eSIM SGP.32 for IoT Resellers

How the Next Generation of Connectivity is Changing Control, Ownership and Adoption.

KPN. Royal Dutch Telecom.

A practical guide to understanding and adopting SGP.32 in a controlled and future-proof way

SGP.32 represents a fundamental shift in IoT connectivity, moving from static SIM-based configurations to a flexible, software-driven model based on remote profile and lifecycle management.
This enables organizations to manage connectivity across networks and regions more dynamically, but also introduces new complexity in how control, ownership and responsibilities are structured across different systems and actors involved in the connectivity ecosystem.
For KPN IoT's resell partners, this creates opportunities to offer more advanced and flexible services, while requiring more deliberate decisions around lifecycle management, platform dependencies and long-term architecture. A structured, phased approach allows resellers to adopt SGP.32 in a controlled way, balancing flexibility with operational simplicity. In this transition, KPN IoT acts as an enabling partner, helping resellers understand the new eSIM innovation, structure their approach and adopt SGP.32 without unnecessary complexity or early commitment.

Content

SGP.32
The shift in IoT-connectivity

The Internet of Things is entering a new phase. What began as relatively straightforward connectivity between devices is evolving into large-scale deployments across countries, networks and use cases. As organizations expand globally, expectations around connectivity are increasing and reliable coverage alone is no longer sufficient. Customers require greater flexibility in how connectivity is deployed and managed, including faster rollouts and the ability to adapt to different markets. At the same time, traditional models based on physical SIM cards and fixed operator agreements are becoming harder to scale, particularly in multi-country environments where connectivity needs to be adjusted over time. With the number of IoT connections continuing to grow significantly, this pressure will only increase (GSMA, n.d.).

In response, the industry is shifting towards software-driven connectivity. Instead of being defined once through a physical SIM, connectivity is increasingly managed through digital profiles that can be activated, updated or replaced remotely. This shift is enabled by a new generation of remote SIM provisioning standards, with SGP.32 representing the latest step. Rather than being a product, SGP.32 defines how connectivity can be managed throughout the device lifecycle. This allows organizations to adapt connectivity when devices move between regions or when performance or regulatory requirements change, while also introducing new dependencies between systems and parties.

As connectivity becomes more adaptable, the decision landscape becomes more complex. Organizations are no longer only selecting a connectivity provider, but also determining how lifecycle management is organized, which platforms are used and how responsibilities are distributed. Questions around control and ownership become more prominent, such as who manages the lifecycle of an eSIM profile and who ensures availability and continuity. These questions are particularly relevant for IoT resellers, whose role is shifting from providing connectivity to enabling flexible solutions. This whitepaper therefore provides an overview of SGP.32, explains what changes in practice and outlines how resellers can approach adoption in a controlled and future-proof way.

