond to changing market environment and customer needs is detrimental to customer experience and harms CSPs' ability to remain competitive. This is further exacerbated by the high cost of maintaining legacy monetisation systems and the associated infrastructure.

3. Agility will be important for monetisation systems of the future

As CSPs prepare to adapt their monetisation systems for the future, an important consideration is the evolution of software applications technology, business models and operating environments and the impact of these factors on monetisation systems. CSPs have traditionally adopted a use-case-centred approach to upgrading their incumbent monetisation systems or deploying new ones. With this approach, CSPs begin by identifying the use case that needs to be supported and then map the necessary requirements to existing systems. Wherever an existing system is inadequate, a decision is made to invest in a new system, either as an adjunct or a new stack. This approach has served CSPs well until now, but the lack of clarity regarding emerging use cases is forcing CSPs to change their approach to procuring and deploying new monetisation systems. The new approach, which accounts for emerging use cases, emphasises designing monetisation systems that are agile, flexible and scalable.

CSPs preparing for agile monetisation systems of the future should focus on five essential traits (see Figure 3).

Figure 3: Five traits of monetisation systems of the future



- **Configurability.** Traditional monetisation systems have been highly customised over the years to meet CSP requirements. This was convenient in the short term because it enabled CSPs to add new functionality relatively quickly, but in the long-term it has increased the complexity of the architecture overall, making it slow to respond and expensive to maintain. With time, new changes needed backward compatibility testing, which lengthened time to market and increased its indirect cost; and upgrades became even more complex and risky. Configurable frameworks that allow adjustments to important functional capabilities improve flexibility and control for the CSP without adding any more complexity are key to making monetisation systems future proof.
- **Extendability** is the ability of the platform to support future requirements without significant changes using standardised interfaces and OpenAPIs to interconnect with new or adjacent systems that can expand functional capability or improve customer experience. This is important when CSPs want to expand the services they provide beyond core networks and specifically for partners and OTT services or enhance with AI and analytics. The widespread use of proprietary interfaces in legacy systems makes it challenging to expand system capabilities to meet new requirements.
- **Scalability.** Dynamic, on-demand compute power and application resources will be an essential trait for monetisation systems of the future. Emerging applications and business models will require support for short-term demand surges and traffic spikes that may be challenging on traditional architecture frameworks. In addition, the ability to scale down (also known as elasticity) will help CSPs to keep costs low and encourage greater experimentation with new products, services and customer segments due to the ability to start small and grow.

- **Upgradeability.** Modern monetisation systems should support seamless version upgrades without any downtime or extended IT development cycles, customisation and complex configuration processes. In the past, the cost, complexity and risks associated with version upgrades often forced many CSPs to continue with older software versions, which further increased support costs and limited functional capability.
- **Operability.** Manual interventions during operations process workflows are common in legacy frameworks. Apart from making processes resource-intensive, manual interventions can increase the possibility of introducing inaccuracies and degrading customer experience. Monetisation systems of the future will require limited oversight and will rely on automated operations. These systems will also be resilient with self-healing capabilities and allow for seamless business continuity without manual intervention.

