



We are the link
between the real and
the digital world.

OPTIGA™ Connect IoT

Turnkey eSIM for cellular-connected IoT devices

Infineon's virtual show 2020

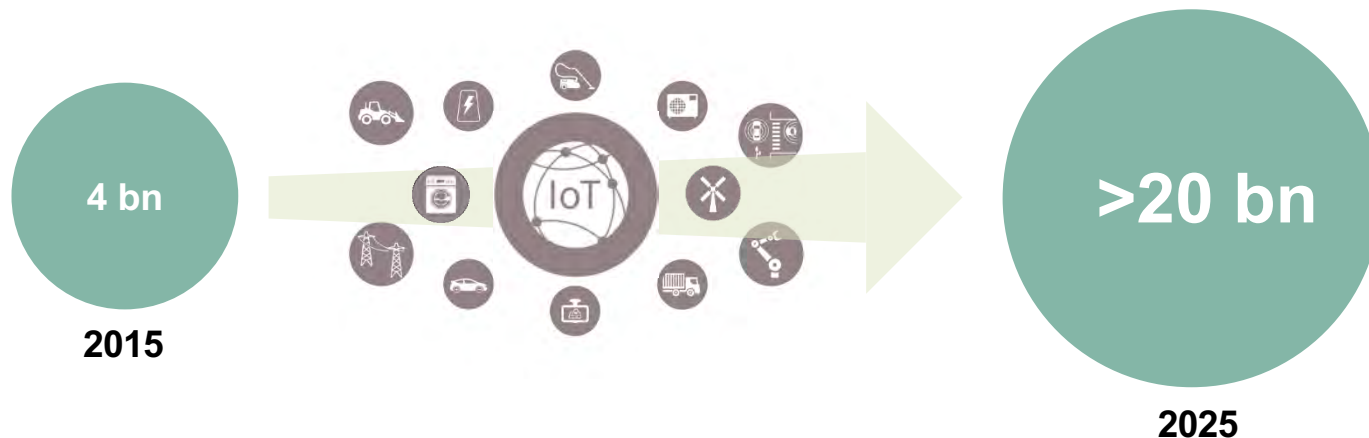


An aerial night photograph of a city skyline. The central focus is a tall skyscraper with a distinctive golden dome and a clock face. The city is illuminated with various lights, and the streets show light trails from traffic. A green triangular graphic element is in the top right corner, containing the title text.

Cellular IoT – Market trends & opportunities

IoT a world of new opportunities for eSIM

- › More and more devices of many different types are being connected (via LAN, LPWAN or Cellular) all around the world.



- › Specifically for Cellular IoT, all these new use cases (devices & applications) motivate the re-definition of SIM management process (Remote SIM Provisioning).

Source: IoT analytics

Cellular connectivity allows to easily deploy and manage devices at scale worldwide



