

## Transforming your Business with 5G Event Agenda

Time	Descriptor	Location*
10.30AM-11AM	Attendee Registration	Level 2 Foyer
11.00AM	Talks (S5GC, Vodafone, Ofcom)	Level 2 Auditorium B
12.00PM	5G Demonstration (University of Glasgow)	Level 3 Conference Room 3
	Ericsson Talk	Level 2 Auditorium B
1.00PM	Lunch and Networking	Level 3 Foyer
1.45PM	Panel Discussion (Data Lab, CENSIS, BE-ST)	Level 2 Auditorium B
2.45PM - 3PM	Closing Talk (S5GC)	Level 2 Auditorium B

\* Level 2 is located on the ground floor of the building. Level 3 is located above level 2.



The  
Scotland  
5G Centre

[www.scotland5gcentre.org.uk](http://www.scotland5gcentre.org.uk)

# Transforming Your Business With 5G

Business Engagement Manager Dundee – Kirsty Scott



The  
Scotland  
**5G** Centre

Realising Possibilities, Transforming Futures

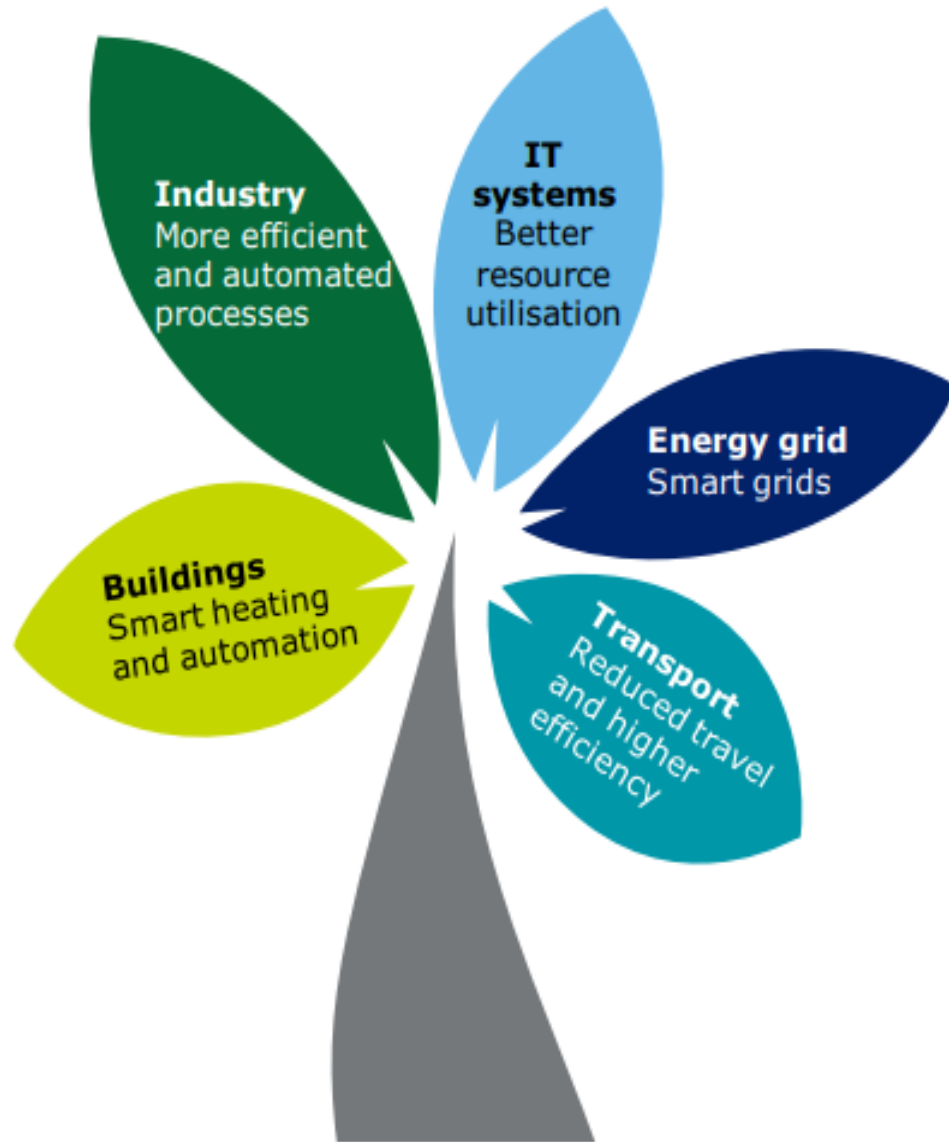
## What are the challenges industries are facing?

- Energy Costs
- Demand for more Sustainable Technology
- Ageing Technology
- Data Security
- Managing Data Streams/Storage
- Supply Chain Disruptions
- Digital Not Spots on site
- Economically competitive market
- Retaining talent and developing skills in remote and rural areas.





## What can 5G do for business?



### **Buildings**

Wireless connectivity can enable sensor-based smart heating and cooling processes to reduce consumption, while smart appliances could automatically coordinate to optimize energy use



### **Industry**

Automated processes in sectors ranging from manufacturing to agriculture can increase efficiency, reducing energy and resource usage



### **IT systems**

Though more connected devices and sensors could increase energy use, 5G is expected to support higher energy efficiency, and related technologies such as cloud can reduce emissions compared to legacy IT systems



### **Energy grid**

A smarter energy grid with wirelessly connected devices facilitates the integration of renewables and could allow real-time optimisation of demand and supply



### **Transport**

Wireless connectivity reduces the need for travel and it can support smart traffic management, CAVs and ride-sharing, potentially reducing congestion

