# Taoglas IoT Solutions
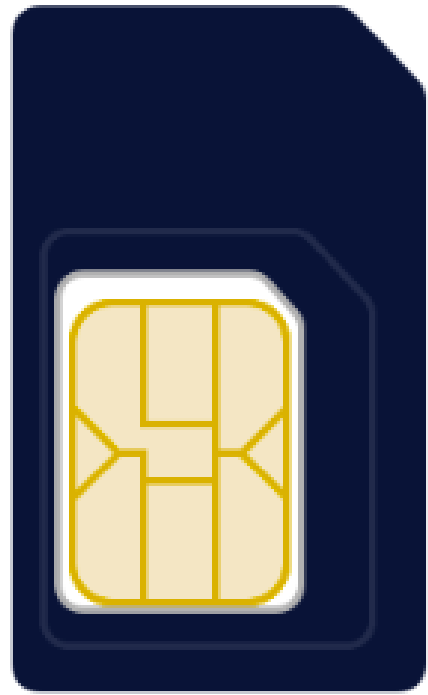
*Connectivity / eSIM Introduction*

Aug 2022

# Physical SIM Types
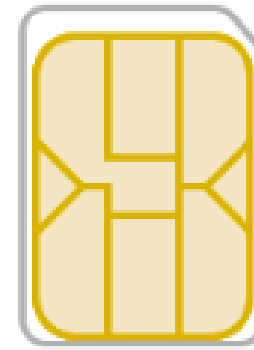


**2FF – Mini SIM**

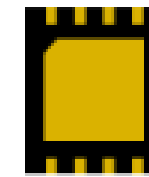Height: 25mm
Width: 15mm
Thickness: 0.76mm

**3FF – Micro SIM**

Height: 15mm
Width: 12mm
Thickness: 0.76mm

**4FF – Nano SIM**

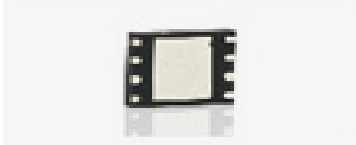Height: 12.3mm
Width: 8.8mm
Thickness: 0.67mm

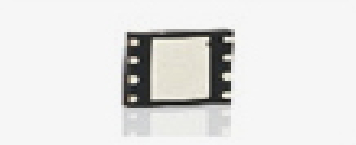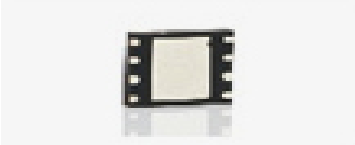**MFF2 – M2M Form Factor (eSIM)**

Height: 6.0mm
Width: 5.0mm
Thickness: 0.67mm

Also commonly called:
- Chip SIM
- eSIM
- Soldered SIM
- etc

| Product Family | U-MIM Quad | M2M Plug 85 | M2M Plug 105 | Full M2M Quad | Full Auto Quad |
|---|---|---|---|---|---|
| Drivers | Miniaturisation | Fit any equipment | Fit any equipment | Industrial grade | Auto grade |
| | M2M Consumer Electronics | M2M Industrial | M2M Industrial / Extended endurance | M2M Industrial / Extended endurance | Automotive std / Extended endurance |
| Temperature resistance range | GSM standard | - 25°C / +85°C | - 40°C / +105°C | - 40°C / +105°C | - 40°C / +105°C |
| M2M qualification (JEDEC) | | | • | • | • |
| eXtended Life mechanism | as an option | • | • | • | • |
| Enhanced silicon | | • | • | • | • |
| Burn-in | | | | | • |
| Data retention | 10 y / 25° | 10 y / 85° | 10 y / 85° | 10 y / 25° | 17 y / 80° |
| Automotive req compliancy | | | 🚗 | 🚗🚗 | AEC Q100 / TS 16 949 🚗🚗🚗🚗 |

https://www.thalesgroup.com/en/markets/digital-identity-and-security/iot/iot-connectivity/industrial-sim