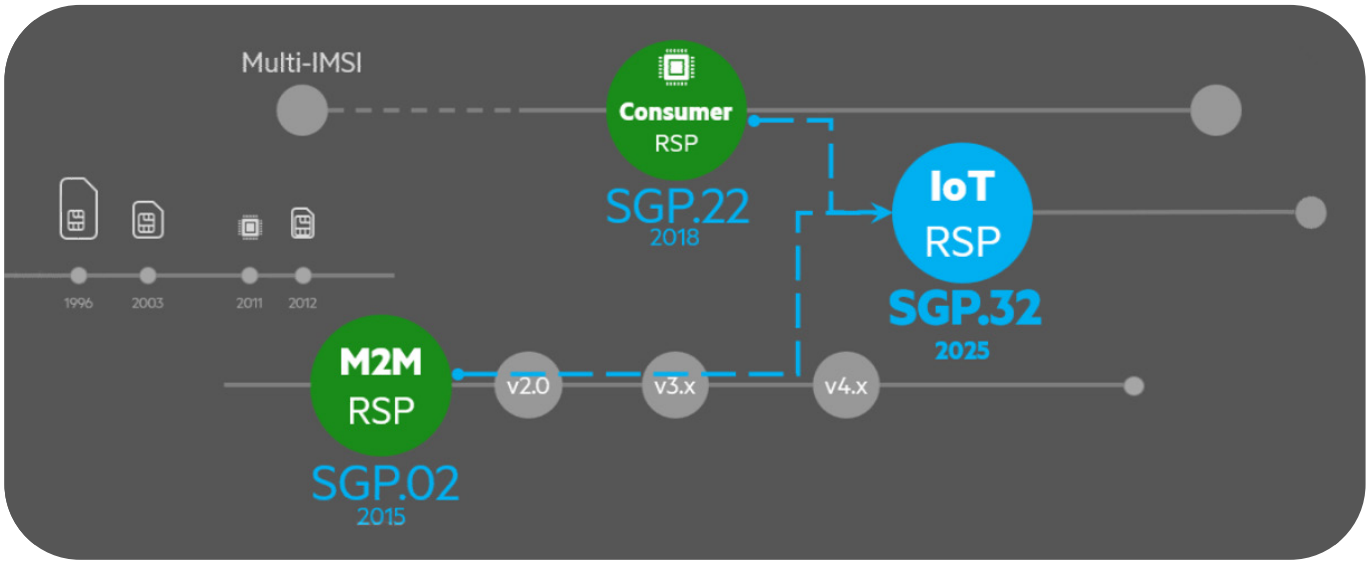
Understanding the SGP.32 transition

What is SGP.32?

SGP.32 is the latest standard for remote SIM provisioning defined by the GSMA. Earlier standards, such as SGP.02 and SGP.22, introduced remote provisioning for machine-to-machine and consumer use cases, but were not designed for large-scale IoT deployments. As IoT environments expanded across regions and use cases, a more scalable and flexible approach became necessary. SGP.32 was developed to address this gap and support the specific requirements of IoT connectivity (GSMA, 2024).

To understand this model, several key concepts are relevant:

- **eSIM (eUICC)** is a programmable SIM that allows multiple connectivity profiles to be stored and managed remotely.
- A **profile** is a digital subscription that defines how a device connects to a mobile network.
- **Remote SIM Provisioning** is the process of downloading, activating and managing profiles over the air.
- The **eIM (eSIM IoT Remote Manager)** is the platform responsible for managing the lifecycle of eSIM profiles across devices.
- The **SM-DP+ (Subscription Manager – Data Preparation)** is the system that securely stores and delivers profiles to devices.



At its core, SGP.32 defines how these components work together to manage connectivity remotely across devices and networks. Instead of relying on a fixed SIM configuration, connectivity is managed through profiles that can be activated or replaced over the air. This enables central monitoring and control across device fleets without physical intervention.

This introduces a different way of working. Connectivity is no longer tied to a single operator or fixed at deployment, but becomes something configurable based on changing requirements. For example, devices in different regions may require different profiles to meet regulatory or performance requirements. Managing this across regions requires coordination between multiple systems and parties. As a result, SGP.32 is not only a technical model, but also defines how control and responsibilities are distributed within the ecosystem.

What changes with SGP.32?

To understand the impact of SGP.32, it is useful to compare it to how IoT connectivity is traditionally managed. In most deployments today, connectivity is defined by the SIM card at installation. Each device is linked to a specific operator, and changes typically require physical intervention, such as replacing the SIM. This provides clarity and simplicity, but limits adaptability in environments where devices operate across regions or networks.

SGP.32 introduces a more dynamic approach, where connectivity can be managed throughout the lifecycle of a device. This is particularly relevant in international deployments, where requirements vary in terms of coverage, performance and regulation. The ability to adjust connectivity without requiring physical access to the device improves operational efficiency and service continuity. At the same time, this shift increases complexity. Managing connectivity now involves a more distributed set of components and actors, such as lifecycle management platforms and provisioning systems. For example, activating a profile requires coordination between the eIM and the SM-DP+, making it less clear where control resides and how responsibilities are divided.

As a result, adopting SGP.32 is not only a technical change, but also requires new decisions around control, ownership and how connectivity is structured over time. The GSMA positions SGP.32 as a model for managing eSIM profiles throughout the device lifecycle, shifting connectivity from a static, device-level configuration to a centrally managed and more adaptable approach (GSMA, 2024).

SGP.32's impact for IoT resellers

Business model impact for resellers

For IoT resellers, SGP.32 does not only introduce new functionality, but changes how connectivity is delivered, managed and positioned towards customers. Traditionally, resellers source connectivity from one or more operators, combine it with hardware or services, and retain direct control over customer relationships, billing and support. While challenges exist, particularly around SIM logistics and international deployments, this model remains predictable and well understood.

With SGP.32, connectivity is no longer managed through fixed, device-level configurations, but as a centrally controlled capability. This reduces reliance on physical operations like SIM swaps and allows resellers to manage connectivity remotely across devices and regions. For example, connectivity can be adjusted by activating a different profile instead of manually replacing SIM cards. This enables more advanced connectivity solutions, such as multi-operator and region-specific configurations, but also introduces new dependencies. Managing connectivity now involves additional components, including lifecycle management and provisioning platforms, which must operate together reliably. As a result, responsibilities and control become less centralized.