## Why is it important for industries to evolve and embrace 5G?

- **Healthcare:** In 2020/21, 35% of total Scottish budget was spent on healthcare
- **Transport:** Around 127 million passenger journeys were made by bus in Scotland in 20-21
- **Manufacturing:** UK is the 9th largest manufacturing nation in the world
- **Energy:** Around 100,000 people are employed within the energy sector, accounting for 46% of jobs
- **Agriculture:** accounts for 70% of South of Scotland's economy

It's estimated that by enhancing 5G capability, Scotland has the potential to create 160,000 new jobs by 2035



The Scotland  
**5G** Centre



## The Scotland 5G Centre - National Presence, Regional Focus

We support Scotland's industry and the public Sector harness the power of digital transformation:

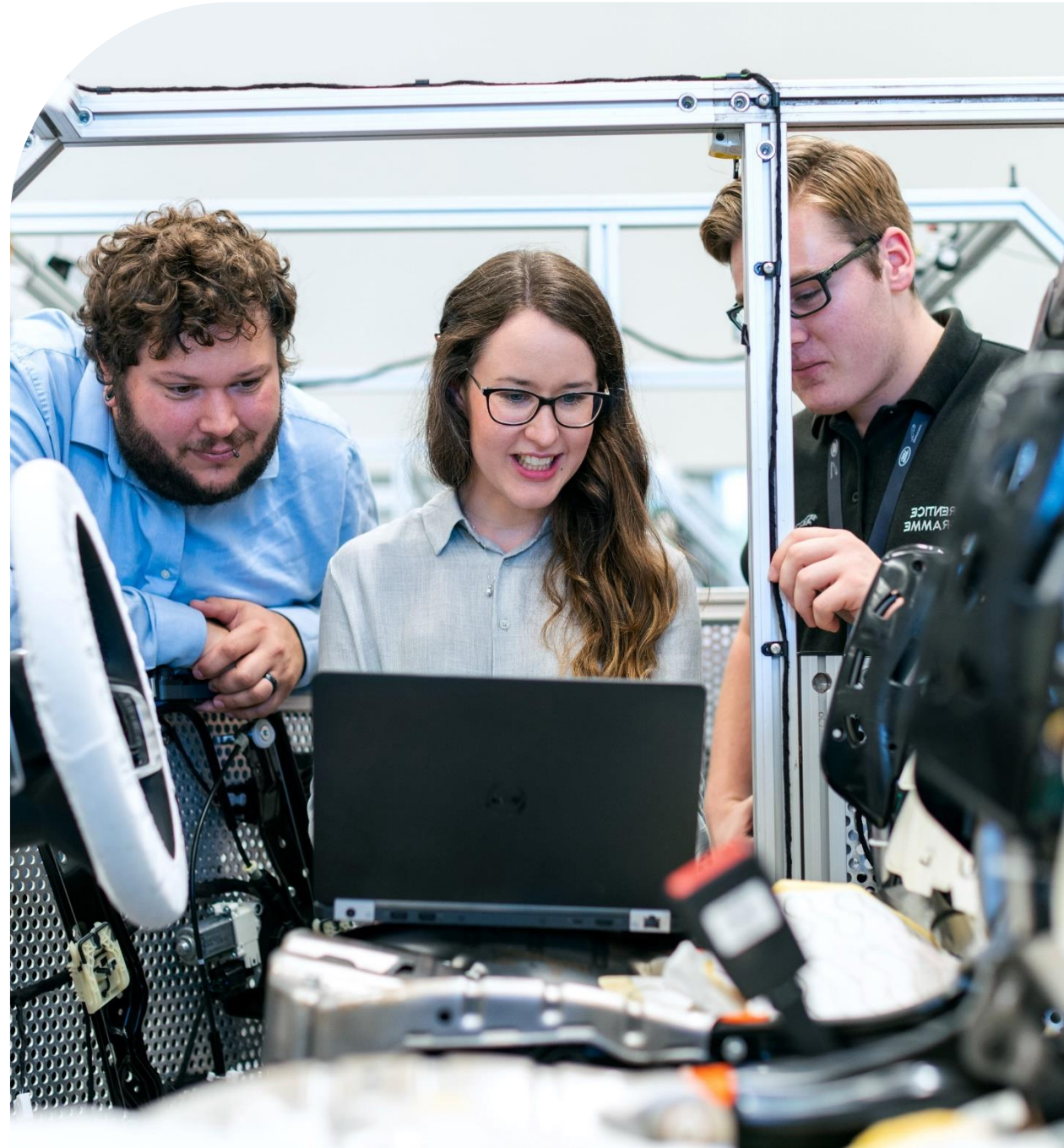
- Our S5GConnect Innovation hubs and test beds are spread across Scotland.
- We offer **free access** to cutting edge 5G test beds, to enable: new products, services, efficiency savings and innovative solutions.
- We provide **impartial** advice to organisations wishing to set up private 5G networks.
- We work with our partners to enable connectivity solutions for remote/rural businesses.
- Our Business Engagement Managers are available to discuss how we can support your business.



## About

The Scotland 5G Centre is responsible for raising:

- awareness of 5G and its capabilities.
- providing insights where 5G has supported businesses.
- offering access to demonstration and development environments via our network of private 5G testbeds.
- We are currently working across **54 projects**.
- We work with over **20+ partners** across our innovation hubs and projects, supporting businesses to develop their digital strategy and futureproof operations, products and services.







## Support

**Take advantage of our impartial and expert advice - tailored to your business needs**

- Access workshops and live demonstrations
- Find out more about how 5G can transform your business



## Innovate

**Work with us to develop 5G solutions to grow your business**

- Work with our experts to look at solutions that will meet your needs, challenges and opportunities
- Test these solutions using our state-of-the-art private 5G testbed
- Get access to the latest industry applications including sensing technology and robotics



## Collaborate

**Work with us to put your ideas into practice**

- We can connect your business to our extensive network of industry partners to deploy your 5G solution
- Get advice from us on the range of funding opportunities available to support your digital transformation



# Start your 5G Journey Today



# Transforming your Business with 5G Campaign

Our Campaign comes in 2 parts:

**Part 1** today, will provide information and examples of how 5G is transforming businesses as well showing how the Scotland 5G Centre can help.

