eSIM

The eSIM is a new kind of connectivity.

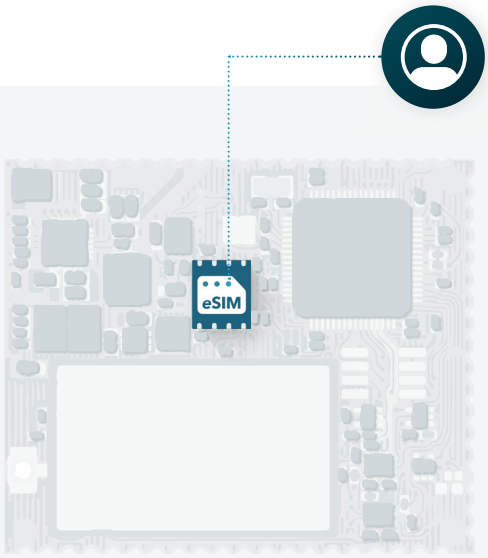
TRUPHONE

ABOUT eSIM

Connectivity "over the air."

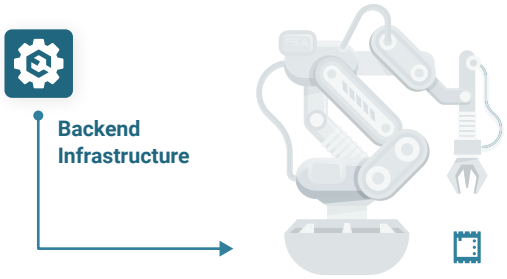
eSIM technology opens new possibilities for Internet of Things (IoT) and Consumer devices. It offers new ways of managing and deploying connectivity, without the hassle of physical SIM cards. In addition, designers can gain deeper insights into how their products are used as more devices leverage eSIM for on-demand cellular connectivity. This in turn enables more rewarding user experiences and new revenue opportunities through bolt-on services and subscriptions. Are you ready to capitalise on the connected revolution?

Developed by the GSMA and already widely accepted by the telecoms market, eSIM is the new standard in SIM card technology. It simplifies the process of installing an Operator's connectivity credentials, known as an eSIM Profile into a device by using a standardised, secure and remote 'over the air' process. This eSIM brings wide ranging benefits to consumers, enterprises and IoT solutions.



Supporting M2M, IoT and Consumer deployments

Based on your intended use, the GSMA has developed two tiers of standards for the eSIM