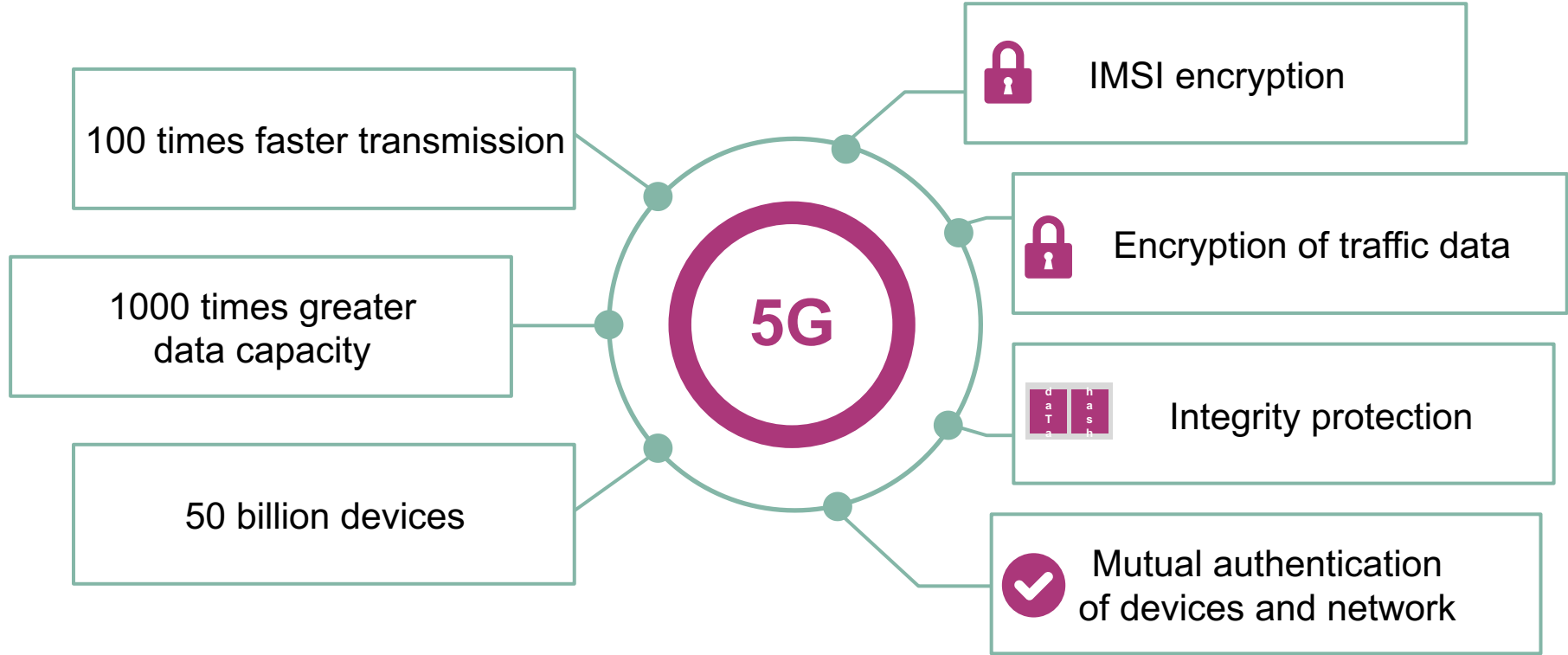
70%

of wide-area IoT devices will use cellular technology in 2022.

(Source: Ericsson)



5G boosts cellular connectivity and is a huge step forward in terms of security



eSIM to replace traditional SIM solutions in the long run

- ✓ Evolution of the physical subscriber identity module (SIM) cards
- ✓ Fixed module integrated into the device allows full design flexibility
- ✓ Over-the-air SIM provisioning and MNO swapping
- ✓ More flexibility in choice of operator for consumers
- ✓ Facilitating supply chain management of IoT devices

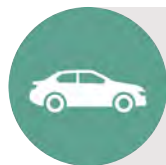
1.29 x 1.27 mm

eSIM



eSIM provides new opportunities for IoT applications

M2M / IoT



Safety & Autonomy



Energy Management



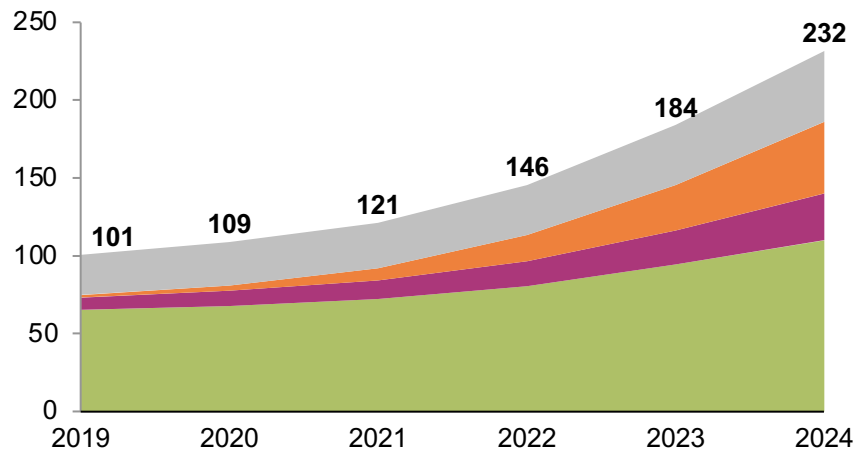
Track & Trace



Others

M2M / IoT eSIM Enabled Device Shipments

[Millions units]



Automotive



Energy Management



Asset Tracking/
Track and Trace



Others



Source: ABI Research, <https://go.abiresearch.com/lp-the-true-value-proposition-of-the-esim>; ABI Research, eSIM in the Consumer and M2M Markets Q1-2020

Cellular IoT applications & challenges



Cellular IoT offers clear advantages for M2M connectivity

But it also requires some tough choices

While cellular IoT offers clear advantages as the connectivity enabler for M2M, including cost effective, pervasive and secured connectivity, it also requires choices to be made which will impact the way a device is connected over a lifetime that could be measured in decades...

Difficulty Selecting Connectivity Provider

At the point of device or module manufacture, it is not known yet where or how the device will be deployed or used

Flexibility of change

Once deployed in different countries, changing connectivity provider becomes a logistical and operational challenge

Compliance with Global Telecom Policies

It becomes a significant undertaking to comply with regional or national regulatory frameworks at the point of manufacture

Consistent user experience

Becomes challenging in an environment where multiple service providers may provide connectivity for services that cross borders

Every IoT solution has its own specific needs



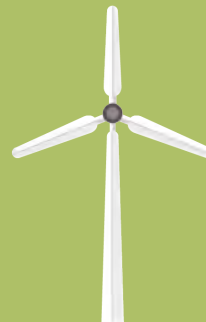
Mobile/ Wearables

Smallest size



Asset tracking

High interoperability



Remote Maintenance

Robustness



Remote Control

Reliability

eSIM, the next wave of growth

Enabling New Business Model



Enabling managed devices for large corporations with global data included

Accommodate the next generation of devices



Embedded SIM is expected to be the standard as IoT devices continue to shrink (in Size)

Simpler Management



Embedded SIM provides organizations with a simpler option of managing connectivity on devices

Implementation challenges of eSIM

Although eSIM is a standardized technology, a number of issues associated with deployment remain. Not least of which is convincing MNOs to implement solutions based on the specifications.