**Part 2** runs from now until September and provides you with the opportunity to have a private consultation with one of our Business Engagement Managers (at your local S5GC innovation) and discuss how you can test the application of 5G to a specific business need or challenge

If you are interested in Part 2 but haven't yet submitted interest in attending a one-one technical session at your nearest hub, you can submit an expression of interest form or email [\*\*info@scotland5gcentre.org\*\*](mailto:info@scotland5gcentre.org).



The Scotland  
**5G** Centre





## Submit your Expression of Interest

Visit one of our nationwide innovation hubs and receive tailored, impartial advice on how to future-proof your business with 5G. Get in touch with us today. All you need to do is fill in a short expression of interest form and we will be happy to arrange a visit with you.

- Aberdeen
- Dundee
- Forth Valley
- HALO Kilmarnock
- Dumfries

### Link

[Expression of Interest - The Scotland 5G Centre](#)

### QR





The  
Scotland  
**5G** Centre

## Events

Look out for S5GC events happening near you by visiting [scotland5gcentre.org/events](https://scotland5gcentre.org/events)

## Contact Us

on our online contact form.

<https://scotland5gcentre.org/expression-of-interests/>



## Monthly Newsletter

Get the latest events and developments at the Scotland 5G Centre by signing up to our online newsletter.

## Thank you Follow us



[www.scotland5gcentre.org](https://www.scotland5gcentre.org)



# Radio Spectrum for 5G

Richard Moore  
Principal, Spectrum Policy  
Ofcom



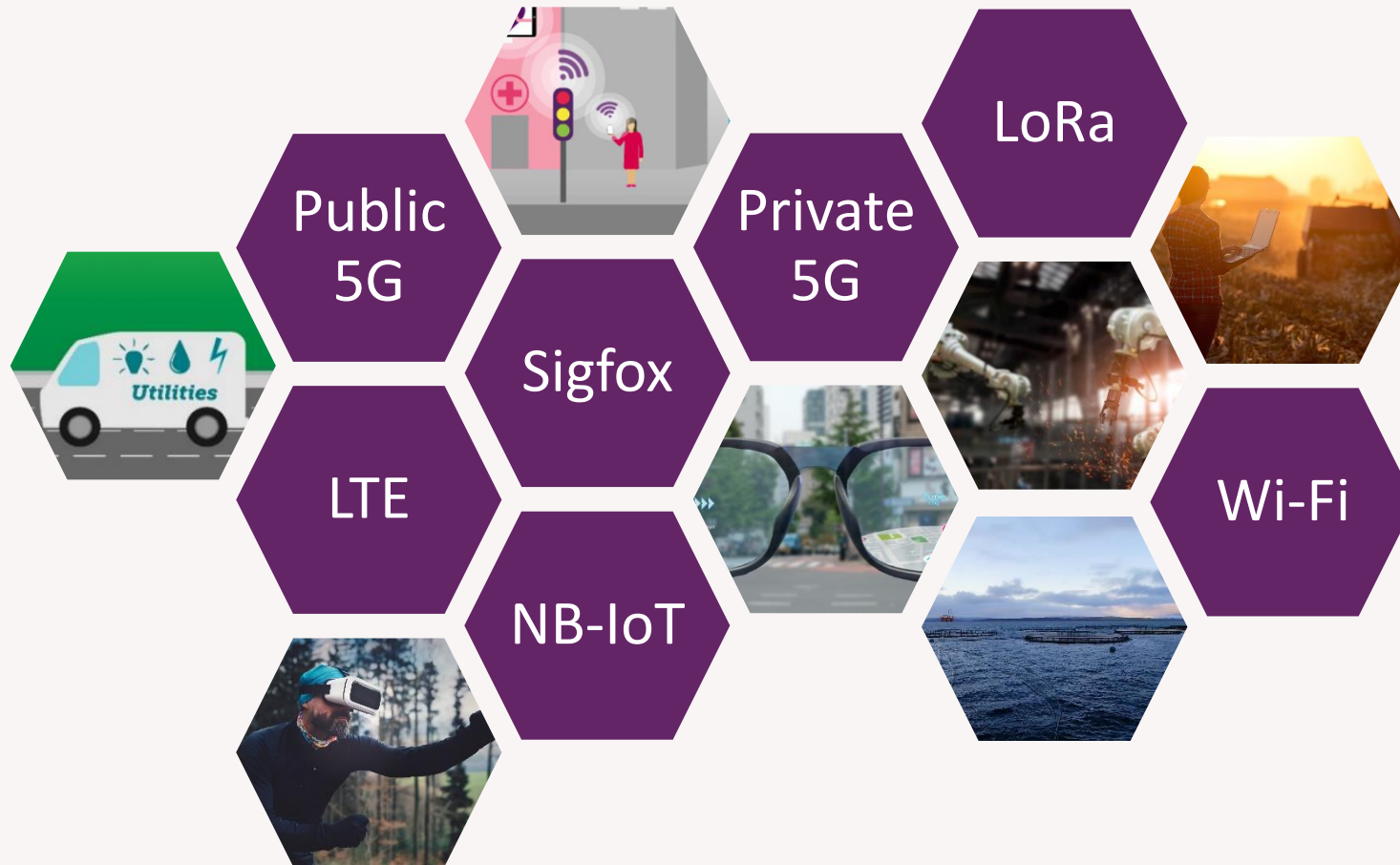
making communications  
work **for everyone**