# Lynx Proto 1.0
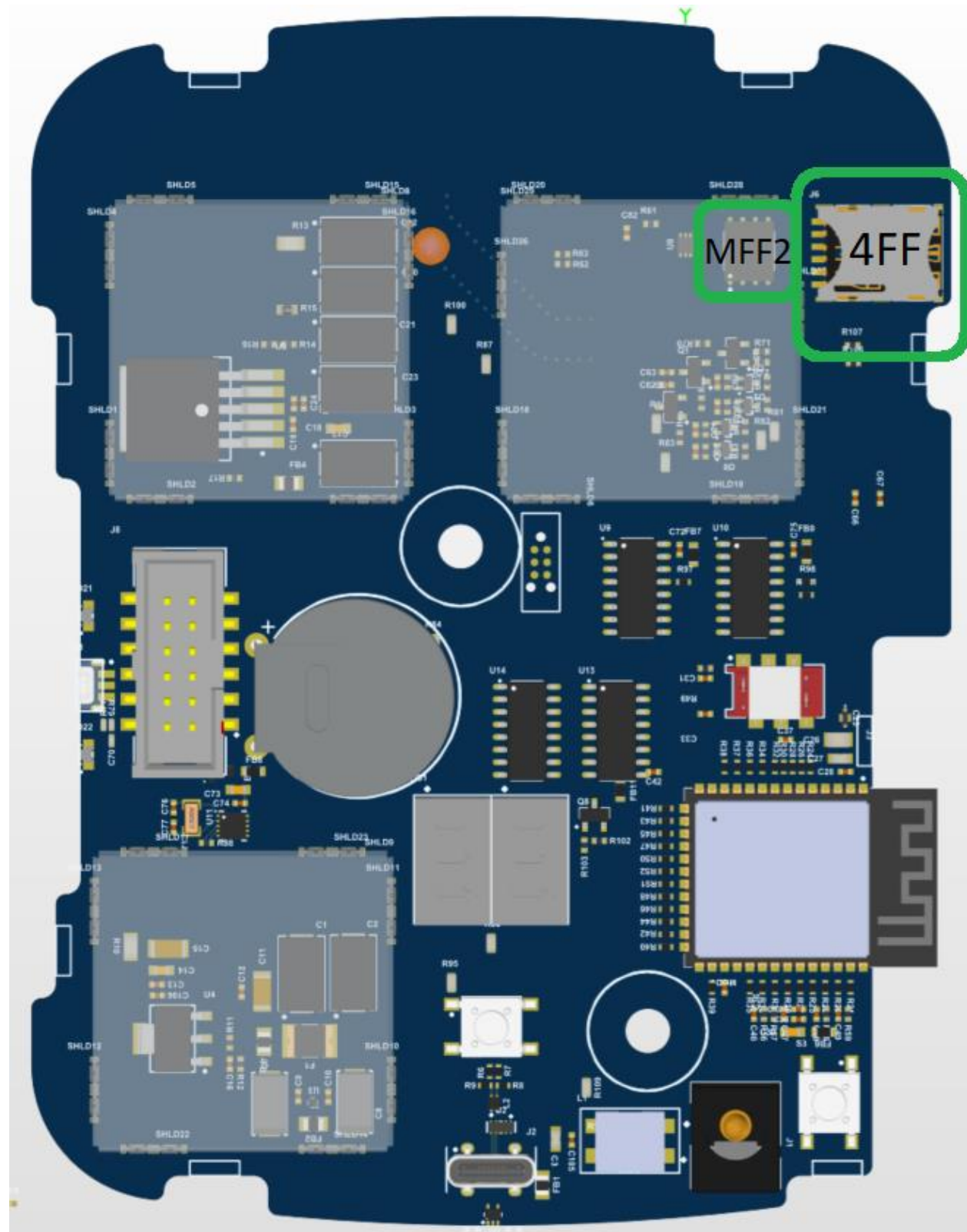


- 1 Plastic 4FF SIM slot

- Ability to have MFF2 soldered instead of 4FF

- Closer to MP, 4FF or MFF2 can be selected/populated

# What is eSIM ?

- eSIM is a complex technology NOT just a MFF2 chip SIM

- eSIM technology provides Remote SIM Provisioning

- SIM has not changed, the way its loaded has changes

- Now you can download a "SIM" or profile" into a secure element (eUICC)



More info:
https://www.gsma.com/iot/embedded-sim/
https://ec.europa.eu/digital-single-market/en/ecall-time-saved-lives-saved
https://infocentre2.gsma.com/gp/og/STF/CRT/Pages/GSMA-RSP-Compliance-Products.aspx
http://simalliance.org/euicc/euicc-technical-releases/

