Today's agenda

- Introductions

- Market trends on IoT modules and eSIM growth

- eSIM Remote SIM Provisioning: towards IoT eSIM

- Securing in-factory: provisioning for manufacturers

- Reliable, global connectivity: what to know

- Discussion with your questions!

Meet the panel

Bee Hayes Thakore
VP Marketing - Kigen

Satyajit Sinha
Principal Analyst - IoT Analytics

Loic Bonvarlet
SVP Solutions & Marketing - Kigen

Jan Sulaiman
VP Global IoT Solutions - 1NCE

About IoT Analytics

IoT ANALYTICS

We help companies understand the market dynamics for IoT, AI, Cloud, Edge, and Industry 4.0

1 Reports
- Market reports
- End-user/adoption reports
- Databases / Sizing & Forecasts
- …

2 Dashboards & Trackers
- Global Enterprise Spending
- Connectivity & LPWA Market
- Module & Chipset Market
- …

3 Research Services
- Bespoke Research
- Go-to-market strategies
- Consulting
- …

★★★★⯪

ⓘ AVERAGE CUSTOMER SATISFACTION SCORE: 4.4/5
ⓘ CUSTOMERS THAT WOULD RECOMMEND US: 100%

Customer Satisfaction Survey 2020

What customers say about us

General feedback and references

Selected customers

Quotes

"We engaged IoT Analytics to perform digital ecosystem and competitive intelligence gathering and were very pleased with their depth of understanding of the Industrial Internet of Things. Their team worked with us in a highly collaborative manner and delivered a series of reports that were greatly appreciated by the digital leadership team and other key stakeholders in Marketing & Sales. I'd recommend this boutique firm without reservation."

Kathleen Conroy, Group Vice President at ABB

What I enjoy most is that IoT Analytics often conducts in-depth analysis of IoT from both technical and industry dimensions, especially in certain perspectives where some of the analytical angels are precise and profound. I think IoT Analytics' analysts have a very deep industrial understanding, which leads all of us to rethink.

Zhen Guan, Senior Partner Technology Strategist, Microsoft

"I find it really impressive how the IoT Analytics team have built up a broad and proprietary knowledge base around the Internet of Things and Industrie 4.0 ecosystems."

Markus Lorenz, Partner and Managing Director at The Boston Consulting Group

"My experience working with the team of experts at IoT Analytics has been enjoyable and enlightening. The work was delivered on time, on budget, and beyond our expectations."

Jake White, VP Marketing at MyDevices IoT platform
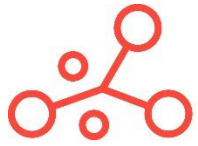
IoT ANALYTICS

Global IoT eSIM Modules and iSIM Chipsets Market Tracker

A purpose-built tool to slice and dice market data for IoT eSIM, iSIM, uSIM modules and chipsets.

REQUEST A FREE DEMO   **TRY THE TOOL NOW**

Global Cellular IoT Connectivity Tracker & Forecast (2024 Update)