# Making sure people and businesses have connectivity where and when they need it

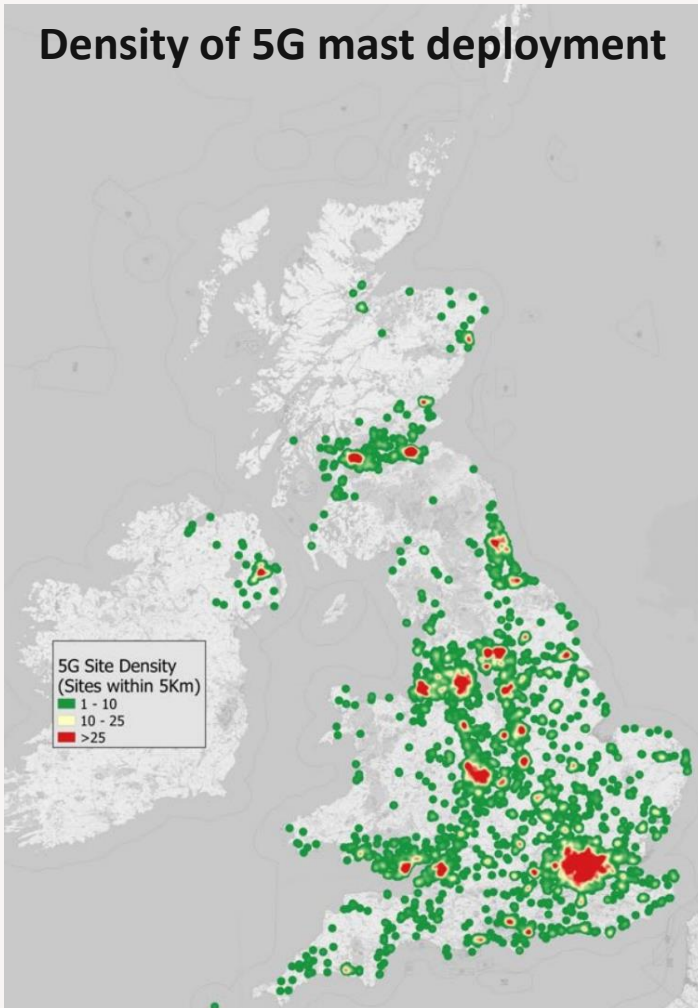




# Different users will want to make use of different technologies...



# The majority of consumers are now covered by 5G networks, handset take-up has doubled & data use tripled since 2021



~70% premises coverage\*

~20% of handsets

~10% of mobile data

Mid and Low band spectrum

Source : Ofcom Connected Nations Nov 2022 (figures rounded for clarity)