# SIM Cards Today - Example



Setup Contract with Voda

Setup Contract with AT&T

m2m Platform

AT&T Control Center
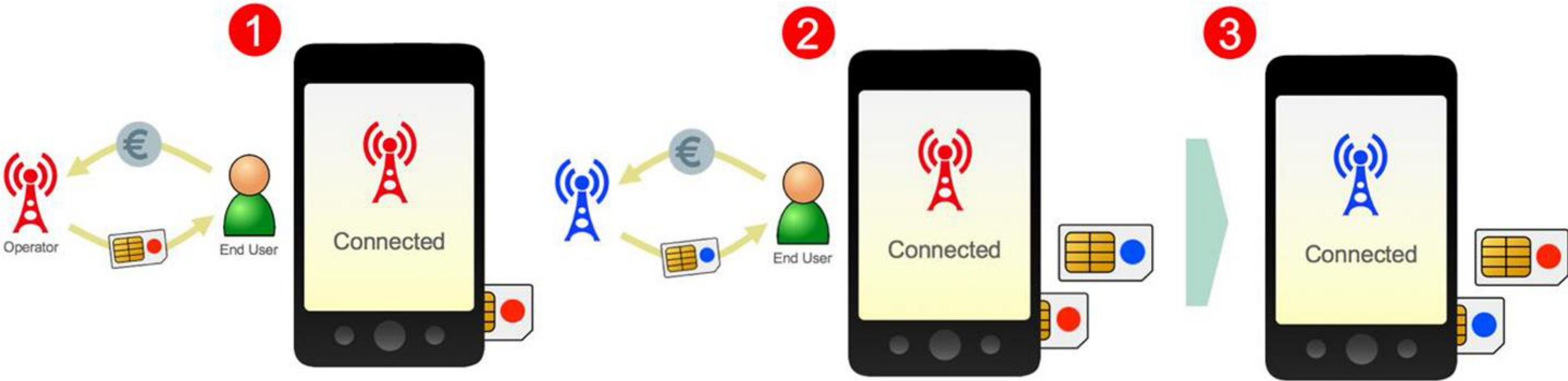
# eSIM Example Scenario – No Physical SIM swapping

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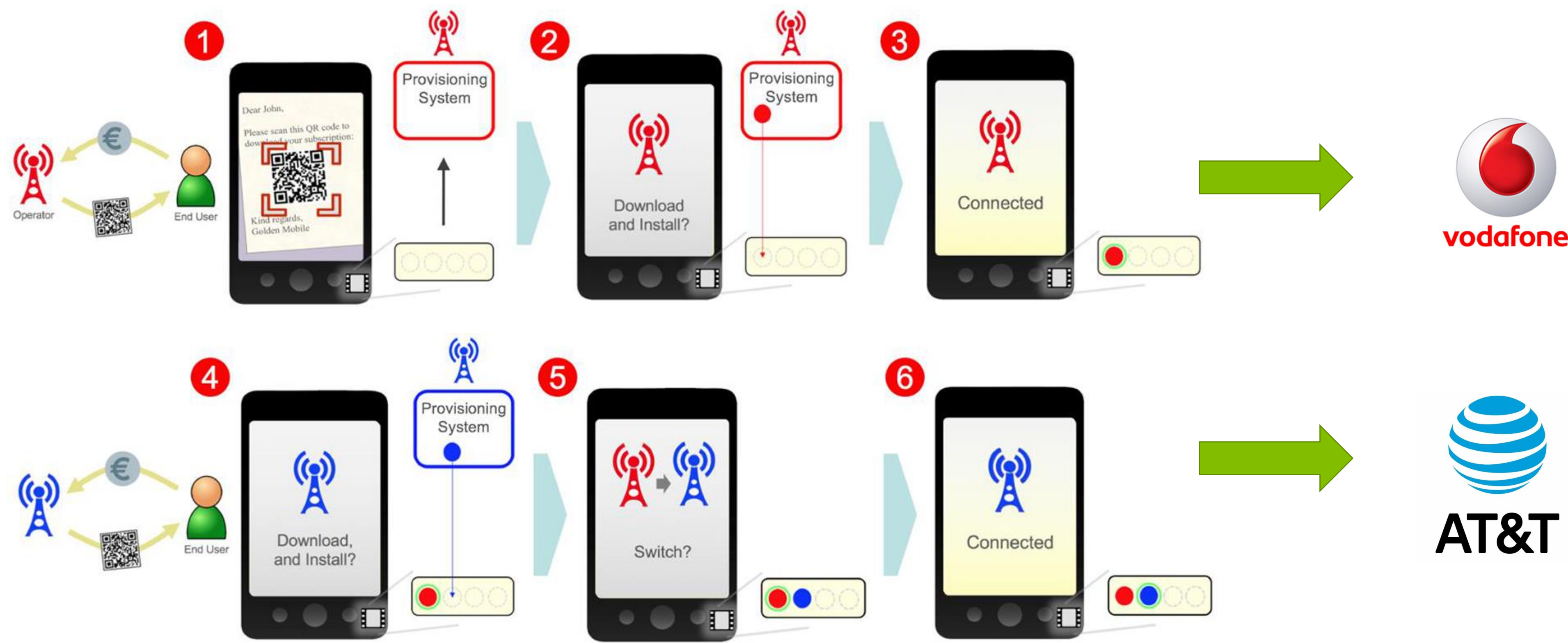
# Why eSIM was Needed