MNOs are unconvinced by the benefits offered for their own business

Let alone for enterprise customers operating across diverse vertical markets

Expertise in managing eSIM

MNOs may need to update their systems to enable them to handle a broad range of devices regardless of form factor

Rethink of MNO business models

For example in markets where MNOs subsidize devices locked to their network

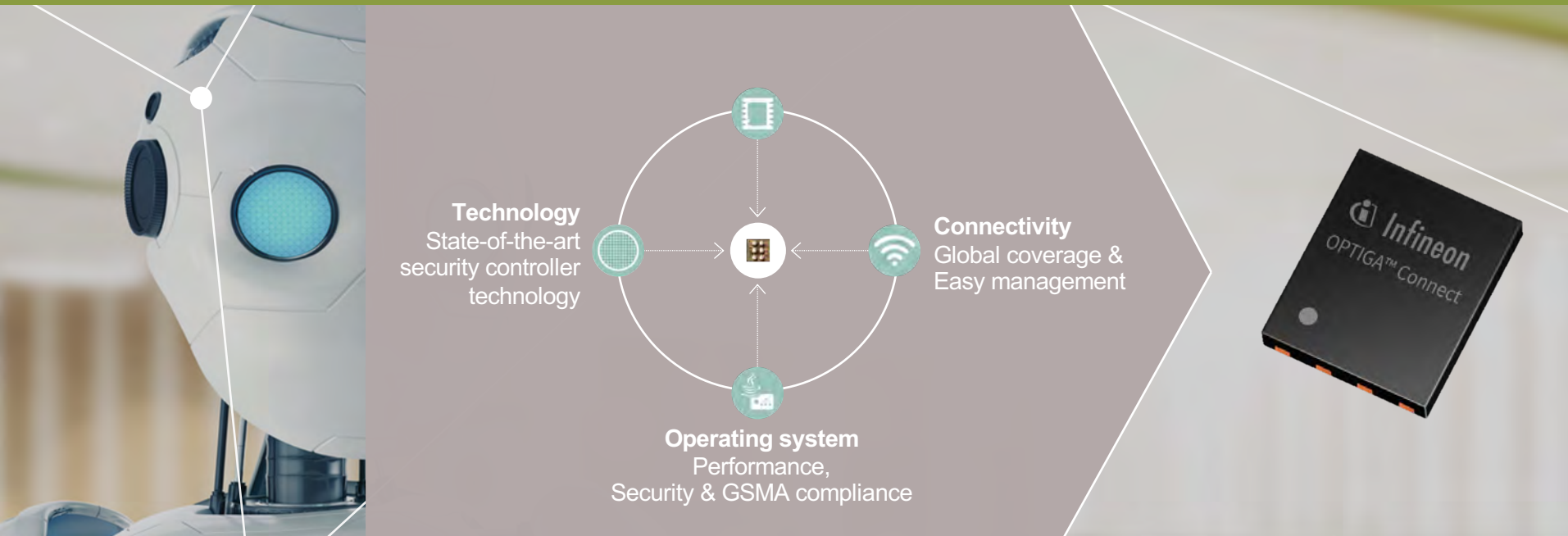
Manufacturing business model needs to change

As the industry moves away from a model where SIMs are produced for specific MNOs

Combining key components to provide a turnkey eSIM solution

Making eSIM accessible, affordable and scalable for cellular IoT

Effective combinations of hardware, software and connectivity will give companies the peace of mind that, once deployed, their hardware will connect securely and reliably, wherever it is in the world.



OPTIGA™ Connect
IoT easy to make
your project flying



OPTIGA™ Connect IoT for large-scale IoT deployments

An easy way to benefit from cellular IoT

Simplification and security of all process steps give customers the satisfaction that its main challenges have been considered before, during and after deployment of its IoT devices.



Easy to buy

OC2321 turnkey solution allows a simplification of the supply chain (reduced interfaces, contracts, cost)



Easy to design

OC2321 is delivered in MFF2 package industry standard to ensure easy design-in and possible multi-sourcing



Easy to deploy

OC2321 has a single SKU for all regions (230+ territories coverage). No specific set-up to implement per regions of deployment



Easy to connect

Infineon partners with Tata Communications which offers dedicated connectivity data plan acc. to customer, application and use case requirements