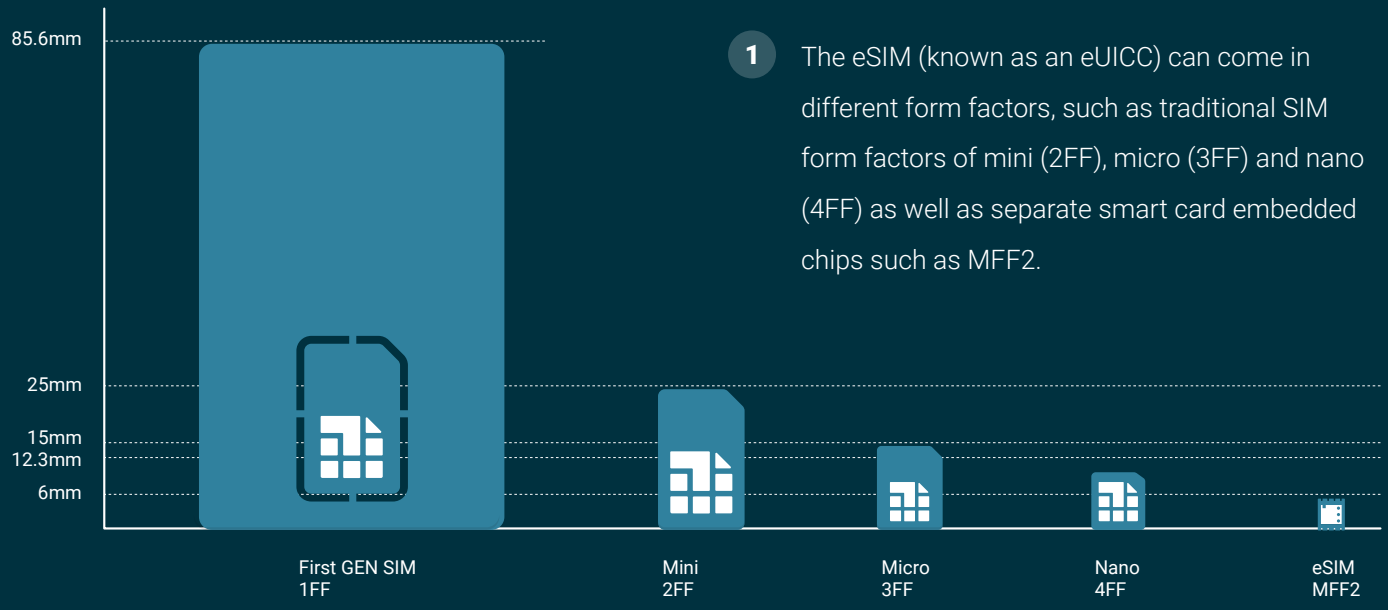


M2M - designed for M2M devices such as sensors, industrial devices or vehicles

Consumer – designed for Consumer devices, such tablets, phones, watches or wearables

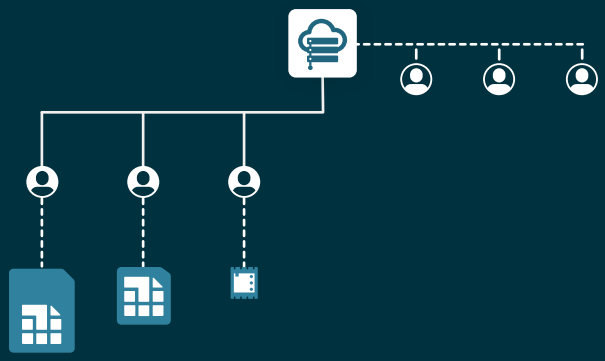
Technology

eSIM technology is comprised of two key building blocks:



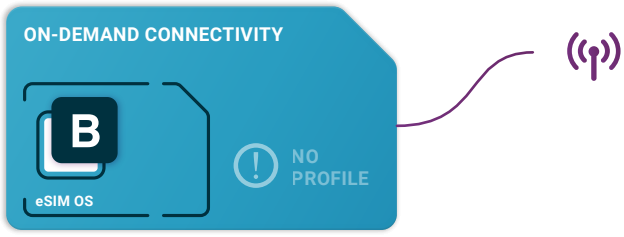
1 The eSIM (known as an eUICC) can come in different form factors, such as traditional SIM form factors of mini (2FF), micro (3FF) and nano (4FF) as well as separate smart card embedded chips such as MFF2.

2 The Remote SIM Provisioning platform which hosts the connectivity profiles from the telecoms Operator, ready to be securely installed into the eSIM hardware.



Bootstrap

Devices that support eSIM technologies typically require a Bootstrap capability. Bootstrap primarily enables the switching of telecom Operator profiles after the device has been deployed. It can also be used in consumer devices to offer temporary connectivity while the consumer purchases or installs a primary Operator's SIM profile.



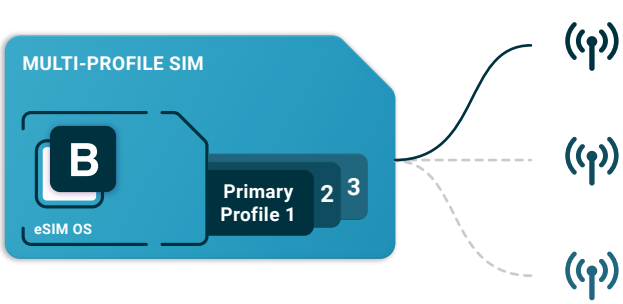
ABOUT eSIM

Connectivity "over the air."

Security

eSIM chip (known as eUICC) and ecosystem is widely considered as secure as existing traditional SIM technology. Where eSIM technology differs from traditional SIM is the added capability of the remote SIM provisioning platform ("RSP"). The GSMA requires companies who provide remote SIM provisioning platform services to be certified according to their strict SAS security requirements.

This includes the use of technologies such as a hardware security module built into the remote SIM provisioning platform and a highly secure data centre. Truphone has successfully passed this audit and is listed as an official provider on the GSMA SAS Accredited Sites list here.



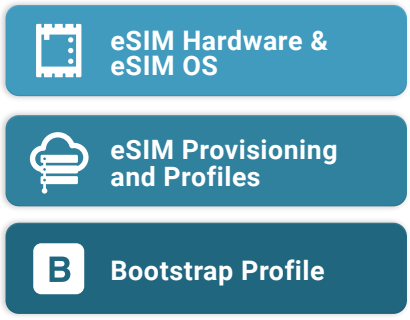
Enabling Connectivity in M2M and Consumer devices

A key use case of eSIM, is the ability to switch connectivity providers after a device has been deployed. This is particularly beneficial for Machine to Machine ("M2M"), and some IoT devices, where the switching process is performed completely remotely from the actual device itself. For Consumer devices, switching connectivity providers can be triggered by a user action as simple as scanning an image or code on the device.