A purpose-built tool to slice and dice market data for cellular IoT connectivity

BUY NOW   **TRY THE TOOL NOW**

Satyajit Sinha
Principal Analyst
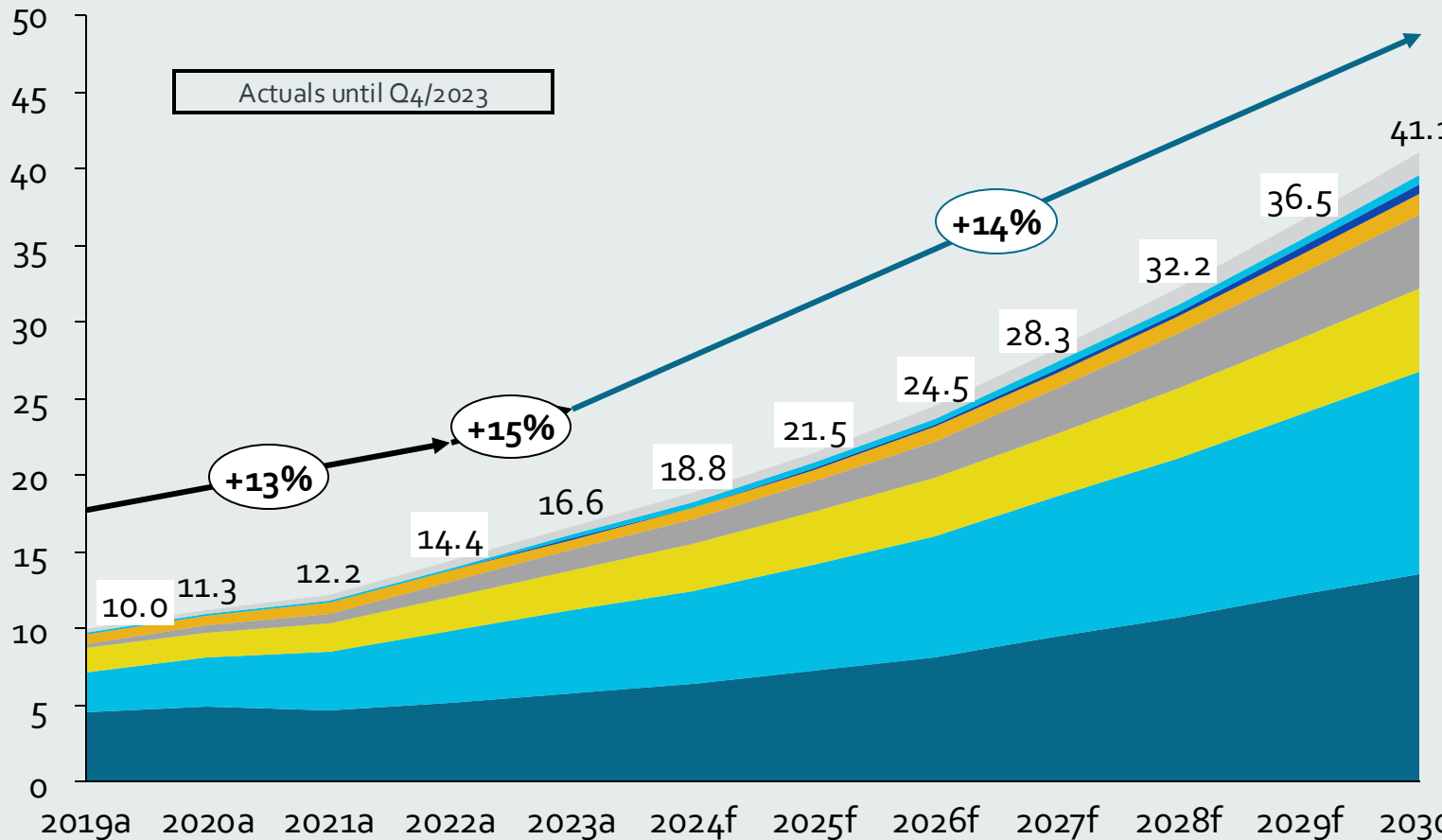*"IoT Component, Connectivity & Security"*

✉ Satyajit.Sinha@iot-analytics.com

Hamburg, Germany | Website | Linkedin

Kigen

Global IoT market forecast: The world is getting ever more connected

Cellular IoT Connections reached 3.5 Billion, 21% of IoT Connection in 2023.

September 2024

Your Global IoT Market Research Partner

Number of global active IoT connections (installed base) in billions

Actuals until Q4/2023

+14%

+15%

+13%

41.1
36.5
32.2
28.3
24.5
21.5
18.8
16.6
14.4
12.2
11.3
10.0

2019a 2020a 2021a 2022a 2023a 2024f 2025f 2026f 2027f 2028f 2029f 2030f

Connectivity type	CAGR 21–23	CAGR 23–30
Other	21%	17%
Wireless neighborhood area networks (WNAN)	15%	14%
Cellular 5G IoT	147%	62%
Wired IoT	4%	9%
LPWA	35%	21%
Cellular IoT (excl. 5G, LPWA)	21%	11%
Wireless local area networks (WLAN)	18%	14%
Wireless personal area networks (WPAN)	12%	13%