**SKU explosion**

Maintaining too many product variants increases production and logistic costs

Complex Manufacturing

**Complex installation**

Technicians need to test connectivity before deploying in the field

Complex and Lengthy Installation

**Business continuity**

Service providers need to ensure uninterrupted connectivity throughout the lifetime of the IoT device
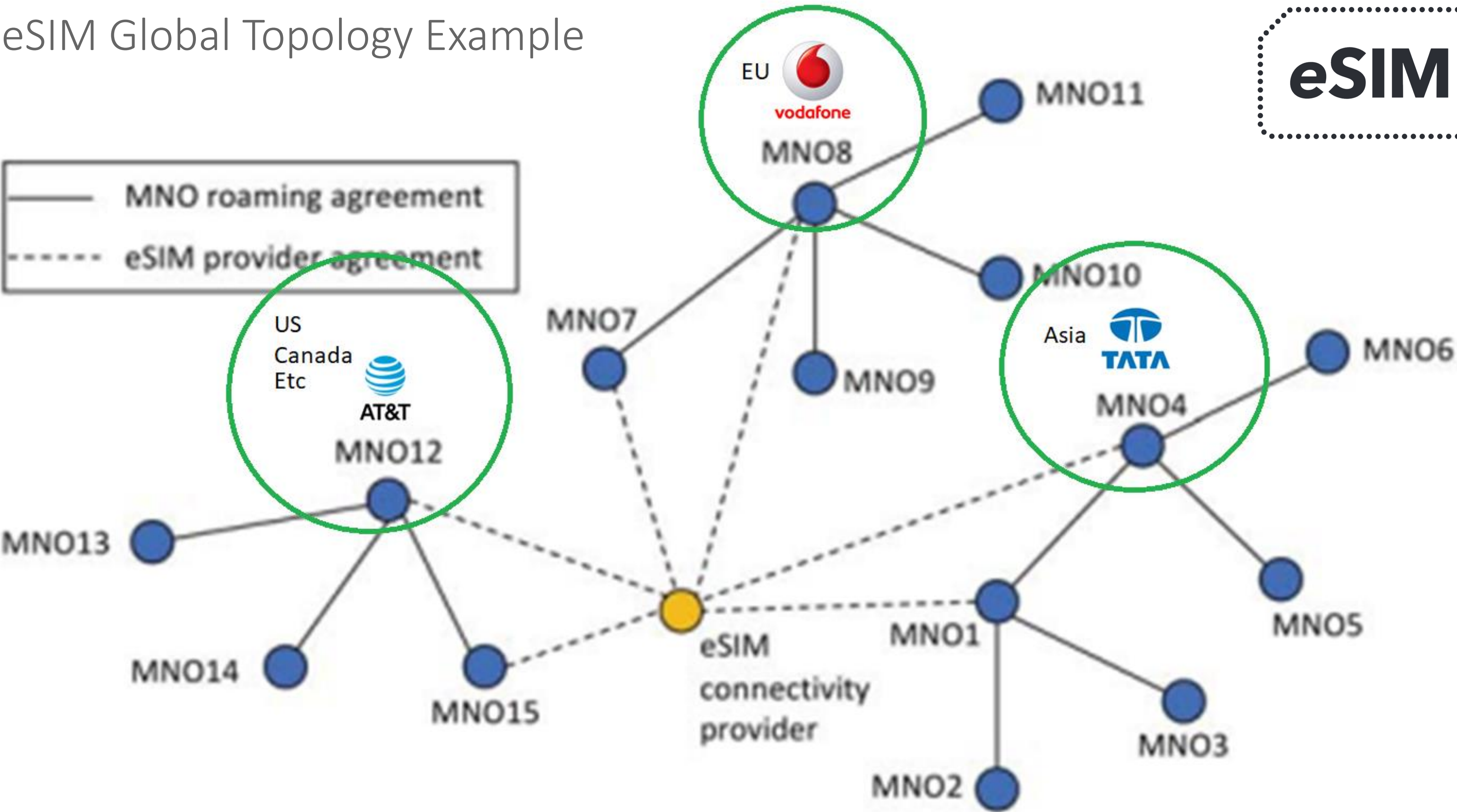
Unreliable Connectivity