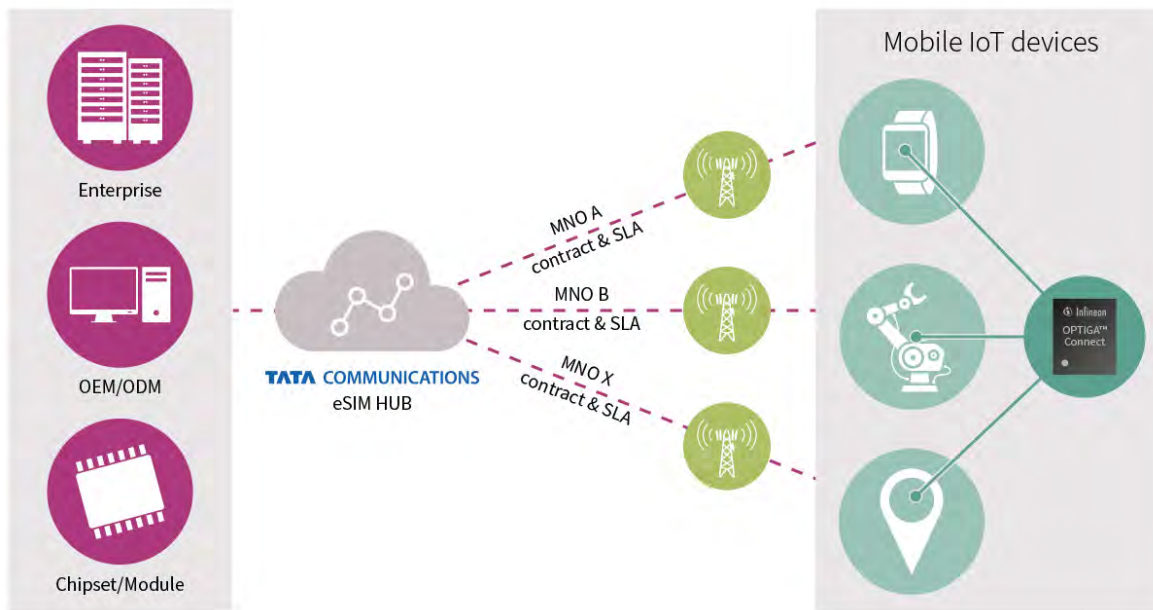
Easy to manage

Tata MOVE™ platform allows a centralized management of connectivity and other IoT services (e.g. cloud service)

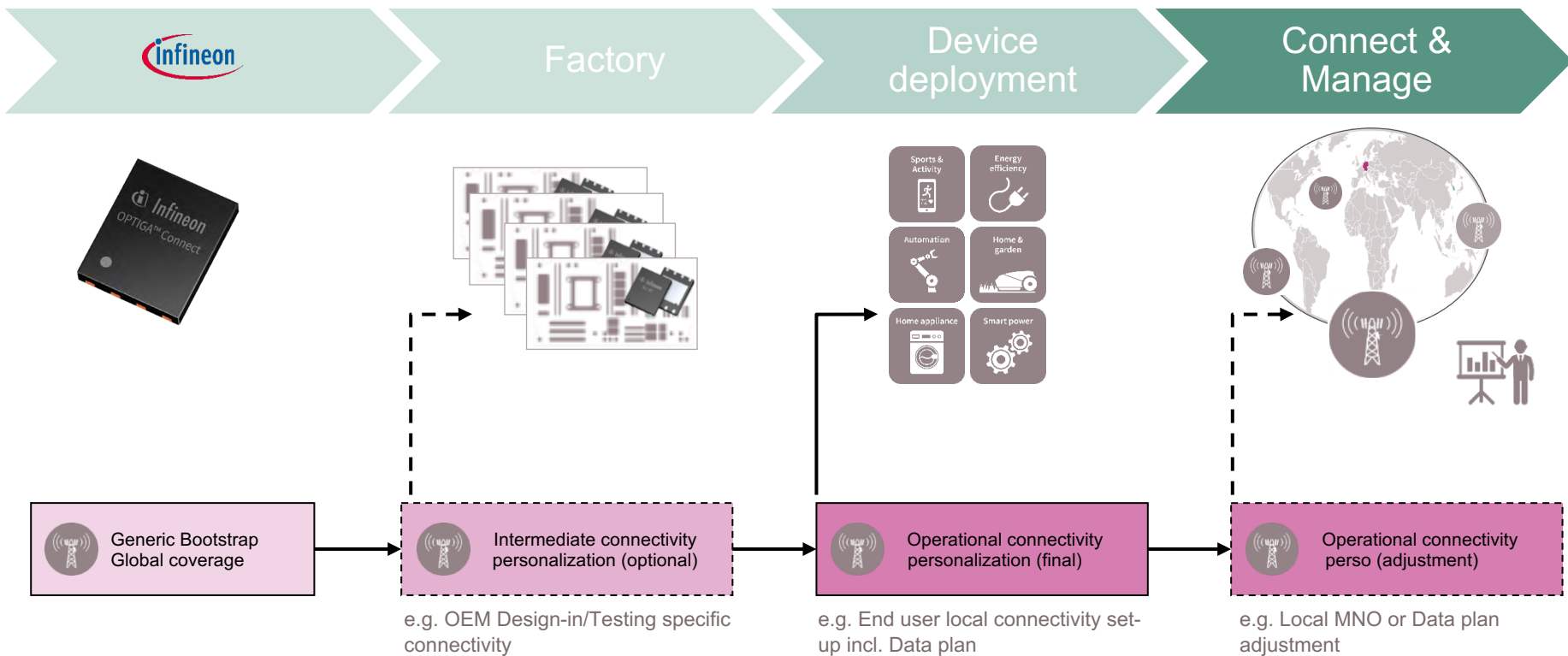
A different approach to deploy industrial IoT at scale

Bringing eSIMs and Management Platforms together

Combine eSIM technology with a single contract, and single interface to manage connected services globally during the various stages of the hardware lifecycle.



OPTIGA™ Connect IoT life cycle and flexible connectivity choice




OPTIGA™ Connect IoT

Covers majority of use cases and territories



Tata MOVE™ Management Platform for full personalization

OPTIGA™ Connect IoT is unique solution which can fit all use cases. Customers can personalize the device (connectivity and attached IoT services through Tata MOVE™ platform).

An aerial view of a large cargo ship sailing on a blue ocean. The ship is loaded with numerous colorful shipping containers in shades of blue, red, and white. The ship's wake is visible in the water.