XX% = CAGR

Note: IoT connections do not include any computers, laptops, fixed phones, cellphones, or consumers tablets. Counted are active nodes/devices or gateways that concentrate the end-sensors, not every sensor/actuator. Simple one-directional communications technology not considered (e.g., RFID, NFC). Wired includes ethernet and fieldbuses (e.g., connected industrial PLCs or I/O modules); Cellular includes 2G, 3G, 4G, 5G; LPWA includes unlicensed and licensed low-power networks; WPAN includes Bluetooth, Zigbee, Z-Wave or similar; WLAN includes Wi-Fi and related protocols; WNAN includes non-short-range mesh, such as Wi-SUN; Other includes satellite and unclassified proprietary networks with any range.
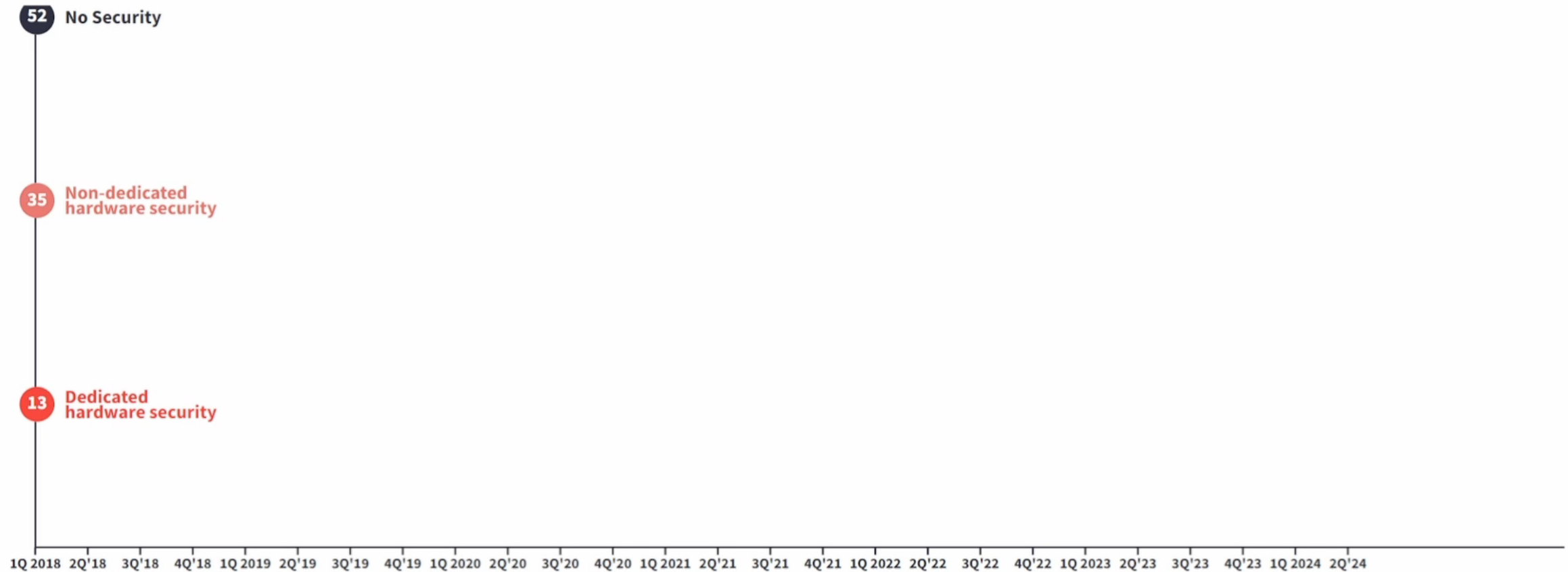**Source**: IoT Analytics Research 2024-State of IoT Summer 2024. We welcome resharing: Please attribute this image to its original source and include a link back to the original article.

Cellular IoT modules 2018-2024: The rise of hardware security

Cellular IoT module market share by security type (based on shipments in %)

