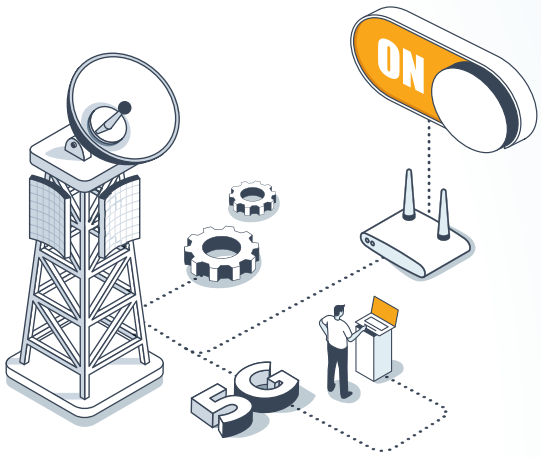
SGP.32 (eSIM) – Risks and Opportunities for Enterprises

What Is SGP.32?

SGP.32 is the emerging GSM Association (known as GSMA, It is a global organization that represents the interests of mobile network operators (MNOs) and other stakeholders in the mobile communications industry) standard for eSIM remote SIM provisioning (RSP) specifically aimed at IoT deployments. Unlike prior standards (SGP.02 for M2M and SGP.22 for consumer devices), SGP.32 is designed to help enterprises switch or "pull" connectivity profiles more independently, improving control and flexibility across global IoT deployments. However, the standard is still new, with full certification expected by the end of 2025, and market adoption is not yet widespread.



According to Transforma Insights' report, SGP.32 addresses many limitations of older eSIM standards. However, it also brings new complexities in terms of cost, backend integration, and ongoing compliance.

Evolution from Physical SIMs to eSIM

Until 2016, most cellular IoT devices relied on removable plastic SIM cards, which were suited for large-scale or ruggedized IoT deployments. The introduction of the machine form factor (MFF, now MFF2) resolved the need for more durable, soldered SIM chips. However, it quickly became apparent that physically swapping SIM cards was time-consuming and expensive—particularly for global IoT fleets.

Why Over-the-Air Provisioning Matters

To streamline connectivity management, the GSMA developed Remote SIM Provisioning (RSP), enabling SIM profiles to be securely switched over-the-air without manual intervention.This advancement—collectively termed embedded Universal Integrated Circuit Card (eUICC) or eSIM—this is a crucial benefit for IoT environments: eliminating truck-rolls and costly device recalls, speeding up deployment cycles, and reducing lock-in to a single connectivity provider.

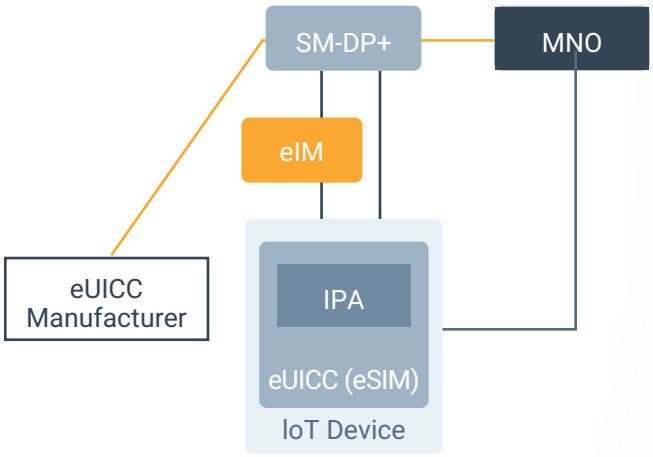
From SGP.02 and SGP.22 to SGP.32

- **SGP.02 (M2M, 2014):** Introduced a “push” model where connectivity providers fully controlled the end-to-end process.
- **SGP.22 (Consumer, 2016):** Shifted to a “pull” model, letting end users remotely download a new profile—though largely aimed at consumer devices.

While these standards served their respective domains, IoT-specific concerns remained, such as rigid operator lock-in, limited user control, and constraints around industrial-scale deployments.
The Emergence of SGP.32 (IoT)

In May 2023, the GSMA unveiled SGP.32, specifically designed to address these limitations for IoT. By enabling more flexible profile switching and enhanced autonomy for device owners, SGP.32 is poised to reduce complexity, lower operational costs, and accelerate worldwide scalability for enterprises. Although final testing and certification are expected by the end of 2025, SGP.32–ready devices may start appearing sooner—allowing forward-looking businesses to evaluate and pilot these new capabilities.