Adaptable SKU* per applications and use cases

Fully adaptable data plan at all
time (from design to deployment
phase)

Adaptable SKU per regions of deployment

Global coverage over 230+
territories through 600+
MNO (incl. satellite)

*) SKU: Stock Keeping Unit

OPTIGA™ Connect IoT

Standard access over 230+ territories



Americas

- › United States
- › Puerto Rico
- › Guadeloupe
- › Guyana
- › Venezuela
- › Argentina
- › Brazil
- › Canada
- › Chile
- › Colombia
- › Costa Rica
- › Dominican Republic
- › El Salvador
- › Guatemala
- › Honduras
- › Mexico
- › Nicaragua
- › Panama
- › Peru
- › Uruguay
- › Paraguay
- › Aruba
- › Netherlands Antilles
- › Suriname
- › Bolivia
- › Trinidad & Tobago
- › Ecuador
- › Jamaica
- › Anguilla
- › Antigua & Barbuda
- › Barbados
- › Bermuda
- › Cayman Islands
- › Dominica
- › Montserrat
- › St Kitts & Nevis
- › St Lucia
- › St Vincent & The Grenadines
- › Turks & Caicos islands
- › Virgin islands (British)
- › Belize
- › Cuba
- › Haiti
- › Bahamas

EMEA

- › Austria
- › Belgium
- › Bulgaria
- › Croatia
- › Cyprus
- › Czech Republic
- › Denmark
- › Estonia
- › Finland
- › France
- › Germany
- › Gibraltar
- › Greece
- › Hungary
- › Iceland
- › Ireland
- › Israel
- › Italy
- › Latvia
- › Liechtenstein
- › Lithuania
- › Luxembourg
- › Malta
- › Netherlands
- › Norway
- › Poland
- › Portugal
- › Romania
- › Russian Federation
- › Slovakia
- › Slovenia
- › Spain
- › Sweden
- › United Kingdom
- › Armenia
- › Faroe island
- › Man island
- › Moldova
- › Switzerland
- › Ukraine
- › Albania
- › Montenegro
- › Turkey
- › Greenland
- › Belarus
- › Macedonia
- › Serbia
- › Jersey island
- › Andorra
- › Bosnia & Herzegovina
- › Georgia
- › French Reunion
- › French Guyana
- › Senegal
- › Mozambique
- › Qatar
- › Democratic Republic of the Congo
- › Malawi
- › Nigeria
- › South Africa
- › Saudi Arabia
- › Niger
- › Togo
- › Benin
- › Botswana
- › Cameroun
- › Guinea
- › Guinea-Bissau
- › Iraq
- › Kenya
- › Kuwait
- › Liberia
- › Tunisia
- › Yemen
- › Bahrain
- › Egypt
- › Ghana
- › Ivory Coast
- › Rwanda
- › Uganda
- › Burkina Faso
- › Chad
- › Congo Republic
- › Gabon
- › Grenada
- › Jordanian
- › Madagascar
- › Morocco
- › Tanzania
- › Algeria
- › Angola
- › Burundi
- › Cape Verde
- › Gambia
- › Iran
- › Mali
- › Mauritius
- › Oman
- › Palestinian Territory
- › Sierra Leone
- › United Arab Emirates
- › Zimbabwe
- › Djibouti
- › Lebanon
- › Lesotho
- › Libya
- › Mauritania
- › Namibia
- › South Sudan
- › Sudan
- › Zambia

Asia-Pacific

- › Bangladesh
- › Cambodia
- › India
- › Japan
- › Macau
- › South Korea
- › Sri Lanka
- › Australia
- › Azerbaijan
- › China
- › Hong Kong
- › Malaysia
- › Singapore
- › Taiwan
- › Thailand
- › Indonesia
- › New Zealand
- › Pakistan
- › Brunei Darussalam
- › Afghanistan
- › Kyrgyzstan
- › Nepal
- › Papua New Guinea
- › Philippines
- › Vietnam
- › Kazakhstan
- › Mongolia
- › Myanmar
- › Seychelles
- › Laos
- › Tajikistan
- › Uzbekistan
- › Bhutan
- › Cook islands
- › Fiji
- › French Polynesia
- › Guam
- › Maldives
- › Timor-Leste


OPTIGA™ Connect IoT

Covers majority of use cases and territories



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Adaptable SKU* per applications and use cases

Fully adaptable data plan at all
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phase)