52 No Security

35 Non-dedicated hardware security

13 Dedicated hardware security

1Q 2018 2Q'18 3Q'18 4Q'18 1Q 2019 2Q'19 3Q'19 4Q'19 1Q 2020 2Q'20 3Q'20 4Q'20 1Q 2021 2Q'21 3Q'21 4Q'21 1Q 2022 2Q'22 3Q'22 4Q'22 1Q 2023 2Q'23 3Q'23 4Q'23 1Q 2024 2Q'24
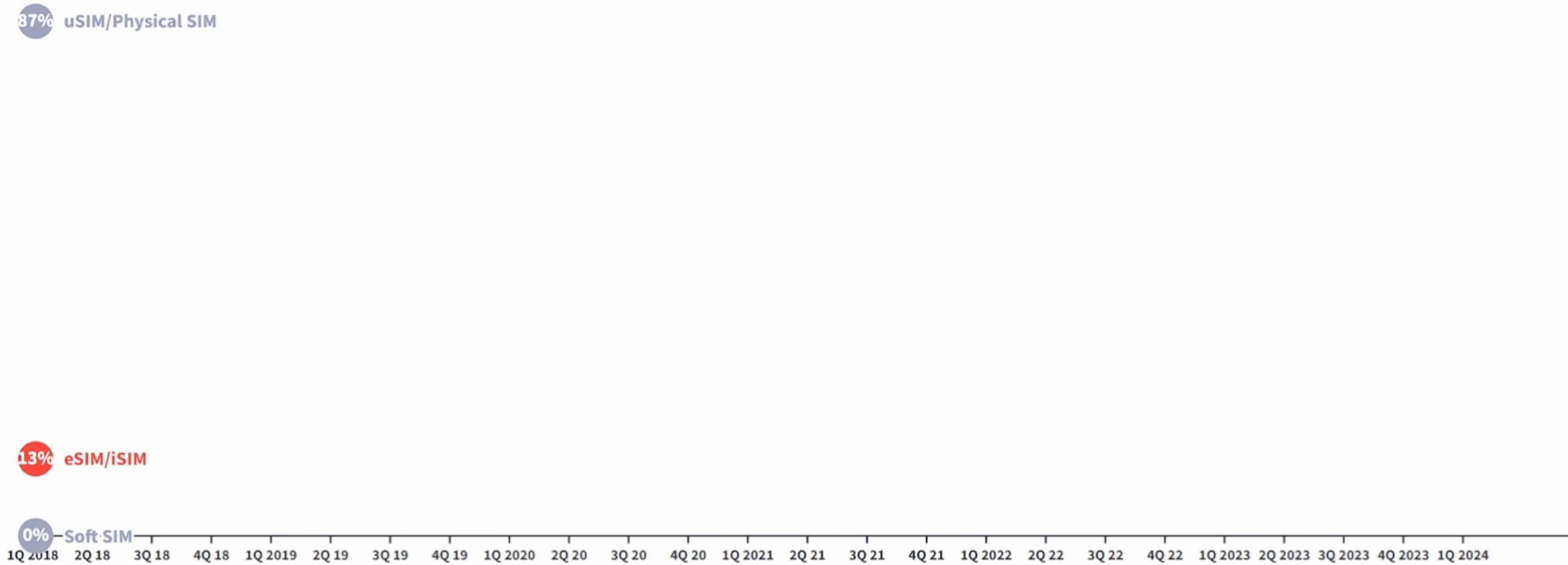
Kigen: Driving (integrated) eSIM to be the cornerstone of IoT
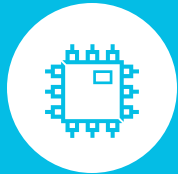
High Flyer: eSIM Subscription Management

Global eSIM enablement leader

INTEGRATED eUICC
Solutions for the semiconductor and device ecosystems.

OEM FOCUSED
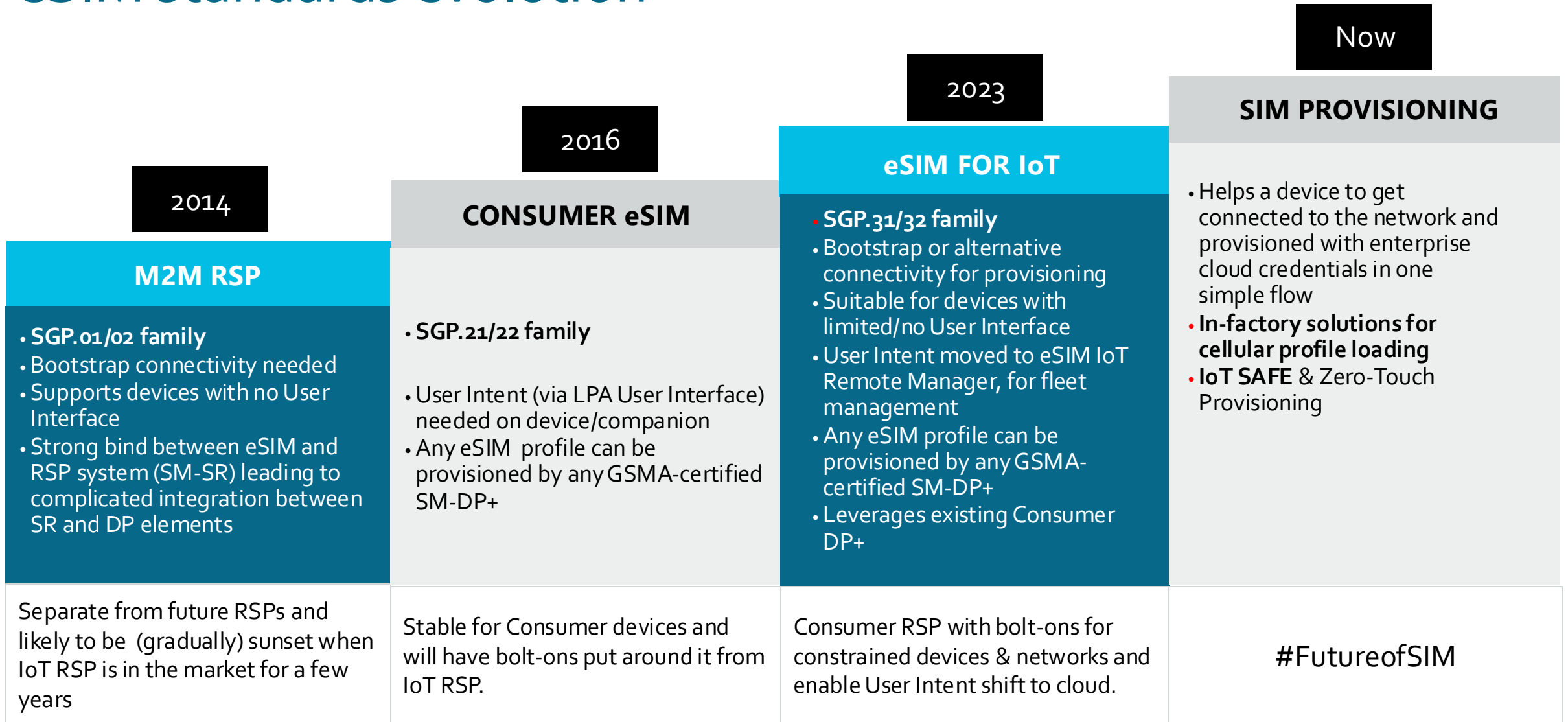In-factory connectivity enablement.