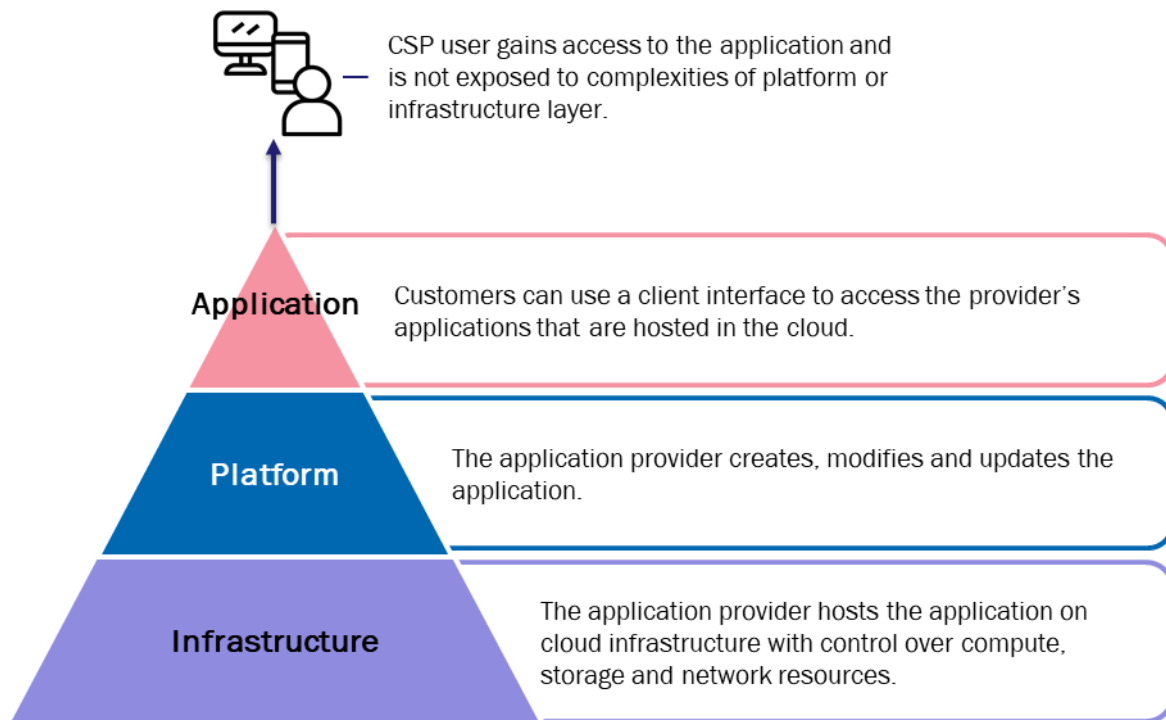
4. SaaS delivery models will herald a new era for monetisation systems

SaaS is a product-centered approach to creating, deploying and managing software. Analysys Mason defines SaaS as an online delivery model for software applications in which a software application vendor makes the application's functionality available across a network. The SaaS provider is responsible for managing the application and the underlying public cloud platform and infrastructure that host the application. SaaS places the product at the centre of the offering, and all other dependencies, such as infrastructure, delivery mechanism and middleware, are built around it. The SaaS model does not allow for any high degree of customisation, and its benefits lie in keeping the product as standardised as possible, which allows for continuous and automatic updates and upgrades. The functional capability of a SaaS offering is enhanced and expanded over time, and CSPs have no risk of upgrade incompatibility or unplanned downtimes.

SaaS upends traditional software design and deployment approaches in three unique ways.

- **A new delivery model.** SaaS wraps all relevant software and its dependent functions into a single, unified package that is delivered using cloud-based infrastructure (see Figure 4). The SaaS provider is responsible for the software and the underlying infrastructure. From the CSP's perspective, SaaS hides away the complexities of software development and deployment and delivers just the application. The underlying infrastructure is principally based on public cloud with the SaaS provider managing the application for the CSP. The SaaS provider is responsible for the final solution and its continuous management. The provider is also accountable for any deviation or performance constraints in the application.

Figure 4: Overview of SaaS offering



Source: Analysys Mason

- **A new commercial model.** SaaS changes how CSPs pay for the software solution. The SaaS provider charges the CSP a fee at regular intervals (for example, monthly or annually) for access to the application. The fee includes the cost of the associated platform and infrastructure. The fee charged depends on several parameters and may include separate charges for the initial setup. This SaaS model fosters the 'start small and grow' approach and allows CSPs to control their spending. For many CSPs, this change will shift the classification of their spending to 'opex', dramatically lowering the initial investments traditionally required to set up the system and significantly reducing total cost of ownership.
- **A new operating model.** SaaS changes how CSPs manage and use the application. For example, it enables flexible configurations and reduces the need for customisations. The applications will be more software oriented and, therefore, will require fewer CSP resources to support and manage them. Infrastructure management is also not required as the application is managed by the SaaS provider on the cloud. CSPs do not need to plan for version updates as the SaaS application provider is responsible for keeping the solution current without any downtime. As a result, CSPs will need to prepare for new workflows and process optimisations, because the leaner SaaS model will make existing process frameworks redundant leading to poor adoption of new features and capabilities.