GCMA SGP.31 IoT RSP
Operational Considerations



Set-up

- Load eIM details into eUICC (in factory)
- Sign a contract with MNO (get Activation code)
- Enable profile - triggered by eIM

Change MNO

- Sign a contract with new MNO (get Activation code)
- Download profile - direct IPA or indirect via eIM
- Engable new Profile - triggered by eIM

Business Relevance

- **Cost & Complexity:** RSP eliminates the need for physical SIM swaps, minimizing on-site interventions and downtime.
- **Global Scalability:** Enterprises can “pull” new profiles to meet local regulations, address permanent roaming constraints, and manage multi-region deployments.
- **Future-Proofing:** SGP.32 positions organizations to adopt the next generation of IoT standards, staying competitive in a rapidly evolving connectivity landscape.

This evolution of SIM technologies lays the groundwork for more streamlined IoT connectivity, empowering enterprises to manage large-scale device fleets efficiently and unlock new revenue opportunities through sophisticated remote provisioning capabilities. In the next section will eview the risks and opportunities associated with SGP.32 for enterprises.

Risks & Unknowns

Because SGP.32 is still evolving, enterprises face uncertainties such as:

- **Security & Regulatory Compliance:** New features often introduce new vulnerabilities. Ensuring regional regulatory compliance (e.g., permanent roaming restrictions, data sovereignty) is critical—and not automatically guaranteed.
- **Interoperability Gaps:** Different mobile network operators (MNOs) may not offer immediate or uniform support for SGP.32, leading to inconsistent user experiences.
- **Commercial Complexities:** Sourcing multiple carrier contracts, managing eSIM hosting costs, and negotiating with potentially dozens of providers can raise both complexity and cost.
- **Resource Constraints:** Integrating a brand-new standard into existing connectivity management systems may require specialized expertise not yet available in-house.
- **Back-end integration:** Even where a user might have commercial relationships it’s not generally simply a case of switching between providers seamlessly. There will be a requirement for back-end integration and other process changes, for instance to manage VPNs, change APN settings, establish frequency of polling for new profiles, or handle different SLAs. This is a non-trivial task, and one that will need to be performed simultaneously with the eSIM profile switching.
- **Cost:** There is an additional cost associated with profile switching and profile hosting, which could be over USD1/month per profile.
- **Connectivity Management:** Without a CMP aggregator that integrates multiple operators, switching to a new eSIM profile means losing visibility and manageability in your existing Connectivity Management Platform.

Opportunities

Despite the unknowns, SGP.32 offers significant upside:

- Greater Freedom: Enterprises can theoretically switch connectivity providers “at the click of a button,” limiting lock-in and enabling competitive pricing.
- Enhanced Flexibility: Overcoming many of the hardware and UI constraints of older standards, SGP.32 can support a wider variety of IoT use cases.
- Future-Proofing: Early adoption of SGP.32 sets the stage for more advanced over-the-air provisioning, improved device lifecycle management, and faster time-to-market once the standard matures.

The table below summarizes the main differences between SGP.02 and SGP.32, its risks and opportunities.

Criteria	SGP.02 (M2M)	SGP.32 (IoT)
Architecture	• Push Model only: push method, the SM-DP+ initiates the profile download process by sending a notification to the device, which then retrieves the profile. This allows for remote provisioning without requiring user interaction • *Often requires deeper* integration with an SM-SR (Subscription Manager Secure Routing) hosted by the MNO. • Suited for traditional M2M deployments with limited user involvement.	• Push & Pull Model: In the pull method, the device initiates the profile download by requesting it from the SM-DP+ (Subscription Manager - Data Preparation Plus). This is typically triggered by the device or user • Incorporates an IoT Profile Assistant (IPA) to handle remote management. • Designed for large-scale, flexible IoT deployments.
Flexibility	• Limited flexibility in switching carriers; requires MNO approval. • Primarily focuses on one type of connectivity profile.	• High flexibility; can switch or add new profiles “on demand.” • Empowers enterprises with more control over which MNO profiles are loaded.
Interoperability	• Interoperability can be constrained; it requires MNO-to-MNO agreements. • Suited to stable, less dynamic environments.	• Improved interoperability; simpler to add or remove different MNO profiles. • Better for global deployments subject to diverse roaming or regulatory rules.
Security	• Security is largely dictated by the provider’s platform (SM-SR). • Less user visibility into encryption, updates, or policy changes.	• Enterprise can enforce stronger security policies (e.g., encryption, advanced auth). • Ongoing standard enhancements may further address evolving IoT threats.
Migration Complexity	• Potentially High: Switching providers often involves negotiating and integrating with existing MNO systems. • Limited control leads to longer migration timelines.	• Moderate: Though not fully frictionless, SGP.32’s design aims to reduce lock-in, making provider swaps more straightforward. • Backend integrations (VPN, APN configs) are still required but more enterprise-managed.
Cost Implications	• Often includes roaming or profile management fees set by a single MNO. • Enterprises may see lower up-front costs but risk higher long-term lock-in and roaming charges.	• New profiles or dynamic switching can incur monthly hosting fees (~USD1/device/month in some cases). • Potential long-term savings from reduced roaming fees and better carrier deals.