eSIM SOLUTIONS
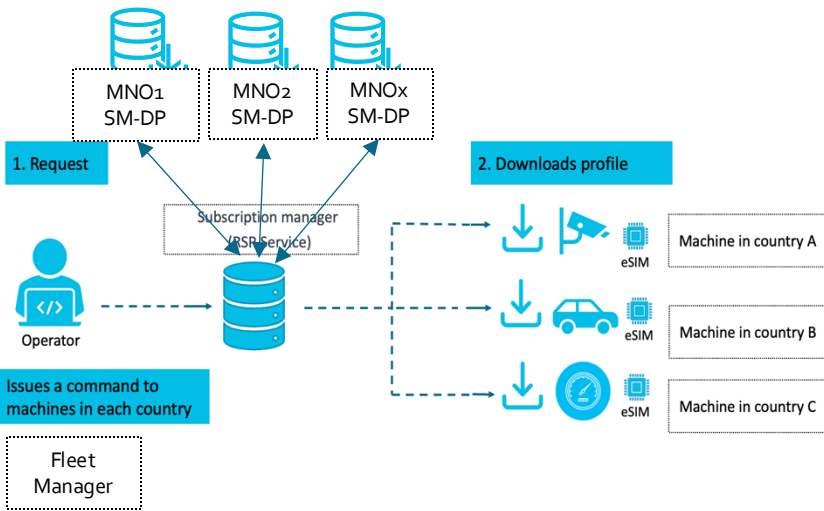In-Field Connectivity Management.

IoT SAFE
Securing Data and Transactions with Zero Touch Provisioning.

eSIM standards evolution

2014

M2M RSP

- **SGP.01/02 family**
- Bootstrap connectivity needed
- Supports devices with no User Interface
- Strong bind between eSIM and RSP system (SM-SR) leading to complicated integration between SR and DP elements

Separate from future RSPs and likely to be (gradually) sunset when IoT RSP is in the market for a few years

2016

CONSUMER eSIM

- **SGP.21/22 family**

- User Intent (via LPA User Interface) needed on device/companion
- Any eSIM profile can be provisioned by any GSMA-certified SM-DP+

Stable for Consumer devices and will have bolt-ons put around it from IoT RSP.

2023

eSIM FOR IoT

- **SGP.31/32 family**
- Bootstrap or alternative connectivity for provisioning
- Suitable for devices with limited/no User Interface
- User Intent moved to eSIM IoT Remote Manager, for fleet management
- Any eSIM profile can be provisioned by any GSMA-certified SM-DP+
- Leverages existing Consumer DP+

Consumer RSP with bolt-ons for constrained devices & networks and enable User Intent shift to cloud.