It must be pointed out that the SaaS model (as it is offered on the public cloud) differs quite considerably from managed services. Managed services are typically outsourced operations managed and customised specifically for the CSP by a third-party service provider that may or may not be based on cloud infrastructure. There may be multiple vendor solutions involved in a managed services contract, and the CSP may choose to retain separate relationships with the middleware or infrastructure provider. In a SaaS offering, the solution is hosted on a public cloud with the CSP having access only to the application layers. A single provider is responsible for the application and the underlying enablement systems, including the middleware and infrastructure layers.

4.1 Benefits of SaaS

The benefits that the SaaS model offers when compared with the traditional deployment models are considerable (see Figure 5).

Figure 5: Key benefits of SaaS-based monetisation platforms



- **Flexible configurability.** The SaaS model embraces a configuration-led approach to support new use cases and new functionality. The configuration available is usually based on industry best practices and takes into account performance and security implications.
- **Shorter time to market.** SaaS-based solutions reduce the time required for implementing and going live with a new application from years to months. They also reduce the time to launch new products and services from months to days because of their ability to dynamically design and configure new plans and offers.
- **Lower total cost of ownership.** Public cloud-based SaaS solutions offer exceptional visibility on the cost of the solution thanks to its all-inclusive pricing model. Over 4–5 years, SaaS solutions offer considerable value in terms of notable lower operational costs through fewer customisation requests and a decrease in the number of resources required. Additionally, upfront initial investments are eliminated.
- **Automatic upgrades and updates.** SaaS solutions are always up to date and do not require any planned downtime for upgrades or version updates. In addition to saving considerable cost and time, this approach also allows for the addition of new features and capabilities on a continuous basis without compromising the customer experience.

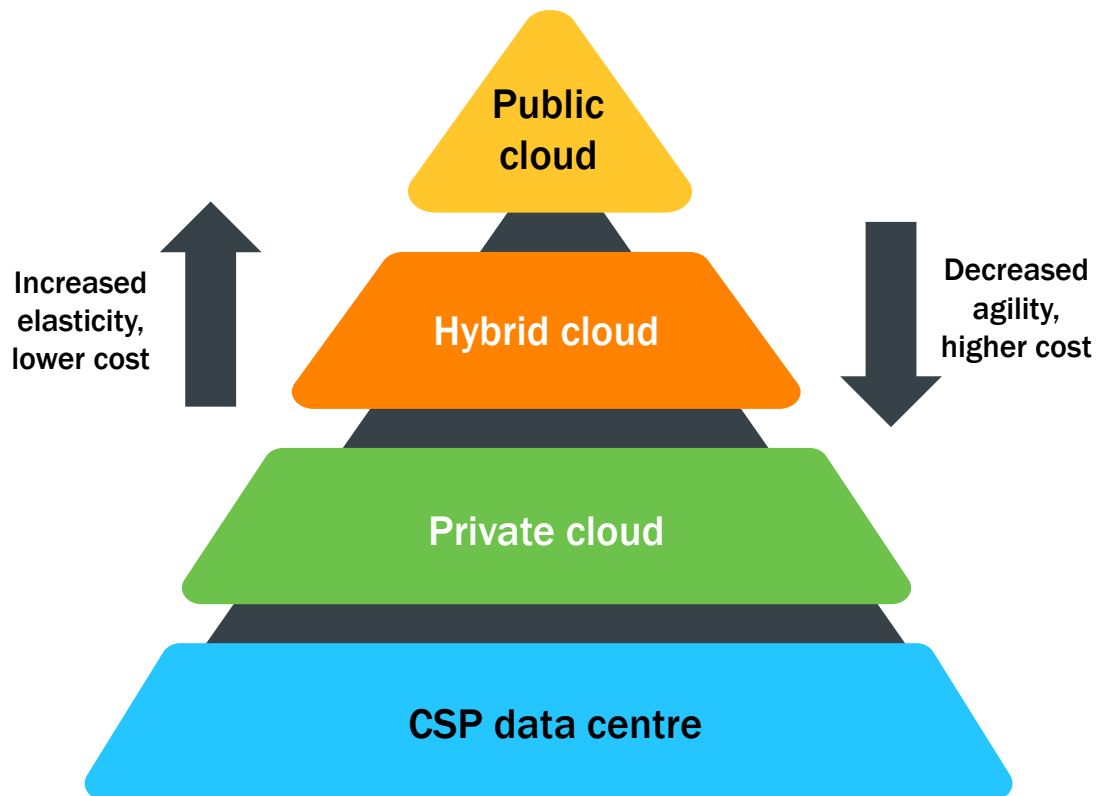
- **Dynamically scalable.** SaaS solutions are predominantly based on public cloud infrastructure, which allows for seamless, on-demand automated scalability to meet any surge-related requirement within minutes. They can also scale down to keep costs low.
- **Centralised software and operations management.** – SaaS solutions provide flexibility in how they are managed and operated through a centralised console, including support for versioning, administrative functions, tracking and monitoring and policy management. This enables swift delivery of the initial scope and significantly reduces the time it takes to launch a BSS monetisation system into the CSP's ecosystem.