\* outdoor, at least one operator

collaboration

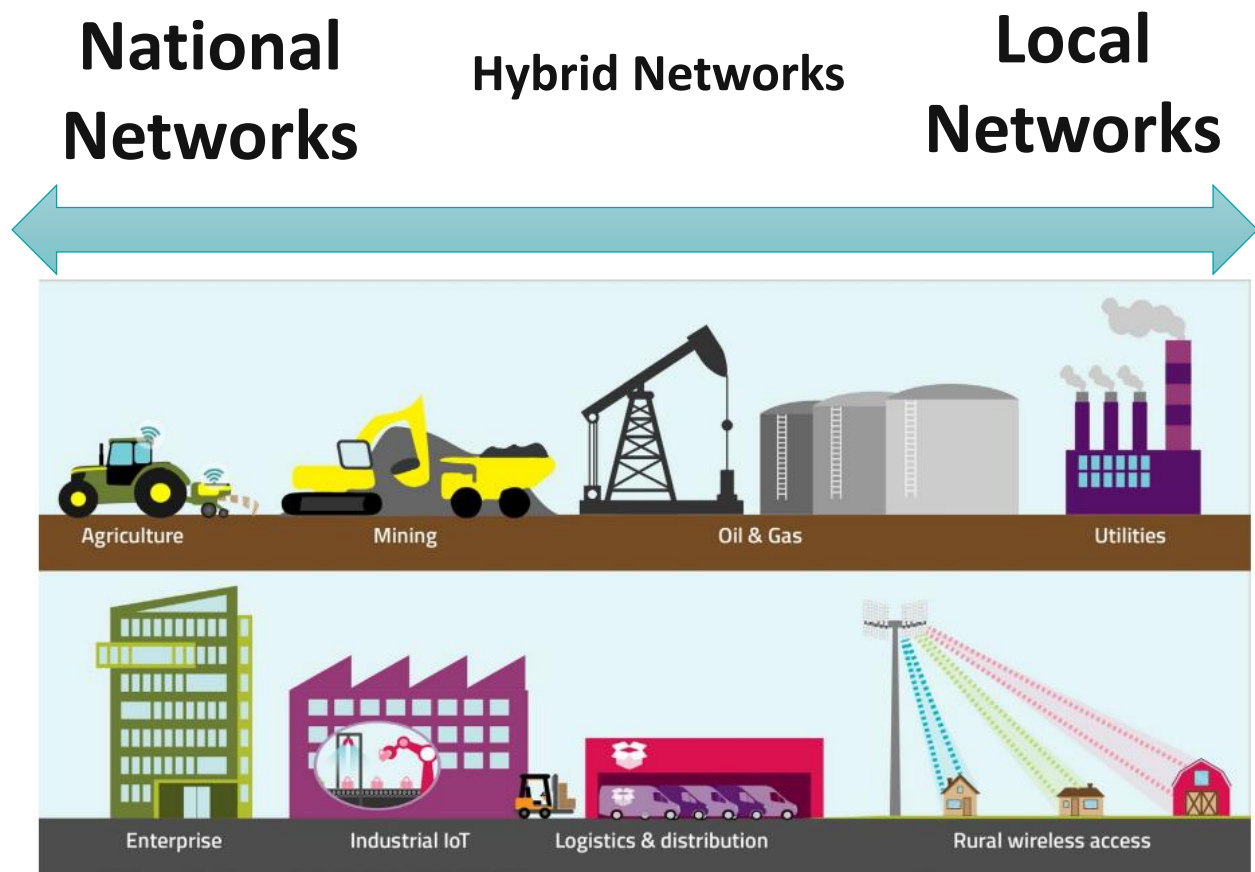
EMPOWERMENT

Respect

agility

Excellence

# Businesses have a growing choice of 5G solutions...



Self Deployed

SI Deployed

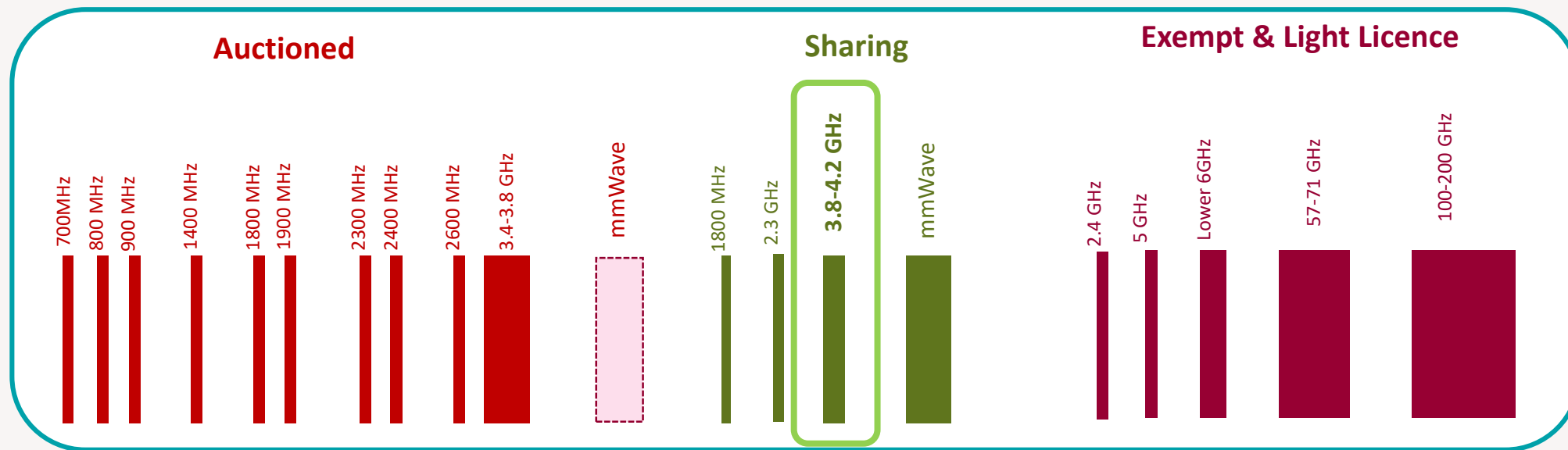
MNO Deployed

4G + 5G

5G Standalone & Slicing



# In 2019 we made more “Shared Access” spectrum available suitable for local 5G network deployment



**Auction:** Spectrum mostly authorised on a nationwide basis. MNOs can offer slices of their network to meet business requirements.

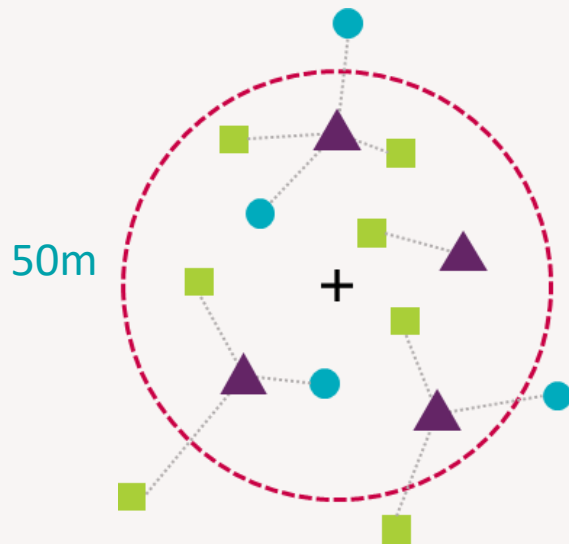
**Sharing:** Low cost licences enabling localised access to spectrum. Can be used for private networks and to extend coverage.

**Exempt and light licence:** Access to spectrum with low barriers is an important enabler of innovation. Wi-Fi technology is currently common across many businesses.

# To ensure efficient use of spectrum we have low and medium power licences

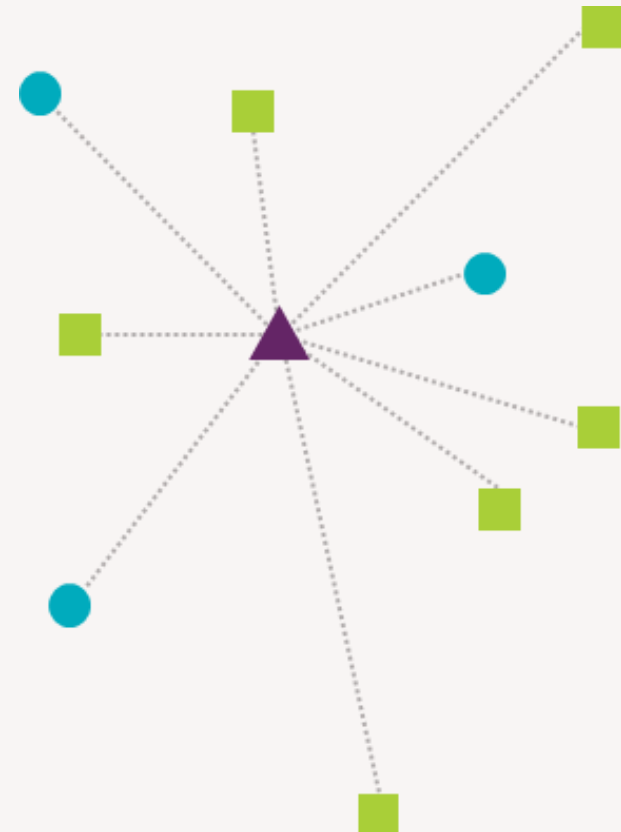
Low power (area licence)

