Enhancing IoT with new SGP.32 eSIM standard.

The new eSIM standard SGP.32 is set to have a major impact on IoT and how businesses and organizations take advantage of eSIM technology. Learn more on the key details in the new standard and what your organization needs to do to make the most of the shift.

Remote eSIM profile management

SGP.32 simplifies IoT device management by enabling remote activation, deactivation, and switching of eSIM profiles without complex integrations or physical SIM replacements.

Reducing costs and time-to market

The new standard significantly improves scalability, enabling faster deployments and easier operator changes, reducing operational costs and time-to-market.

Enabled mass management

SGP.32 makes it easier to control thousands of IoT units simultaneously through centralized provisioning.

SGP.32 makes IoT simpler, smarter, and more scalable

The SGP.32 standard is set to have a major impact on IoT and how businesses and organizations take advantage of eSIM technology, with benefits ranging from easier scalability to improved flexibility and more.

What are the key details in the new standard? And what does your organization need to do to make the most of this shift? Our eSIM expert, Björn Hjelt explores the big changes that come with the SGP.32 standard and how these can be used in IoT.

What's eSIM?

eSIM stands for "embedded SIM", a secure module embedded directly into a device rather than as a removable card. However, the term also refers to a set of global specifications defined by GSMA which include eUICC (Embedded Universal Integrated Circuit Card) capabilities like storing multiple profiles and managing them remotely. So the technology can exist in any SIM form factor, not just the embedded one. eSIM technology have already been available for several years, and GSMA has released a number of previous standards.

"The first eSIM related technology was built heavily on legacy technology for M2M use cases and was called SGP.02. A more modern setup was then built for consumer use cases, such as smartphones and connected watches, called SGP.22 or known as consumer eSIM." explains Björn Hjelt, Head of SIM and Multi-Device at Telia.

The new SGP.32 standard relies heavily on the modern technology from Consumer eSIM but adapts it to focus on remote SIM provisioning specifically for IoT, unlocking a new level of flexible profile management.

What's in the new SGP.32 standard

The technical specifications for SGP.32 were first defined in 2023 and updated in mid-2024. Devices certified under this new standard are expected to see broader commercial deployment from 2026 onward.

Despite improvements that came with previous legacy standards like eSIM for M2M (Machine-to-Machine), managing and changing profiles on IoT devices has remained a complex process with high implementation cost. In practice, operator lock-in has still been an issue, as well as challenges with remote device management.

To address this, SGP.32 simplifies device management and SIM provisioning significantly, making it possible to enable, disable or delete profiles remotely, as well as change operators with fewer requirements on costly system-to-system integrations. This is thanks to one of the key architectural changes from the new standard, which splits the Local Profile Assistant (LPA), which manages the eSIM in the SGP.22 world, into two components – the IoT Profile Assistant (IPA) deployed in the device or chip and the eSIM IoT Remote Manager (eIM) deployed on the network side.

How does remote SIM provisioning benefit IoT?

Being able to remotely manage and change SIM profile without physically swapping out a SIM card is a major boost for IoT operations where agility is vital. Many use cases rely upon a large volume of devices being deployed in the field, and for practical reasons remote provisioning will dramatically reduce the costs and resources involved in changing operators.

For example, a utilities company using IoT devices to monitor remote pipelines can change service providers without physically sending out technicians to swap SIM cards. This labor-intense process can instead be handled centrally.

Impacting scalability

The increased flexibility provided by the new standard is expected to have a major impact on scalability for IoT solutions, shortening time to market by streamlining the process of installing SIM components compared to legacy SIM cards. A more flexible profile management also allows to quickly adapt to changing needs.

"The new SGP.32 eSIM standard is an important step forward that will make it easier to manage large numbers of IoT devices in an efficient way," says Björn Hjelt. "We expect it will be a key enabler of future innovations and help unlock value from new products and services, while also simplifying scalability."

How to make the most of the SGP.32 standard?

For the majority of IoT solutions, maximizing the benefits from SGP.32 will be most easily achieved with the support of an expert partner who can help with necessary software, back-end changes and compliance expertise to make the process as smooth as possible.

Improved capabilities in SGP.32

Remote profile management

Flexibly add, remove & manage eSIM "profiles" remotely.

Mass management

Control thousands of devices in diverse networks.

Easy operator switching

Change networks without costly technical integrations.

Improved scalability

Faster deployment and easier adaptation to new markets.

"Making the most of the flexibility the standard allows is not as simple as flicking a switch," notes Björn. *"At Telia, we were among the first in the world to roll out the consumer eSIM, and with a long track record of providing M2M and IoT services, we are well positioned to provide expert guidance and support on the new standard. We can help you decide on any infrastructure, software or compatibility changes your IoT solution may need to seize this opportunity and run with it."*

Are you curious to learn how your operation could benefit from the new eSIM standards like SGP.32? Reach out and we'll tell you more!

Curious to learn more? Please reach out to:

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