The above factors also reduce the need for extensive operations management, which is usually a complex and resource-intensive task for traditional deployment models.

Even as the adoption of SaaS-based monetisation systems by CSPs increases, a couple of common concerns have delayed or slowed the progress. These are addressed below.

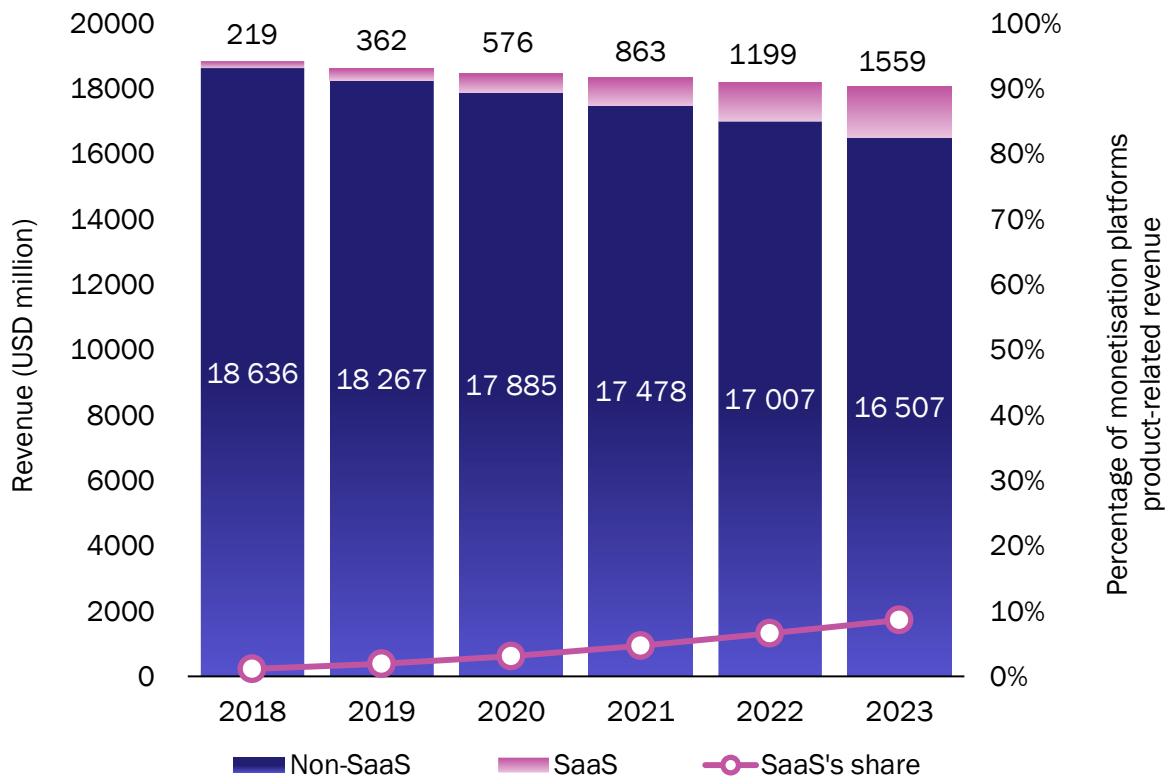
- **Limited customisation.** Some CSPs are concerned about the compliance of out-of-the-box capability of SaaS-based monetisation systems with their specific requirements. However, advanced SaaS solutions that leverage cloud-native architecture and extend capabilities through configurable UI are reasonably capable of satisfying most CSPs' needs out-of-the-box. A key trait that makes SaaS attractive is its agility and light-weight approach, which allows faster time to market and swifter responses to changing business environments. Extensive customisation kills the economics of SaaS and makes it no different from legacy platforms that CSPs are trying to replace.
- **Performance on the public cloud.** Performance-related concerns are common for any services that are provided over the public cloud. However, this is less of a concern compared to a few years ago. Public cloud vendors have invested in faster network access, smarter data management and the increasing number of their points of presence and geographical distribution. Many large organisations have been using public-cloud hosted real-time applications without a marked dip in performance or quality of service. The dynamic elasticity of SaaS solutions is an advantage for services that may encounter unexpected traffic surges. When compared to other deployment infrastructures, SaaS solutions deployed on the public cloud provides greater agility and lower cost than other comparable options (see Figure 6).