Urban areas



Medium power (base station licence)

Rural areas



## Legend

▲ Base station

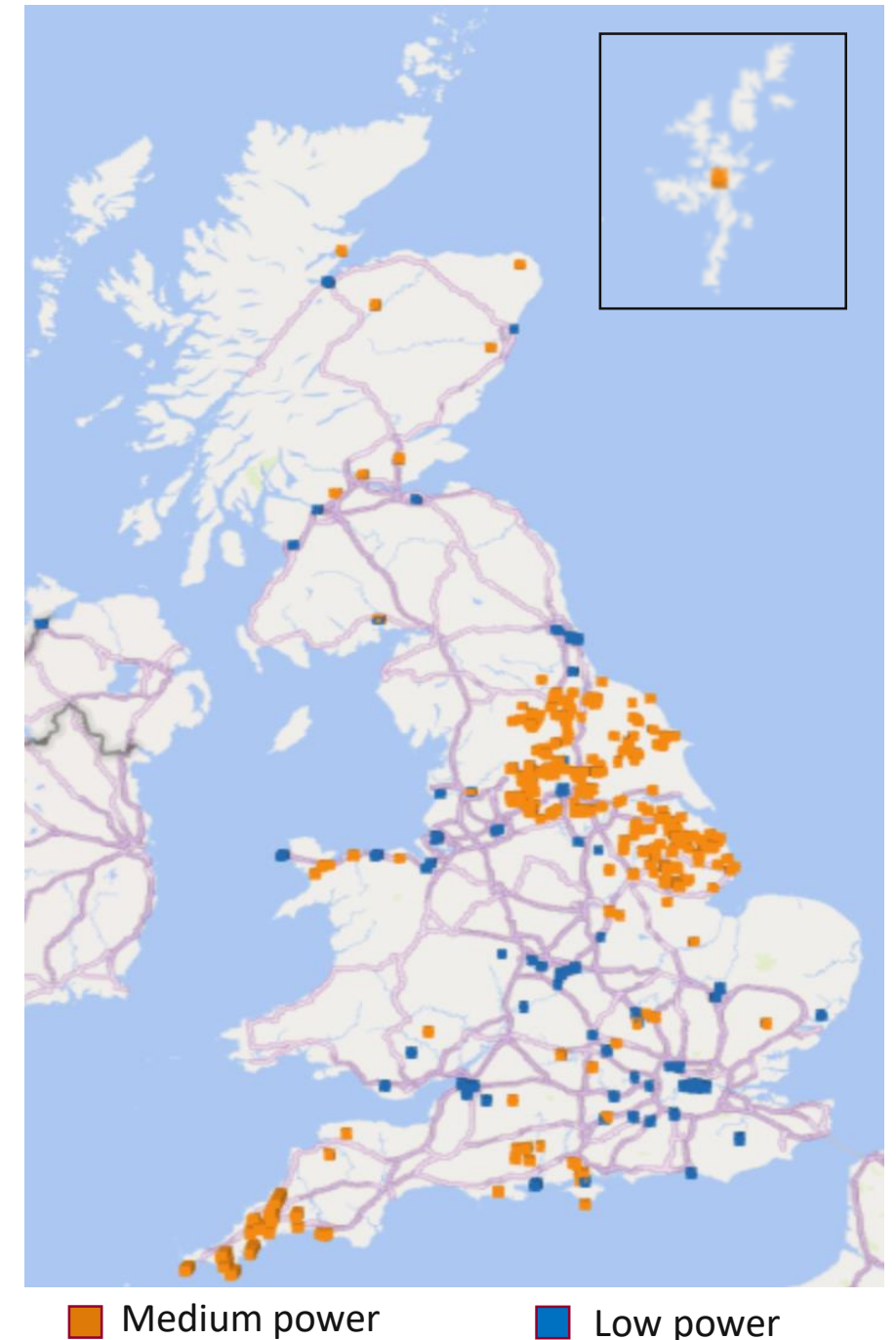
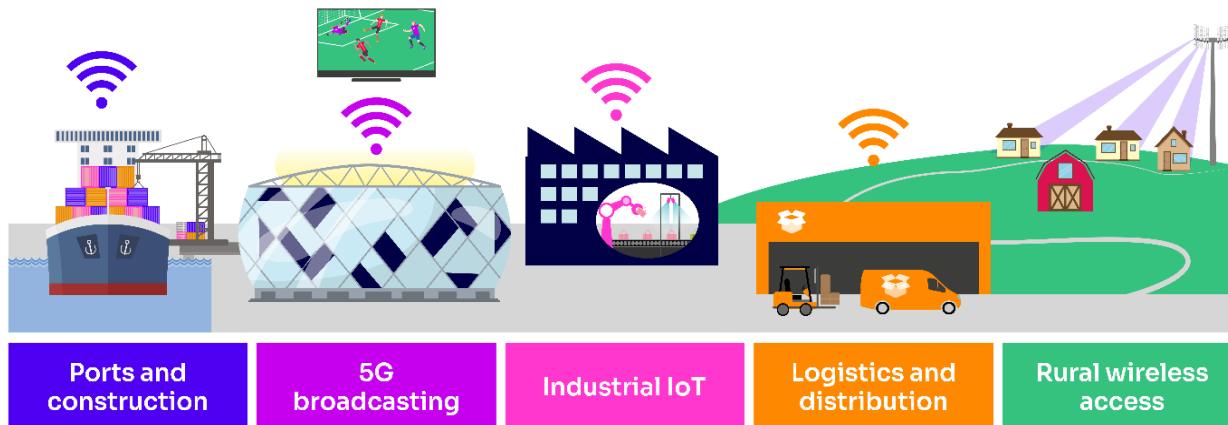
■ Fixed/installed terminal