Now

SIM PROVISIONING

- Helps a device to get connected to the network and provisioned with enterprise cloud credentials in one simple flow
- **In-factory solutions for cellular profile loading**
- **IoT SAFE** & Zero-Touch Provisioning

#FutureofSIM

Kigen

eSIM and SGP.32: GSMA standards

M2M eSIM - SGP.02

1. Request

2. Downloads profile

Subscription manager (RSP Service)

Operator

Issues a command to machines in each country

Fleet Manager

Machine in country A — eSIM
Machine in country B — eSIM
Machine in country C — eSIM
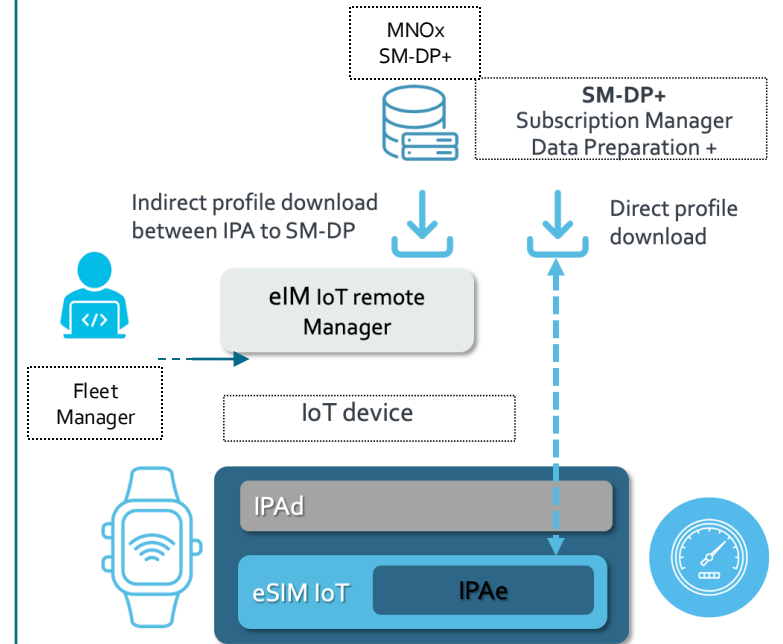
Complex integrations for profile, not suitable for constrained devices on LPWAN networks (CAT-M, NB-IoT)

Consumer eSIM -SGP.22

RSP and SM-DP+

2 – Allocate SIM profile

1 – Select carrier / plan & subscribe

4 – Device request profile download

Carrier / Operator A Tariff plan Y

Carrier / Operator C Tariff plan Z

Internet connection

Consumer

3 – Trigger download from device

5 – Profile downloaded & installed
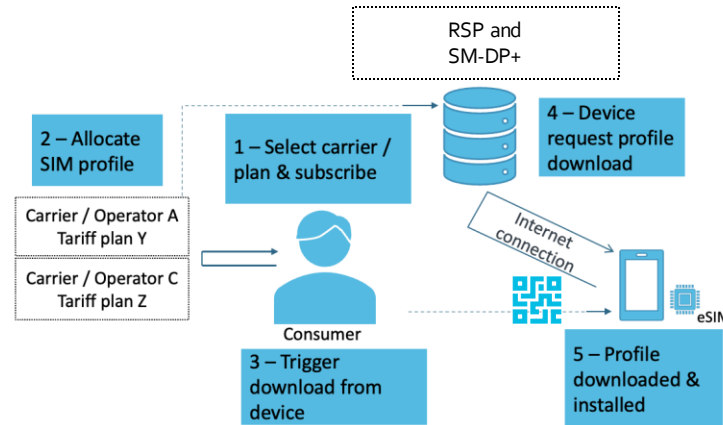
Not suitable for IoT. Requires screen or camera type capabilities on devices, and triggered by user intervention

(New) IoT eSIM - SGP.32

MNOx SM-DP+

SM-DP+ Subscription Manager Data Preparation +

Indirect profile download between IPA to SM-DP

Direct profile download

eIM IoT remote Manager

Fleet Manager

IoT device

IPAd

eSIM IoT   IPAe

Brings simplicity of Consumer eSIM without complex integration requirements of M2M eSIM and suitable for managed RSP in field

Kigen

Kigen: investing in security

- Kigen has a fully autonomous data center in Dublin, Ireland
- GSMA SAS-UP (profile generation) and SAS-SM (RSP profile download)

Left certificate:

GSMA Security Accreditation Scheme — Accredited Supplier

Certificate No: KN-BT-UP-0924

Certificate

This is to certify that

Kigen (UK) Limited, Belfast, United Kingdom

has participated in the GSM Association Security Accreditation Scheme for UICC Production (SAS-UP) and satisfied the scheme's requirements.

