eSIM cloud hosting: the trend you can't miss

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Enter a new era: the age of eSIM cloud hosting for on-demand smartphone connectivity. What are the main advantages of eSIM cloud services? Why is it the time to adopt a public cloud hosting strategy for eSIM management? Mobile carriers across the world are increasingly using eSIM technology as their primary customer activation method for flagship smartphones. It makes sense: eSIM solutions bring new benefits to consumers, and answer their connectivity needs on-demand. How can eSIM management ramp up to leverage this new connectivity model on a larger scale? The answer is simple: the time is ripe for eSIM cloud hosting. Advanced, secure eSIM cloud services are about to bring mobile operators a unique combination of security, quality of service and adaptation to demand.

"*A very pleasant experience*". That's how Ray describes his business trip to Paris last spring. Stepping out of the plane, he instantly subscribed to a local mobile provider, activated his account, and … *Voilà*. In a matter of seconds, he could connect to his family and colleagues, using the local mobile operator for all the data exchanges—at a very reasonable price.

That kind of experience is one of the justifications for the **eSIM momentum**. Adoption is accelerating in the consumer market, bringing new opportunities to mobile operators and new benefits to the consumers. A Kaleido Intelligence study, which examines GSMA-compliant eSIMs across consumer and IoT markets, found that active eSIM/iSIM connections will grow **over 1400% between 2022 and 2027**, with growth heavily driven by smartphone users[1].

High-end phones including those from Apple, Samsung, and Google are now eSIM-enabled, and the move to eSIM-only models may not be far away. In September 2022, Apple announced the launch of the **first eSIM-only smartphone** to the US market, with the release of the iPhone 14. And that's only the tip of the iceberg. eSIM technology is also gaining popularity with **other consumer devices** (smartwatches, tablets, and laptops), **industrial IoT** (smart sensors…), and **connected cars and trucks**.

The reasons behind the eSIM momentum

eSIM advantages are now well identified. Embedded in an increasing number of consumer and IoT devices, this technology is secure, standardized, interoperable… and allows for **easy remote eSIM profile provisioning and activation**. For device manufacturers, eSIM technology is without rival. The smaller chip footprint and closed design open possibilities for enhanced features, bigger battery, or waterproof devices. For users, the technology means **more flexibility, saved time and ease-of-use** with the ability to benefit from an improved out-of-the-box experience and immediately access new services. eSIM management is now a must for mobile operators to bring their customers a great, seamless **digital subscription experience**, which enhances user satisfaction, improves brand perception, and creates new business opportunities.

As the eSIM is now becoming the better standard, in the eyes of both the customers and the manufacturers, mobile operators should ensure that they can answer to, and profit from, this accelerating trend. Now arises, more than ever,

the question of the **scalability and responsiveness** of the solution they use for eSIM management, namely the SM-DP+ (Subscription Manager – Data Preparation) platform in charge of preparing, storing and downloading eSIM profiles into eSIM-enabled devices, and the Digital Personalization System (DPS), in charge of the generation and customization of eSIM profiles. And when it comes to quickly ramping up any kind of digital service, the best and only option is a **public cloud deployment strategy**.

Why the time has come to leverage eSIM cloud hosting

As market adoption grows, having a clear roadmap and an adapted eSIM management strategy is crucial for mobile operators. The challenge: setup the scalable and resilient SM-DP+ solution they need to **offer eSIM benefits to all customers**, no matter how numerous. With more mobile subscribers adopting eSIM technology, on-premise data centers – owned or rented to an external provider – won't be able to match demand. The public cloud will be the only means capable of keeping up with increased transaction requests and leveraging the business potential of eSIM. This explains why **GSMA now provides specifications for eSIM cloud hosting**, including guidelines that help mobile operators adopt and implement it. Only a public cloud infrastructure can handle such volumes, meet the specific security challenges of eSIM management, and guarantee, at all times, the instant activation experience expected by end-users.

With an SM-DP+ platform hosted in the public cloud, mobile operators can **reduce deployment time**, test and launch new subscription plans quickly, and as a result, gain market share. They can also **quickly adapt to the demand**, bring more resilience to their offers and reduce their cost-to-acquire and cost-to-serve thanks to the pay-as-you-go model associated with public cloud hosting.