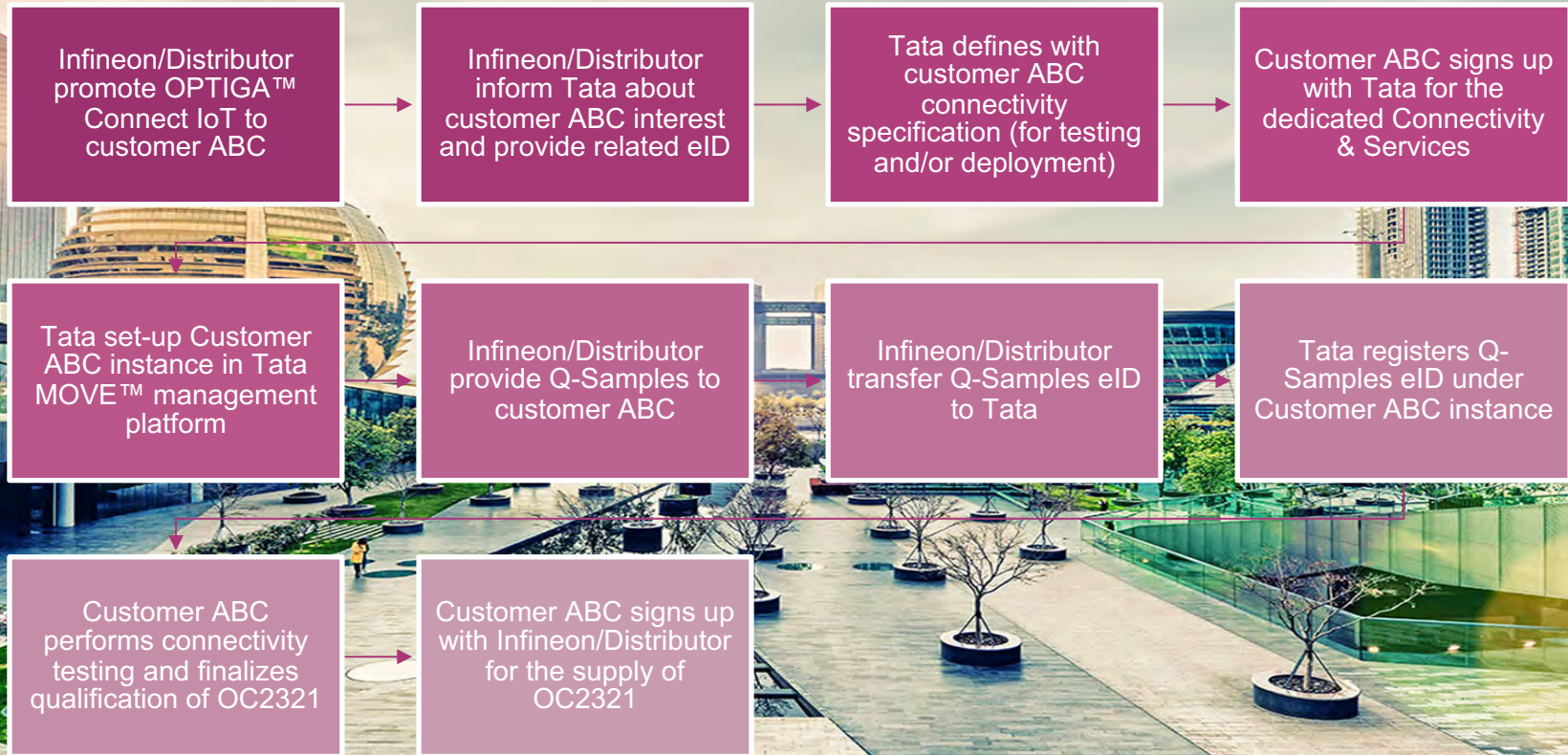
Adaptable SKU per regions of deployment

Global coverage over 230+
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Design-in and contractualization Overview

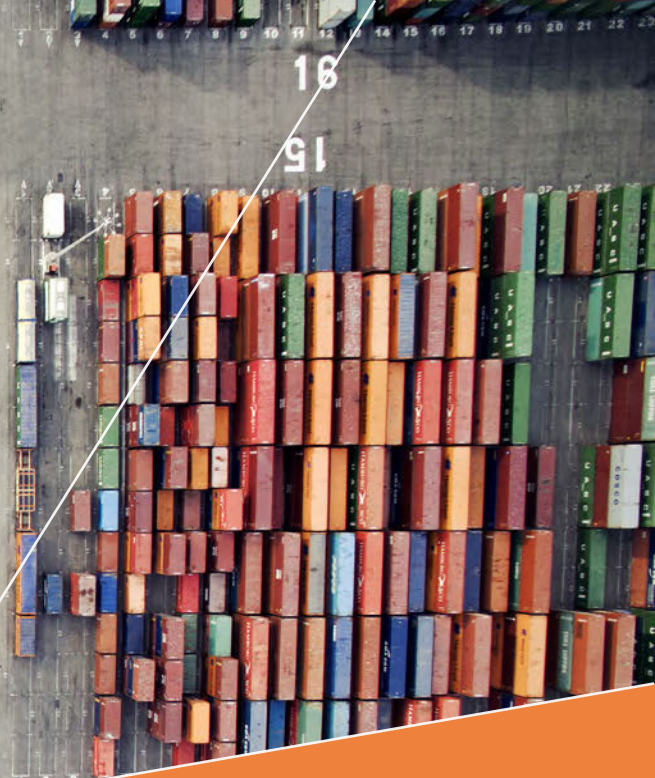
(Detailed flow description in Customer Journey)



Operational deployment and billing

(Detailed flow description in Customer Journey)





**Tata Communications
connectivity and IoT services**

Tata Communications

Key assets



1

Global network

- › 30% of all global Internet routes
- › 85m voice minutes daily



2

Technology

- › 10% of revenue invested back into technology
- › Connections with all major cloud providers



3

Last mile access

- › Agreements with 600+ mobile operators
- › 50% of all mobile roaming interconnections