This certificate remains valid until the end of September 2024*.

Alex Sinclair
Chief Technology Officer
GSMA

* Dependent on continued supporting site certification (currently valid to end September 2024)

Right certificate:

GSMA Security Accreditation Scheme — Accredited Supplier

Certificate No: KN-DN-SM-0625

Certificate

This is to certify that

Kigen (UK) Limited, Dublin, Republic of Ireland

has participated in the GSM Association Security Accreditation Scheme for Subscription Management (SAS-SM) and satisfied the scheme's certification requirements.

This certificate remains valid until the end of June 2025.

Alex Sinclair
Chief Technology Officer
GSMA

* Dependent on continued supporting site certification (currently valid to end June 2025)

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Kigen Generates Connectivity Profiles for each MNO

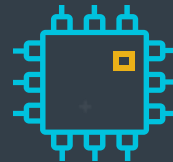**Profiles**

Triple cut or 2FF/3FF/4FF
Power saving features
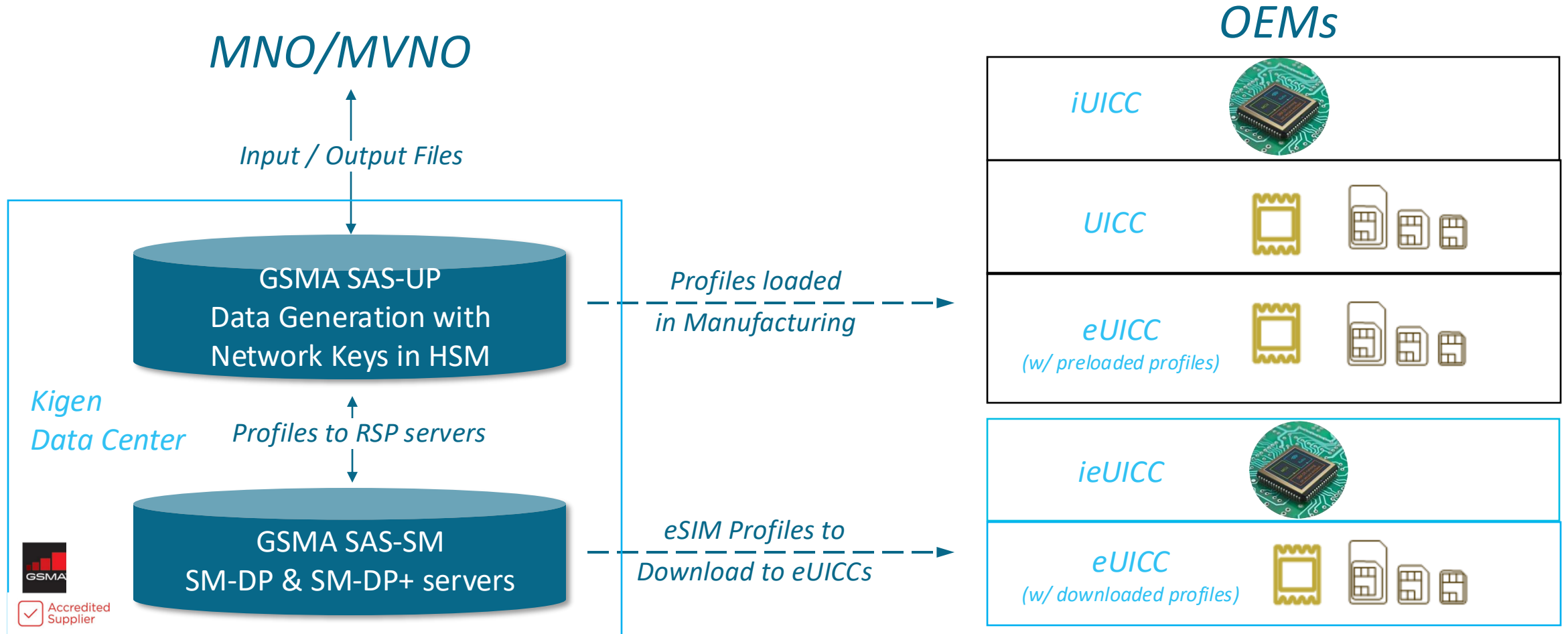
Embedded MFF2 or USON-8-6 (2x2 mm)
Power saving features