floLIVE's Preparedness for SGP.32

- **Cloud-Native, Future-Proof Architecture:** floLIVE's platform is built to integrate evolving GSMA standards without requiring major overhauls. This means enterprises adopting SGP.32 can quickly enable new features with minimal disruption.
- **Multi-IMSI + SGP.32 Hybrid Approach:** Beyond eSIM, floLIVE supports multi-IMSI solutions that have long provided cost-effective, wide-coverage connectivity. By combining multi-IMSI as the primary profile with SGP.32 for local "pull" provisioning, enterprises gain both proven reliability and next-generation flexibility.
- **Global Compliance Layer:** floLIVE's core platform addresses compliance challenges across multiple jurisdictions, ensuring data residency, "permanent roaming" regulations, and KYC (Know Your Customer) requirements are met.

Overcoming Key Challenges

1. **Security & Regulatory:** Built-in encryption and compliance frameworks mean you can seamlessly localize connectivity profiles through SGP.32 while maintaining data sovereignty.
2. **Cost Management** floLIVE's pay-as-you-grow model and dynamic profile switching reduce roaming fees and overhead, so you don't sacrifice budget control for new capabilities.
3. **Operational Complexity:** Our single orchestration layer provides one platform for provisioning, monitoring, and billing across any combination of eSIM, multi-IMSI, or standard SIMs.
4. **Scalable Integration:** With API-driven connectivity management, enterprises can easily embed SGP.32 activation into existing workflows, even if they don't have deep in-house eSIM expertise.

The Transforma Insights report underscores the importance of selecting a provider that handles the complexities around backend integration and multi-operator support—floLIVE aligns exactly with these recommendations.

Business & Operational Outcomes

- **Reduced Lock-In & Faster Switches:** When SGP.32 fully rolls out, enterprises using floLIVE can adopt new carriers, switch profiles, or localize connectivity in emerging markets with minimal manual intervention.
- **Lower Cost of Ownership:** By intelligently blending multi-IMSI and eSIM RSP, customers avoid the hidden expense of multiple back-end integrations, contracts, or compliance mishaps.
- **Regulatory Peace of Mind:** FloLIVE's robust compliance support ensures faster go-to-market across regions that typically pose IoT connectivity hurdles—such as the EU, Middle East, or APAC.
- **Competitive Differentiation:** Early readiness for SGP.32 signals to partners, investors, and clients that your enterprise is at the forefront of IoT innovation, potentially opening doors to new lines of revenue.

Future-Proofed Innovation

> "SGP.32 is a powerful tool, but it's best leveraged as part of a managed service with a broader connectivity ecosystem."
>
> – TRANSFORMA INSIGHTS

floLIVE's "cloud-native + multi-IMSI + SGP.32" framework aligns perfectly with that industry guidance, ensuring enterprises aren't just adopting a new standard blindly but implementing it within a proven, adaptable ecosystem that keeps pace with evolving market demands.

Get Ready for SGP.32

- **Connectivity Readiness Assessment:** Book a consultation to evaluate your current IoT ecosystem and uncover how SGP.32 can enhance global operations.
- **Pilot or Proof of Concept:** Start small to test SGP.32's capabilities with minimal risk. FloLIVE can guide you in creating a controlled environment for verifying performance and compliance.
- **Seamless Migration Strategy:** Work with our experts to map a phased rollout plan that integrates multi-IMSI, existing eSIM standards, and SGP.32 readiness for optimal flexibility.

Why floLIVE?

1. **Future-Proof Architecture** that adapts alongside new GSMA standards.
2. **Global Compliance** expertise simplifying data residency and regulatory requirements.
3. **Seamless Hybrid Solutions** blending tried-and-tested multi-IMSI with the promise of SGP.32.
4. **Transparent Cost Control** and billing across all managed profiles.
5. **Connectivity Management Platform (CMP) Aggregation** – Provides a single pane of glass for end-to-end connectivity oversight, ensuring a single pane of glass portal for monitoring, provisioning, and troubleshooting your IoT connectivity, no matter the SIM / MNO you use
6. **Interoperability & Security Management** – floLIVE maintains commercial agreements with global profile vendors (MNOs) and handles integration and certification among SIM vendors, RSP vendors, and MNO infrastructure. This streamlined approach eliminates the heavy lifting for you, ensuring robust security and minimal operational complexity.

flo. LIVE

Ready to stay ahead of the curve?

Contact floLIVE to schedule an **SGP.32 Readiness Consultation** or request a **Live Demo** of our global, cloud-native platform.

floLIVE – Your Partner for Future-Proof, **SGP.32-Ready** IoT Connectivity.