For resellers, this means that adopting SGP.32 is not only about enabling new capabilities, but also about making deliberate choices in how connectivity is organized. Decisions around platform selection, partner roles and lifecycle control become part of overall solution design. The challenge for resellers is to balance this increased adaptability with sufficient control, while avoiding unnecessary complexity in early adoption.

Underlying structural implications

To better understand why SGP.32 affects resellers in this way, it is important to look at how it reshapes the underlying structure of IoT connectivity.

Rather than simply improving existing processes, SGP.32 introduces a different structural model for delivering and managing connectivity. In traditional setups, the SIM card acts as both the entry point and control mechanism, linking a device to a specific operator and defining connectivity over time. This results in a relatively linear model, where responsibility and control are largely concentrated within a single setup. With SGP.32, this model becomes more modular. Control over connectivity is no longer embedded in a single component, but distributed across

separate layers, including provisioning, lifecycle management and connectivity services. As a result, connectivity is no longer a one-time configuration, but a capability that is managed continuously across different systems. A key consequence of this structure is the emergence of lifecycle management as a distinct function within the connectivity stack. This enables connectivity to be monitored and adjusted across large device fleets in a consistent and scalable way. At the same time, the ecosystem becomes more distributed, involving multiple systems and partners that each contribute to the overall solution.

For resellers, this changes how connectivity solutions are designed and maintained. Instead of selecting a single provider, the focus shifts to structuring how different layers and components work together. Connectivity must be managed as an evolving setup, requiring clear decisions about control, responsibilities and how changes are handled over time. As deployments grow in size and complexity, the ability to structure this in a deliberate and scalable way becomes increasingly important.

Opportunities, challenges & how to move forward

Key benefits for resellers

SGP.32 creates new opportunities for IoT resellers by enabling lifecycle control and multi-operator configurations. These benefits can be seen across three key areas.

Firstly, connectivity can be tailored more precisely to specific use cases and deployment conditions. This allows performance to be optimized across regions with different coverage, availability or regulatory requirements, while enabling resellers to align connectivity with changing conditions during deployment. Secondly, operational efficiency improves as reliance on physical SIM management is reduced. Activities related to logistics, maintenance and manual intervention become less prominent, simplifying operations and enabling more scalable deployments. Thirdly, this creates space for resellers to expand their role. Rather than focusing on standard connectivity, they can develop more advanced, solution-driven services and work more closely with customers in designing connectivity solutions.

Emerging complexity and challenges

At the same time, these opportunities introduce a more complex decision landscape. With lifecycle management, profile orchestration and multiple interacting components becoming part of the connectivity model, connectivity is no longer defined through a single configuration but through a series of ongoing choices. Resellers increasingly take on decisions that were previously handled by network providers or embedded in fixed setups. This includes determining how lifecycle control is organized, which platforms are used and how responsibilities are distributed across the ecosystem. As a result, decisions that were once part of implementation become an integral part of overall solution design.

For many resellers, the challenge lies not in understanding the potential of SGP.32, but in structuring it in a way that remains manageable over time. While this model enables highly flexible connectivity setups, it also introduces the risk of unnecessary complexity or early commitment to specific technologies or partners. Choices around lifecycle management, system integration and platform dependencies become harder to reverse as deployments scale. At the same time, delaying these decisions may limit the ability to respond to evolving customer needs and market developments. Balancing flexibility, control and simplicity therefore becomes a central consideration when approaching SGP.32.

How to adopt SGP.32?

Adopting SGP.32 is not a single technical step, but a gradual transition in how connectivity is managed and delivered. Given the structural changes and expanded ecosystem, a phased approach is more effective than attempting to redesign connectivity upfront. Rather than making comprehensive architectural decisions early on, resellers can start with a controlled setup that already supports core SGP.32 capabilities such as remote profile management and lifecycle control. This allows them to begin applying SGP.32 in practice without immediately introducing the full complexity of the underlying model.

A practical way to support this transition is to separate initial deployment from future development. In an early phase, connectivity can be delivered through an existing, managed environment that provides the required lifecycle functionality and integrates the necessary components. This enables resellers to gain hands-on experience with SGP.32 in real deployments while maintaining a predictable operational model and limiting upfront investments in infrastructure or in-house capabilities.