That is… *if* mobile operators can rely on an eSIM cloud solution that is "carrier-grade"—which means a solution that is not only hosted by one of the leading public cloud service providers but also abides by the GSMA-specific requirements for eSIM Cloud hosting. Only a handful of eSIM service providers are certified by the GSMA for public cloud hosting, and **have the experience and expertise to run services on Cloud** for highly-regulated industries. Among them, IDEMIA, whose existing eSIM management services for both the consumer and M2M markets are certified by the GSMA[2], has officially announced a **global collaboration with Microsoft** to provide next-generation eSIM connectivity services, relying on Microsoft Azure Public Cloud.

eSIM challenges only the best cloud platforms can handle

Only SM-DP+ solutions relying on public cloud hosting will offer the needed capabilities to overcome the main challenges of large-scale eSIM management: cybersecurity; resiliency; always-on service availability; compliance with data protection regulations; and quality of service, no matter the volume of demand.

Raising the bar on eSIM management cybersecurity

A "carrier-grade" eSIM cloud platform should ensure data confidentiality, data integrity, and protect mobile operators against any risk of service disruption. Today, there are too many threats… so many that it's impossible to confront and block them alone. Only the best public cloud providers can. All this boils down to their **unrivaled scale and advanced cybersecurity capabilities**: thousands of the best cybersecurity experts on the market, decades-long experience and massive investments. Microsoft, for instance, has a long history of successfully managing cloud data centers. With **8 trillion threat signals analyzed every day**[3], Microsoft Azure, can detect, deter or block any cyberattack. It offers protection for eSIM management services that no solution hosted in a regular datacenter could rival, including **world-class attack mitigation capabilities against Distributed Denial of Service (DDoS)** that would prevent customer activations and cause major damage to mobile operators in terms of revenues and reputation.

Ensuring high service availability… at all times

Hurricanes, explosions, floods, fires, mechanical failures…. Catastrophes do happen. Only a public cloud deployment strategy offers adequate protection and the necessary resilience to mobile operators. Leading public cloud service providers bring the capacity to confront and **overcome any physical and/or logical disaster** that may affect a complete geography site or IT system, to preserve precious data and offer always-on eSIM management services. Their cloud infrastructures include physical elements – redundant power, networking, and cooling – as well as software elements like safe deployment processes, impact-less maintenance, and failure prediction enabled by Machine Learning.

Solving the resilience and eSIM data protection equation with public cloud hosting

The best cloud safeguards databases with local geo-redundancy: distinct but physically close datacenters allow for **strong resilience and traffic-load balancing** while preserving the adequate speed for data exchanges and computing power. Geo-redundancy, and protection against large scale disaster can be offered in some parts of the globe by the largest public cloud service providers, at the level of a country such as the U.S. or a continent such as Europe.

This means that with a deployment strategy relying on such cloud regions, mobile operators can solve a difficult equation—**combining resilience** through datacenter redundancy with compliance **with data protection regulations**. They can choose from any region in a cloud provider's global footprint to host their services and keep their data in that precise geography, as required by law in some regions. For instance, all services can be used in **compliance with GDPR**, with the mobile operators specifying that their customer data is stored and processed in Europe. Mobile operators are also in control of any additional geographies where they decide to deploy their solutions.

Adapting SM-DP+ and DPS capabilities to demand

Christmas, Black Friday, the launch of a new service or a new flagship device… Several consumer device **activation peaks** occur every year. Quality of service and the **ability to keep up with the demand** makes the difference when these peaks occur. With the ability to expand or contract their SM-DP+ and DPS capacities as needed, mobile operators can react much more quickly to eSIM profile activation demand without the need of large up-front investments. eSIM cloud services will also offer mobile operators the elasticity and efficiency to easily **create specific connectivity offers limited in time**, for specific events, such as concerts, festivals, or sporting events. Combining 5G and eSIM cloud services, mobile operators will be able to easily activate as many subscriptions as needed even in congested venues, in minutes.

This **scalability will also be very interesting for IoT**. IoT devices being much more numerous than consumer devices, the public cloud hosting benefits apply on a larger scale. Cloud services providers can offer scalability and a global footprint to cater to the industrials' needs.

Offer your customers the quality of service they deserve

eSIM is gaining momentum in the consumer market and will be **instrumental in the advent of massive IoT**. With eSIM cloud solutions, mobile operators can leverage the trend, grow their businesses, and offer their clients a **great consumer experience**, in all situations. But few public cloud providers, and even fewer eSIM providers, master the needed technologies and solutions. In short, eSIM cloud hosting is right here, right now. It is **time to scale eSIM management solutions** capacities to the new wave of eSIM-only devices that will soon hit the market. Some have taken some advances and offer competitive advantages to their clients. The time has come to join them and **make the most of eSIM growth, confidently!**

[1] Kaleido Intelligence, 2022 eSIM research

[2] https://www.gsma.com/security/sas-accredited-sites/

[3] https://azure.microsoft.com/en-us/overview/trusted-cloud/