Integrated in SSI Alt1250/1255/1350 or
Sequans Monarch2/Calliope 2

Secure digital Profiles   Preloaded or RSP operational profiles

Kigen

Kigen Data Center Securely Generates Encrypted Packages

Fabless with all GSMA SAS processes

MNO/MVNO

OEMs

Input / Output Files

**Kigen
Data Center**

GSMA SAS-UP
Data Generation with
Network Keys in HSM

Profiles to RSP servers

GSMA SAS-SM
SM-DP & SM-DP+ servers

Profiles loaded
in Manufacturing

eSIM Profiles to
Download to eUICCs

iUICC

UICC

eUICC
(w/ preloaded profiles)

ieUICC

eUICC
(w/ downloaded profiles)

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Kigen

1NCE

IoT software and connectivity for life

1NCE has created a **platform**
to build and manage connected products.

The **platform** provides software tools and
global connectivity.

The platform is designed to enable customers to
manage the data flow from device to cloud across the
entire lifetime of the connected product.

Establishing a new standard for IoT

Fast

20,000+ customers won
in **6 years**

400+ team
across Europe,
Asia and US

22+ million
managed endpoints

+300% year on year growth

Fastest growing IoT Service Provider*

"1NCE launched its flat rate life-time connectivity offering for connected devices in 2018 and has achieved unparalleled growth in the past two years."

Johan Fagerberg, CEO, Berg Insight

Strong

- Global access under a strong
  a family of local network operators

  – Europe **T** Deutsche Telekom AG

  – USA **T** T-Mobile US

  – Asia SoftBank

  – China 中国电信 CHINA TELECOM

  – Further partners tba

Everywhere

Can be used for nearly all IoT applications

Smart Agriculture Waste Management Industrial Automation Fleet Telematics

Smart City Tracking AR / VR Smart Buildings

Infrastructure monitoring Smart Metering Remote Monitoring Tracking Devices
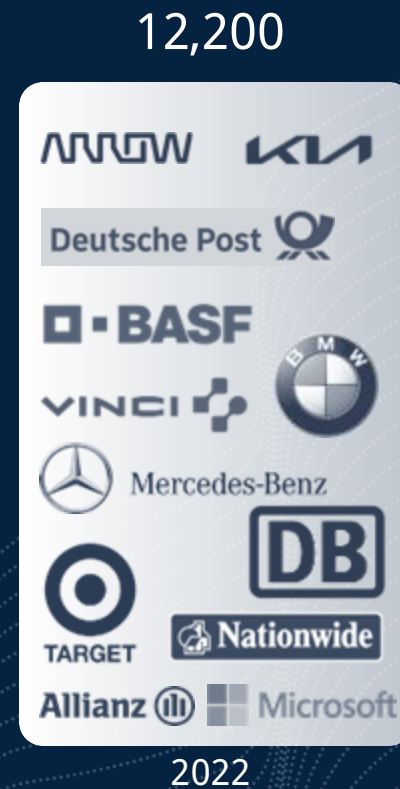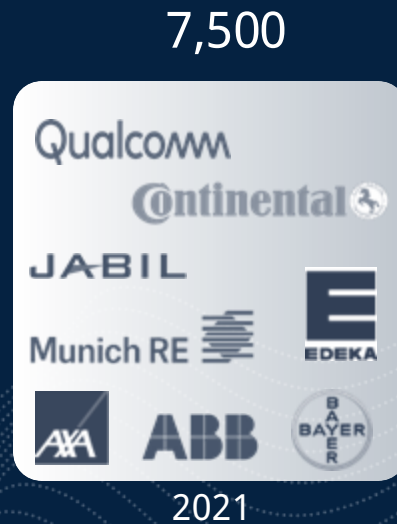
"1NCE has proven to deliver IoT Connectivity that meets our high expectations in terms of flexibility, reliability and worldwide coverage."

Alberto Falcione, Vice President Sales, Targa Telematics

* Source: Berg Insight

Serving 12% of Global Fortune 500 companies

Customer base
(# of customer cumulative in k)

2,600
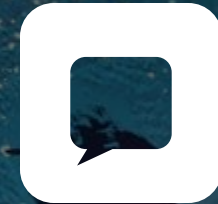2019

4,400
2020

7,500
2021

12,200
2022

18,000
2023

Over to you for questions

@Kigen

@Kigen_Ltd

Use the chat panel for questions

https://kigen.com/contact/