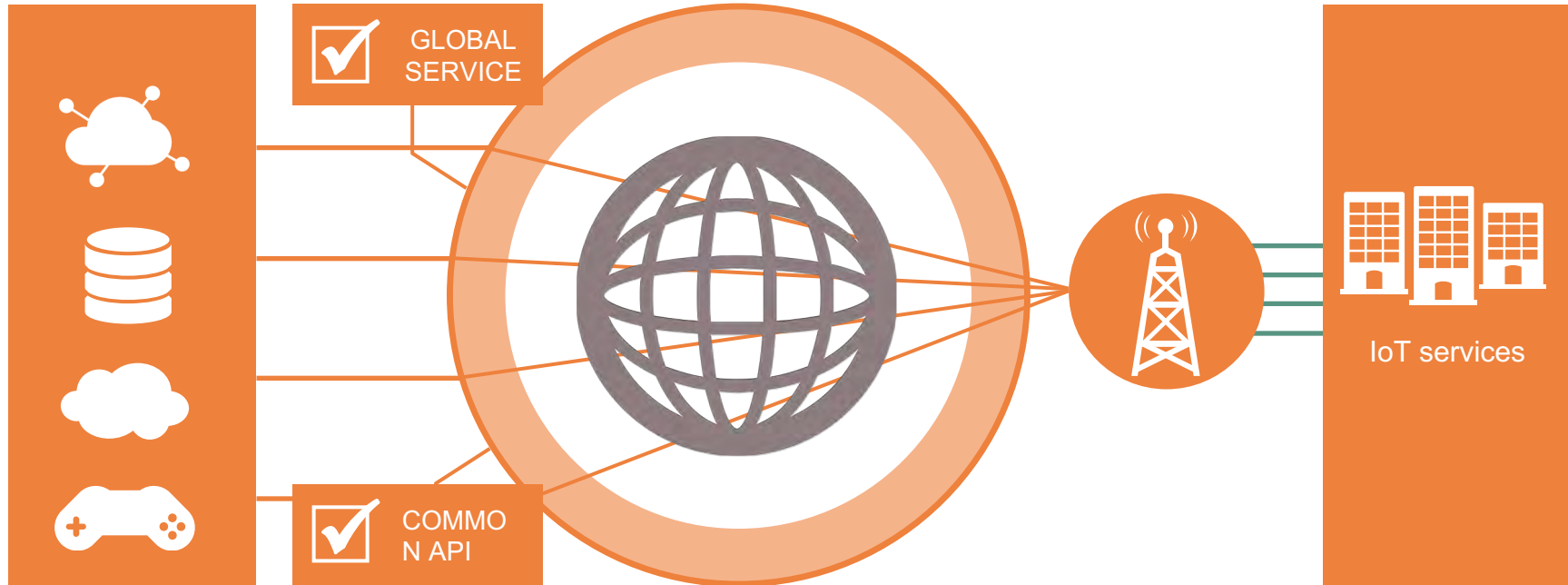
4

Security

- › Managed SoC facilities
- › 5bn financial transactions supported annually



Single relationship to manage globally deployed IoT services (including byod*)