● Mobile/nomadic terminal

..... Base station/terminal connection

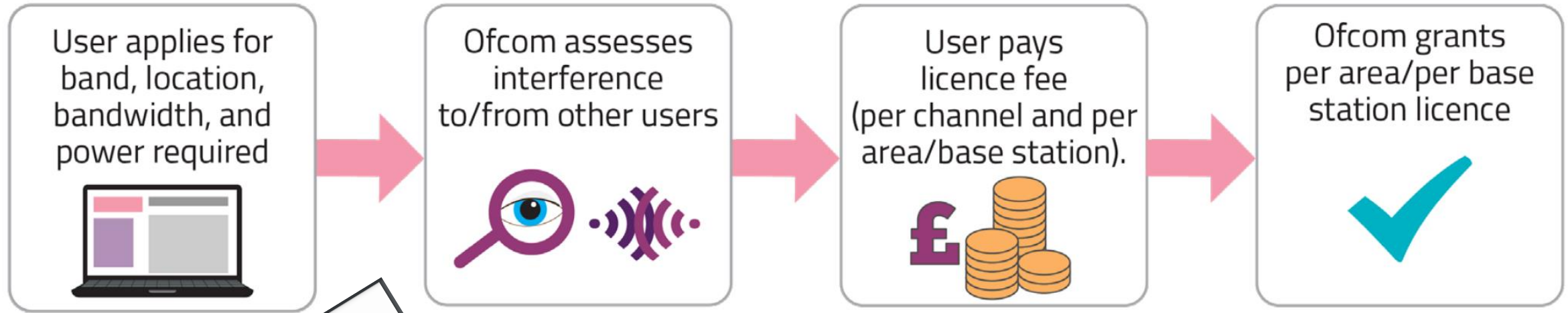
# Wide range of use cases supported

- Wireless Broadband
- Ports
- Construction and Mining
- City Centre Networks
- Private enterprise networks





# So how do I get a licence?



**£80 / 10 MHz / Annum**



[https://www.ofcom.org.uk/\\_\\_data/assets/pdf\\_file/0035/157886/shared-access-licence-guidance.pdf](https://www.ofcom.org.uk/__data/assets/pdf_file/0035/157886/shared-access-licence-guidance.pdf)

# Any questions?



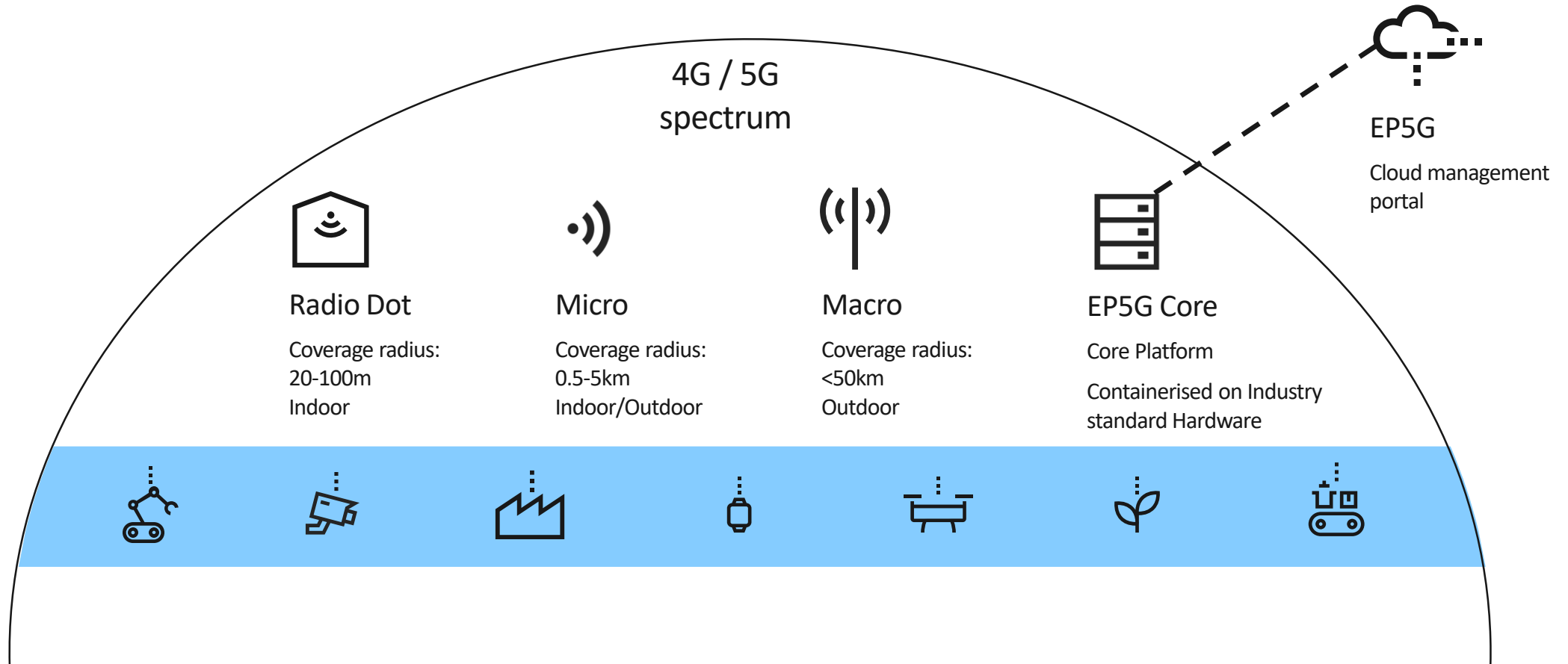


But I can do that with Wifi, Can't I?