ENABLING eSIM

Go to Market with Truphone.

For a full end-to-end IoT solution, enquire about our Io3 platform. In addition to eSIM technology, Io3 delivers device management capabilities, worldwide cellular network access and a secure application platform. Io3 is the most comprehensive and innovative IoT offering on the market.



The three elements of the eSIM offering are available selectively, or as part of an integrated solution package

Truphone eUICC OS

Truphone offers an eUICC Operating System which can be loaded onto different flavours of eUICC hardware, including the ST33 chipset. The Truphone eUICC OS is a component-oriented, high-performance embedded operating system, fully compatible with most international and industry standards such as ISO, GSMA, Oracle's Java, Global Platform, 3GPP and ETSI.

eUICC Hardware Module

Truphone can provide eUICC hardware modules in 2FF, 3FF, 4FF, MFF2 and WLCSP form factors. These modules come in the following grades depending on the required use case:

- M2M – Automotive and Industrial grade
- Consumer – Industrial and Standard grade

The lead time for samples is 1 to 2 weeks and we can ship them directly to your offices or manufacturing site. These hardware modules are integrated automatically to Truphone's remote SIM provisioning platform.

Io3 SIM Provisioning

Truphone offers Consumer eSIM provisioning services via its in-house developed SIM provisioning platform. The platform can be used for generation, management, hosting and install of Operator eSIM profiles aligned to the GSMA Consumer SGP .22 (V2.2) standard. Our platform has been validated and tested by UL, a GSMA accredited test partner and certified by the GSMA through the SAS-SM audit. We have also completed interoperability testing with other SIM manufacturers and OEMs, including Apple.

USE CASES

Enabling your eSIM solution.

For product designers, eSIM's greatest advantage is its modular architecture, providing you with complete flexibility over how you implement cellular connectivity. Choose just the components you require, or task us to deliver a complete end-to-end solution.

For manufacturers, eSIM's greatest advantage is the possibility to build, maintain and support a product across its entire lifecycle with a single SKU. Cellular connectivity, which often leads to multiple product SKUs is simply installed remotely, on demand the first time the device is used. Transform your business model from one-off transactions to lifelong relationships and unlock new recurring revenue streams.

> ***As a Mobile Network Operator I need a solution to enable eSIM devices on my network.***

Truphone's certified Io3 SIM Provisioning can generate, host and install Consumer eSIM profiles as per the GSMA standard. We offer dedicated or co-hosted platform instances in our GSMA SAS certified data centres. Our profiles are compatible with eSIM hardware from different SIM Manufacturers. In addition, Truphone has experience launching eSIM solutions on iOS and Android ecosystems and can provide guidance and support if needed.

> ***As an Operator I am looking for a cost-effective solution to enable eSIM services for the MVNOs I host on my core network.***

Truphone's remote provisioning platform is an attractive and cost-effective option to support eSIM enabling the MVNOs you host on your network. Our solution can securely host multiple different profiles types, with delegated access across your MVNOs. We can provide usage accounting information, which may be used in your commercial agreements with your MVNOs.

> ***As an OEM device manufacturer, I need to provide connectivity for my devices, laptops, tablets or wearables.***

Truphone can offer three building blocks to support enabling eSIM in a device - global bootstrap connectivity, eSIM profiles and provisioning, as well as the eSIM hardware modules as required. In addition, Truphone has experience launching eSIM solutions on iOS and Android ecosystems and can provide guidance and support as needed.

> ***As an M2M and IoT module manufacturer, I want to understand what solutions are available to me to enable embedded cellular connectivity in my modules.***

We offer GSMA standardised eUICC hardware in different form factors, but also a solution for Integrated SIM ("iUICC"), where the SIM operating system itself is embedded inside a secure processor in the device. The iUICC solution is more efficient as it does not require an additional eSIM chip and subsequently saves cost and space in your modules, whilst maintaining a high level of security.

PROJECT PATHWAY

Supporting delivery of your eSIM solution.

Is cost a concern?