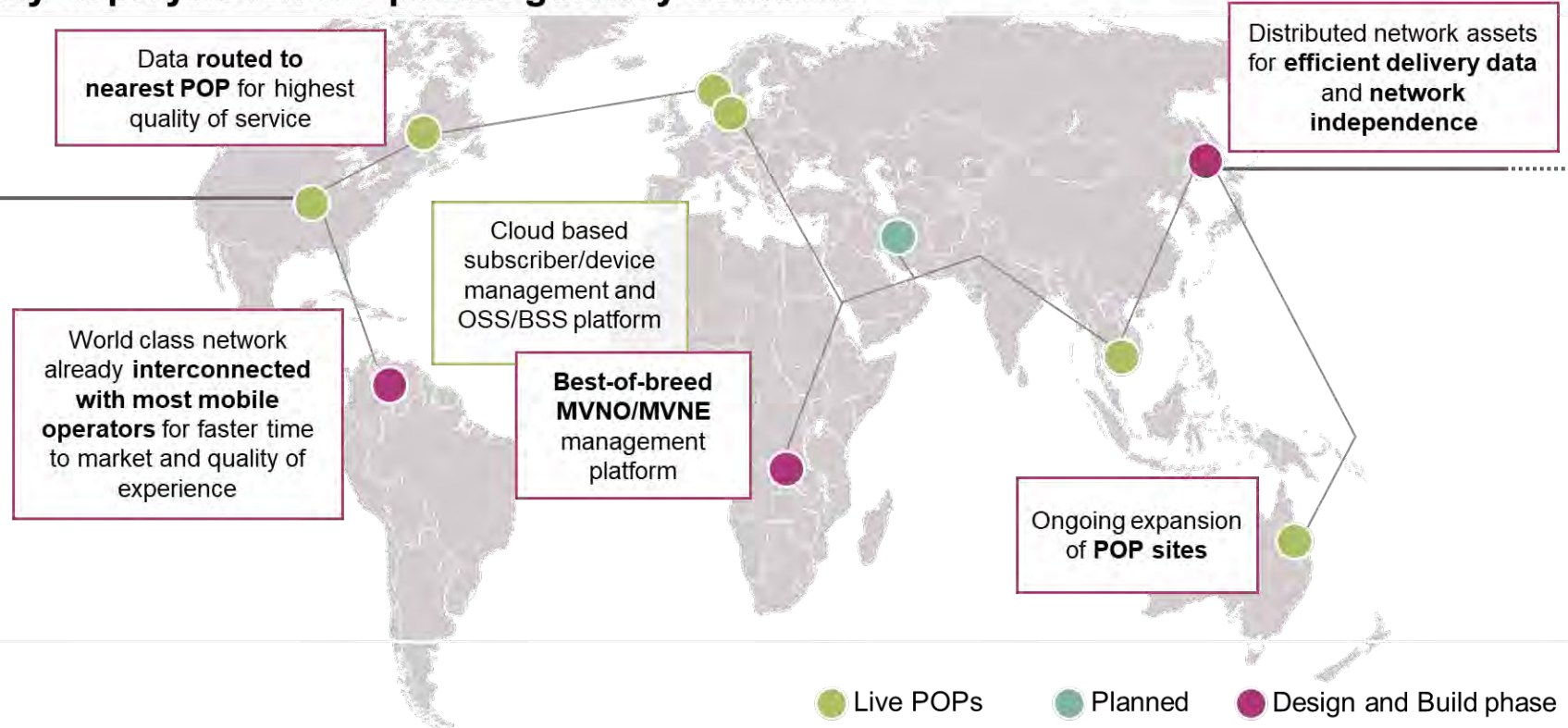
*) byod: bring your own device

Tata Communications

Fully owned global MOBILE infrastructure

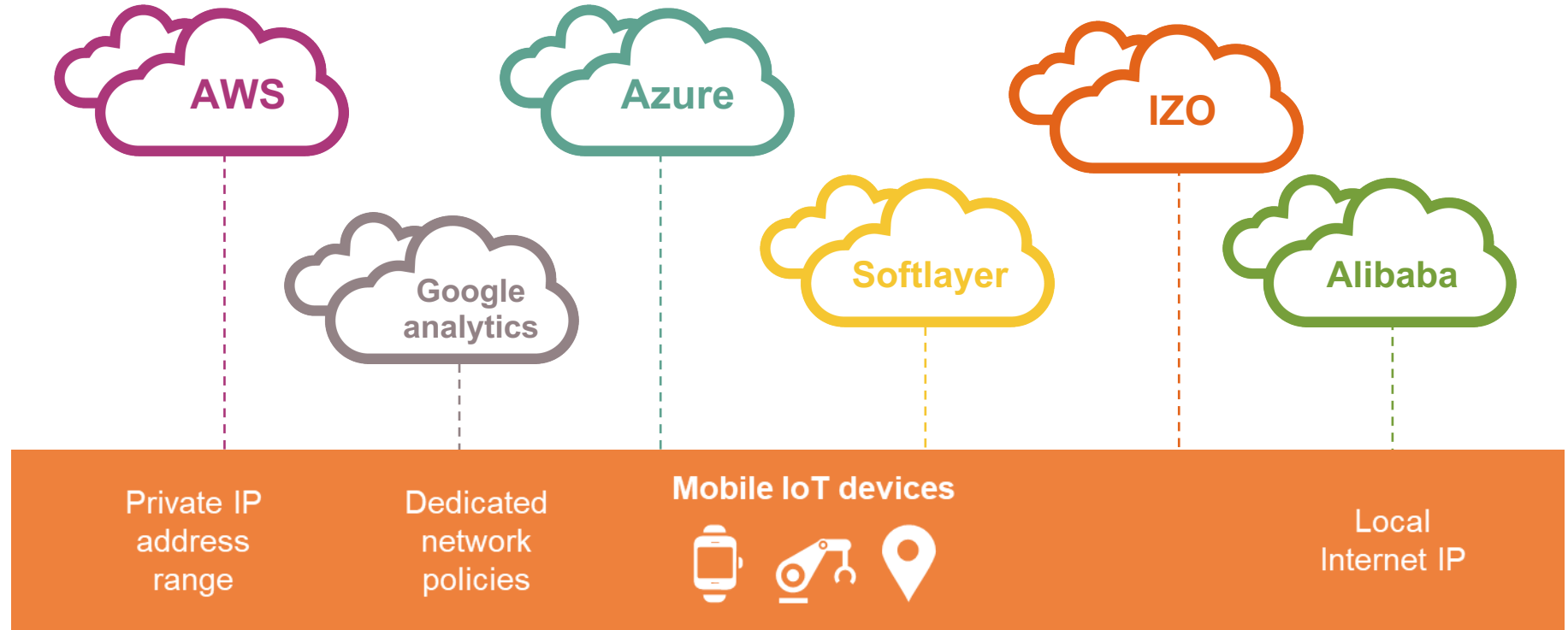


Globally deployed remote packet gateway solutions



Tata Communications

Cloud application connectivity service



OPTIGA™ Connect IoT, a real value added to IoT devices

Long-term reliable turnkey solution

Strong from the partnership between Infineon and Tata Communications, OPTIGA™ Connect IoT is the perfect solution for large-scale IoT deployments, simplifying the whole process and ensuring security, flexibility, reliability during complete IoT device life-time.

Simplified supply chain and personalization with pre-loaded worldwide bootstrap connectivity

Easy integration & management: one eSIM solution for multiple use cases & global deployment

Flexible selection out of > 640 Mobile Network Operators

GSMA specified Remote SIM Provisioning architecture

Industrial quality with an operating temperature range of -40 °C to +105 °C

Security evaluated, meeting GSMA requirements

Infineon, a reliable partner

Industry proven
solutions

100 million
delivered eSIM's

Best
partner network

50 Partner
for Security

Most trustable and innovative network
of partners in the security space

Extensive track record
and reliable logistics

36 billion
pieces shipped

In FY 17/18 ≈ 4 pieces
for everybody in the world

Longterm
commitment

10 Years
product lifetime
commitment

Shaping tomorrows
standards

> 100
standardisation bodies

Driving standardisation bodies like
GSMA, ETSI, Global Platform,
3GPP and NFC Forum

Strong
innovation power

> 25,000
patents

7,161 R&D employees, 11% of
Infineon's revenue goes into R&D



Part of your life. Part of tomorrow.