**Long Term Insurance**

Service providers need to keep the control versus technology sunset and MNO contract termination
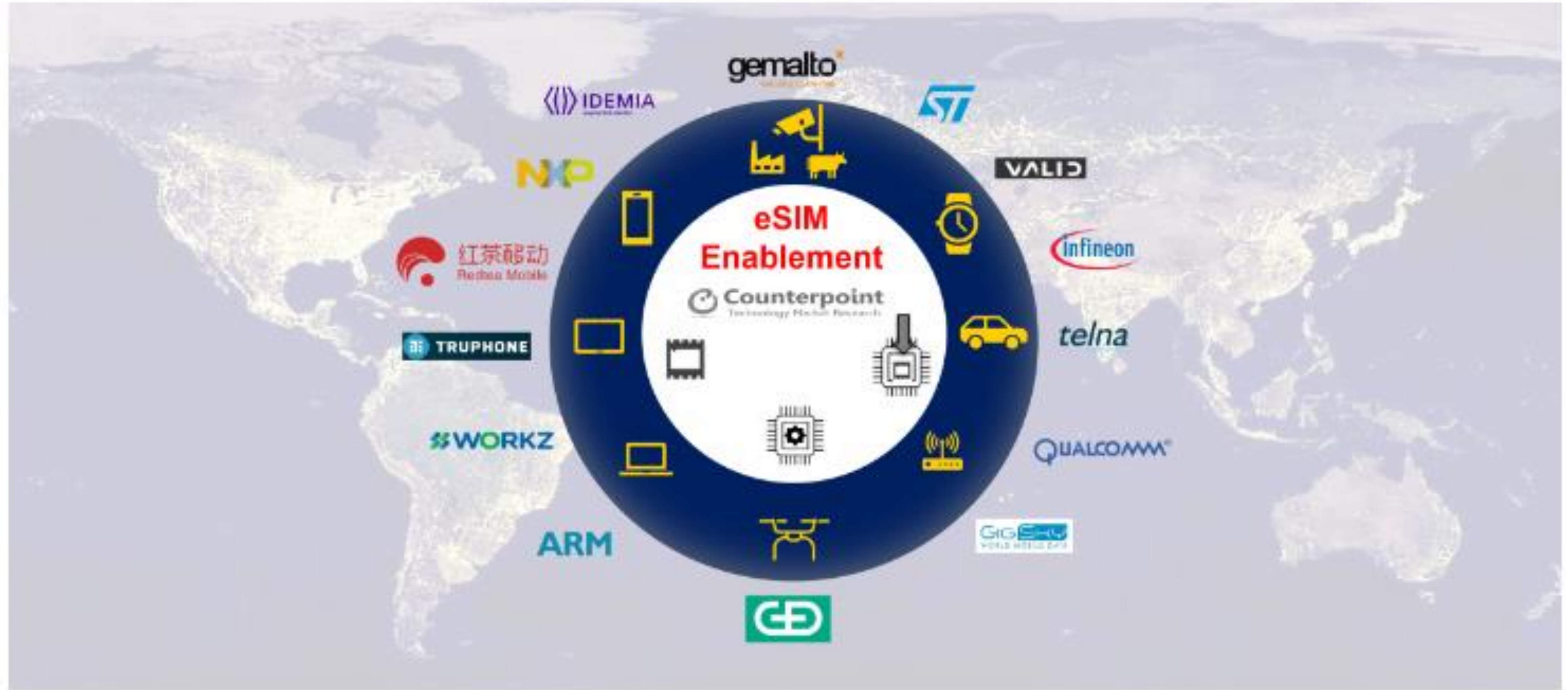
Unpredictability

Credit : https://www.thalesgroup.com/en/digital-identity-and-security-0

# eSIM Global Topology Example

# eSIM Solution Platform Providers

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

# Example Taoglas eSIM Platform and/or Connectivity Providers

https://www.thalesgroup.com/en/digital-identity-and-security-0

https://www.twilio.com/iot/super-sim-card

https://www.korewireless.com/

https://www.tealcom.io/

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www.taoglas.com