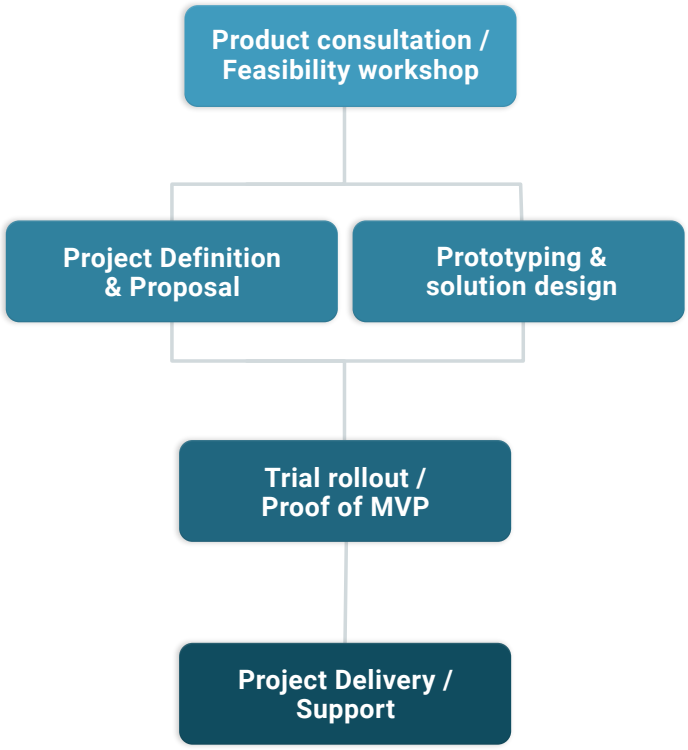
Truphone offers innovative and tailor-made pricing models to allow you to launch with little up-front cost and scale on demand. We are large enough to rely on and small enough to closely understand your requirements.

Is data speed a consideration for global Bootstrap?

Truphone's LTE network offers low-latency, high speed access using local breakouts, rather than country-of-origin routing provided by traditional mobile networks.

Do you require expertise on either the telecoms or technology side?

- Truphone has full, in-house development and engineering teams available to advise as required. We can even assist with solution design.
- Truphone has a dedicated Partnerships and Professional Services team who can provide close support throughout the entire project lifecycle. You will deal directly with the experts.



Are you deploying locally or globally?

Truphone's global MVNO network allows you to easily bootstrap and deliver your devices virtually anywhere on the planet.

Is time-to-market a consideration?

Truphone offers the only one-stop shop in the market for eSIM technology, provisioning and deployment.

Io3 SIM Provisioning

- Consumer standard - GSMA SGP .22 (V2.2) with complete SM-DP+ platform support
- M2M standard - Complete SGP.02 V3.2 solution (beta)

Certification

GSMA SAS-SM site certification (United Kingdom).

Truphone eUICC Operating System

Truphone eUICC supports the GSMA Remote SIM Provisioning specification (GSMA SGP .21/.22 V2.2) and provides MNO profile management functions including profile isolation, activation / deactivation.

The OS implementation provides support for:

- Standard eUICC use cases (ETSI TS 103 383 V12.0.0 Smart Cards; Embedded UICC; Requirements Specification; (Release 12); ISD-R with LPA services (Interfaces ES 10)
- Interoperable profile interpreter aligned to SIMalliance eUICC Profile Package: Interoperable Format Technical Specification V2.0
- Backward compatibility with M2M provisioning specification Interface ES 5;
- Full ISD-P and ECASD support
- LPAe and LPAd modes

Supported technical features:

- Hardware Support with ST33 (G1M0)
- Java Card 3.0.4
- Global Platform 2.2.1
- Remote SIM Provisioning GSMA SGP .22 (V2.2)
- ETSI Release 12
- Support of: Interfaces ES5, ES8+,ES9+, ES10a,b,c, ES11
- Support of Physical Interfaces ISO7816, SPI, I2C
- Supported NAAs SIM/USIM/ISIM/EAP-SIM/
- Cryptography DES/3DES/AES/SHA-256/ECC256, XOR, COMP128, MIELENAGE, TUAK, CAVE
- Secure Protocols SCP80/SCP81/SCP03/SCP03t
- Additional Features: CAT-TP, HTTPS, SCWS

Talk To An Expert

Would you like to learn more about eSIM technology, remote SIM provisioning, or our bootstrap capabilities? Book a call with one of our experts to discuss it in greater detail.

Scott.MacKenzie@truphone.com

Michael.Moorfield@truphone.com

Book a Feasibility Workshop

We offer a free feasibility workshop to walk you through available options and design a mockup solution so that you can begin prototyping or developing a business case.

To book, email us on:

strategic.partnerships@truphone.com

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