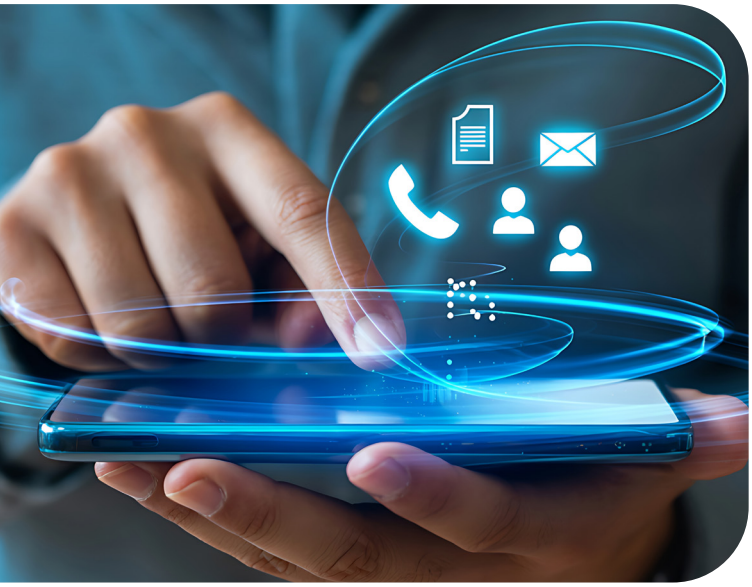
As requirements evolve, additional capabilities can be introduced in a controlled manner. This may include expanding into multi-operator configurations, integrating additional platforms or refining how lifecycle control is organized. In this model, connectivity is no longer defined as a fixed configuration but evolves together with the reseller's proposition and the needs of their customers. This phased approach supports better decision-making. By starting from a working baseline, resellers avoid committing prematurely to specific technologies, integrations or architectural choices that may not align with future needs. Instead of treating SGP.32 as a one-time transformation, it becomes a continuous process of development and optimization, allowing resellers to respond to changing technical, commercial and operational requirements while keeping complexity manageable.

KPN's role

Within the SGP.32 ecosystem

As organizations move from understanding SGP.32 to applying it in practice, the focus shifts from whether the transition will occur to how it can be managed in a controlled and sustainable way. The move towards profile-based connectivity, lifecycle management and a multi-layered ecosystem introduces new dependencies and design choices. In this context, the role of a connectivity partner evolves from providing connectivity to enabling resellers to adopt and operate this model effectively. KPN's role can be understood across three areas: enablement, orchestration and guidance.

Firstly, KPN IoT enables resellers to adopt SGP.32 in a controlled way by combining connectivity with remote SIM provisioning and lifecycle management capabilities. This includes the integration of key components such as provisioning platforms (e.g. SM-DP+) and lifecycle management environments (e.g. eIM), providing a structured starting point that supports the core functionalities of the SGP.32 model. This allows resellers to apply these capabilities without building or integrating the full architecture themselves, reducing upfront investment and keeping initial complexity manageable. Secondly, KPN brings together the key components of the SGP.32 model into a coherent environment. Connectivity services, provisioning platforms and lifecycle management capabilities are aligned within a single setup, reducing the complexity of managing multiple systems and partners. This allows resellers to rely on a stable foundation while maintaining the flexibility to adapt their solutions over time. Thirdly, KPN IoT also supports resellers in navigating the broader implications of SGP.32. The introduction of lifecycle management and a layered ecosystem requires new decisions around control, architecture and responsibilities. KPN helps resellers structure these choices and develop their capabilities in a phased way, enabling decisions that align with both current operations and long-term strategy.



An important principle in this model is that control over the customer and the proposition remains with the reseller. KPN acts as an enabling layer within the ecosystem, not a replacement for the reseller's role. Customer relationships, branding and commercial structures remain unchanged. What KPN adds is the ability to manage connectivity more flexibly and at scale, while reducing the complexity of coordinating multiple systems and partners. This allows resellers to adopt SGP.32 in a way that is both practical in the short term and sustainable over time.

How KPN can assist you

Understanding SGP.32 is only the first step. Translating this understanding into practical decisions and deployments often requires additional insight, particularly when it comes to lifecycle management, ecosystem design and selecting the right starting point. KPN supports resellers in this process by providing clarity on how SGP.32 works in practice, helping to structure an adoption approach and enabling initial deployments within a controlled environment. This allows resellers to gain hands-on experience while maintaining a predictable operational model and avoiding unnecessary complexity at an early stage.

As requirements evolve, KPN also supports the phased expansion of connectivity capabilities, helping resellers align technical choices with both customer needs and long-term strategy. In this way, SGP.32 can be adopted as a manageable, step-by-step transition rather than a one-time transformation.

To explore how SGP.32 can be applied in your specific situation, you can request support or start a discussion via kpn.marketing-iot.kpn.com/en/contact/general.

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