Figure 6: Overview of software application deployment models



CSPs' adoption of SaaS-based monetisation platforms is accelerating, in part buoyed by the success of large-scale SaaS application deployments in retail and entertainment verticals for mission-critical applications. Analysys Mason expects the adoption of SaaS-based monetisation platforms to grow at a CAGR of 48% between 2018 and 2023 (see Figure 7).

Figure 7: SaaS's contribution to monetisation platform revenue, worldwide, 2018–2023



5. Overview of Optiva's offering

Optiva provides cloud-native revenue management products that are available on private or public cloud. The company has over 20 years of experience in the telecoms industry and more than 100 customers worldwide. Optiva has fully rearchitected its portfolio, leveraging the public cloud beyond compute power for a full suite of software and solutions. The company's solutions can be delivered in a SaaS model, which can enable CSPs to reduce costs, improve commercial flexibility and time to market and enjoy seamless updates and upgrades. Offering its product on the public cloud via a SaaS model enables Optiva to deliver its BSS platform in up to 4 months compared to some industry benchmarks of up to 22 months.

Figure 8: Optiva's delivery timeline for a greenfield MVNO as compared with a traditional delivery model [Source: Optiva, 2020]

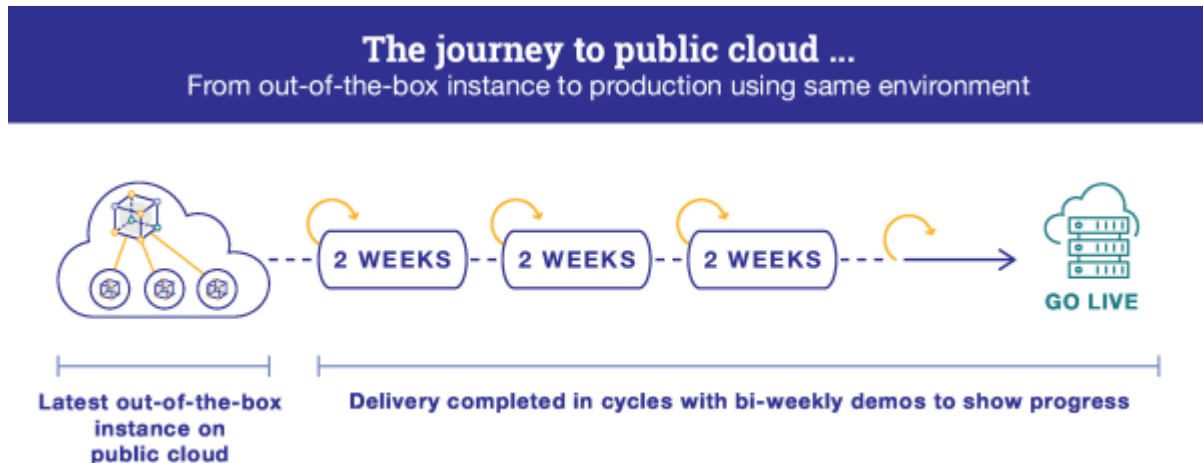


Optiva OSS/BSS SaaS portfolio includes the following.

- Optiva BSS Platform, which has been re-architected, is now available on the public cloud as a service. The multi-tenant platform is a fully managed, cloud-native BSS stack that is used by multiple CSPs worldwide. It allows CSPs to easily design marketing plans and monetise services without installing software and operating it on premises.
- Optiva Charging Engine includes productised and configurable capabilities of converged charging, policy and user experience. Serving some of the largest telcos in the world, it enables CSPs to support new services, capture new revenue streams and monetise core telecoms and partners' services. Optiva Charging Engine is available on private and public cloud and claims to be 10 times faster than legacy database technologies when deployed on Google Cloud Platform (GCP) with Google Cloud Spanner.

The shift from highly customised solutions to configurable products offered as SaaS allows CSPs to avoid long, risky and expensive transformations. Optiva provides this by first installing a dedicated instance of the latest version of the product and then delivering additional functionality in short and iterative cycles. Having a SaaS product also allows for dynamic configuration and significant extension of the product's capabilities through seamless upgrades which dramatically decrease costs and increase savings.

Figure 9: Optiva's approach to delivering products on public cloud [Source: Optiva, 2020]



5.1 Case study: OXIO

OXIO, a global connectivity-as-a-service provider, has launched a virtualised multi-carrier solution for enterprises leveraging the Optiva BSS Platform on the public cloud. The service, OXIO BrandVNO Enterprise Cloud, offers the capability to transform any enterprise worldwide into a mobile connectivity provider, which can be easily bundled into their existing offering. The deployment was accelerated to support the COVID-19 relief initiative, Oxígeno2030, which connects one million frontline workers in Mexico.

OXIO's innovative digital service has been built with Optiva BSS Platform, offered in a SaaS model with a pay-as-you-go platform, quick time to market and lower cost of ownership than traditional deployment models. Optiva BSS Platform affords OXIO and its customers the benefit of not managing a complicated enterprise software system, hardware and data centre. Also, with the productised SaaS approach, OXIO benefits from an ongoing stream of new features and functionality with continual, automated software updates.

6. Conclusion

Monetisation platforms have evolved to become a complex framework of highly customised systems that are often deployed within multi-vendor environments, which makes them failure-prone and expensive to maintain. The archaic nature of incumbent monetisation systems often makes it challenging for CSPs to support emerging use cases on a timely basis and in a cost-effective manner. As CSPs prepare for transforming their monetisation platforms to reduce the cost and complexity of operations and to better support emerging use cases, there is a strong emphasis on agility, configurability, upgradeability and ease of operations.

SaaS-based monetisation platforms have become an important consideration thanks to its many benefits such as lower costs, faster time to market and simplified operations framework. The widespread adoption of SaaS-based solutions in other industry verticals supports this being a viable model even for mission-critical applications. SaaS upends traditional software design and deployment approaches through a new delivery model that is based on public cloud, a new commercial model that gives CSPs the freedom to start small and grow, and a new

operating model that reduces complexity. CSP adoption of SaaS-based monetisation solutions can make them well positioned to effectively address emerging opportunities of the digital economy.

7. About the author



John Abraham (Principal Analyst) leads our digital transformation research, including three research programmes: *Customer Engagement*, *Monetisation Platforms* and *Digital Experience*. His areas of focus include customer journeys and experience, the impact of 5G on BSS systems, telecoms enterprise opportunities, cost transformation, ecosystems and value chains, and micro-services-based architecture models. John has over 10 years' experience in the telecoms industry. At Analysys Mason, he has worked on a range of telecoms projects for operators in Africa, Europe, India and the Middle East. Before joining the company he worked for Subex, a BSS vendor, and before that for Dell in India. John holds a bachelor's degree in computer science from Anna University (India) and an MBA from Bradford University School of Management (UK).

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