# What is a Private Mobile Network?

End-to-end platform for Private Mobile connectivity and automation.



# Ericsson Private Networks - UK



Belfast  
Harbour



Ministry  
of Defence



centrica



E///  
Coventry Lab



2021

2022

2023



# Cellular connectivity use cases



## Digitalization

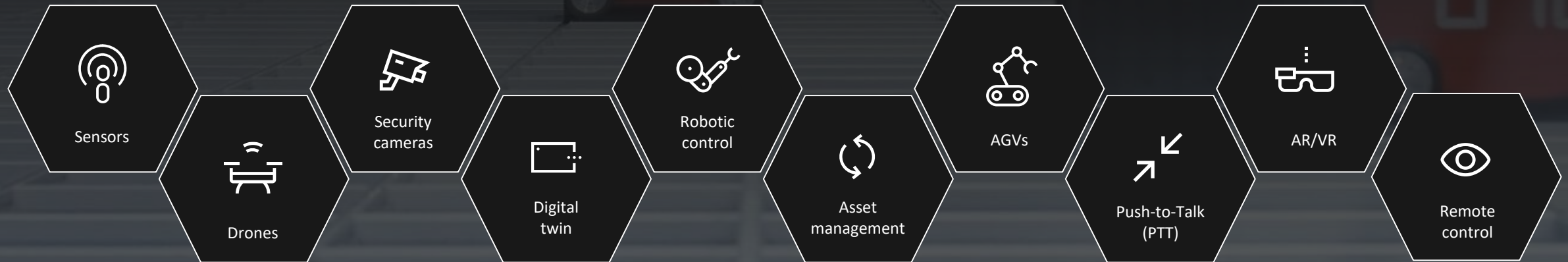
Implement new use cases by integrating wireless sensors, cameras, and drones, as input to digital models and AI analytics

## Automation

Take full advantage of industrial control, automation, and remote control throughout the production process

## Connected workers

Boost worker capabilities with XR immersive reality, location awareness for safety and machine interaction



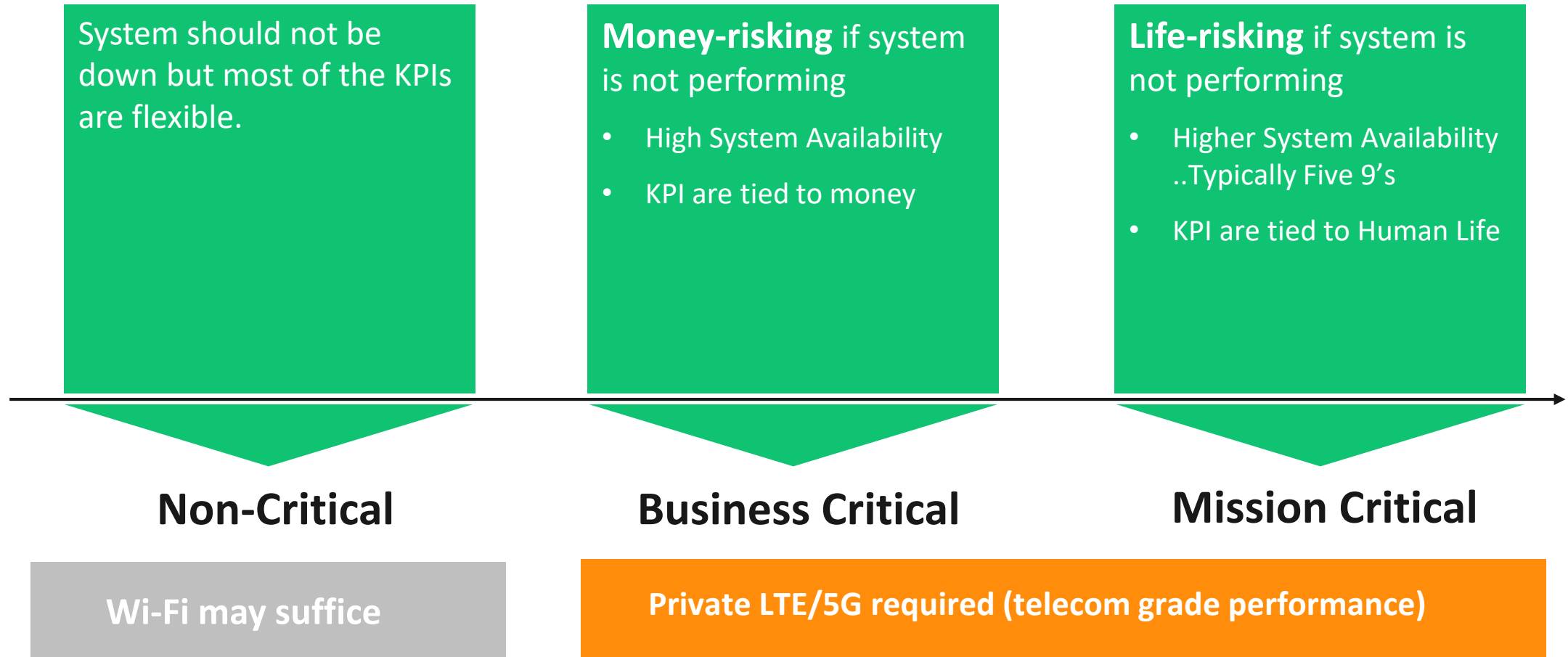


# But We Can Do That with Wifi, Can't We?





# Enterprise Use Case Categories



# Time-Critical Communication

## Customer Challenge

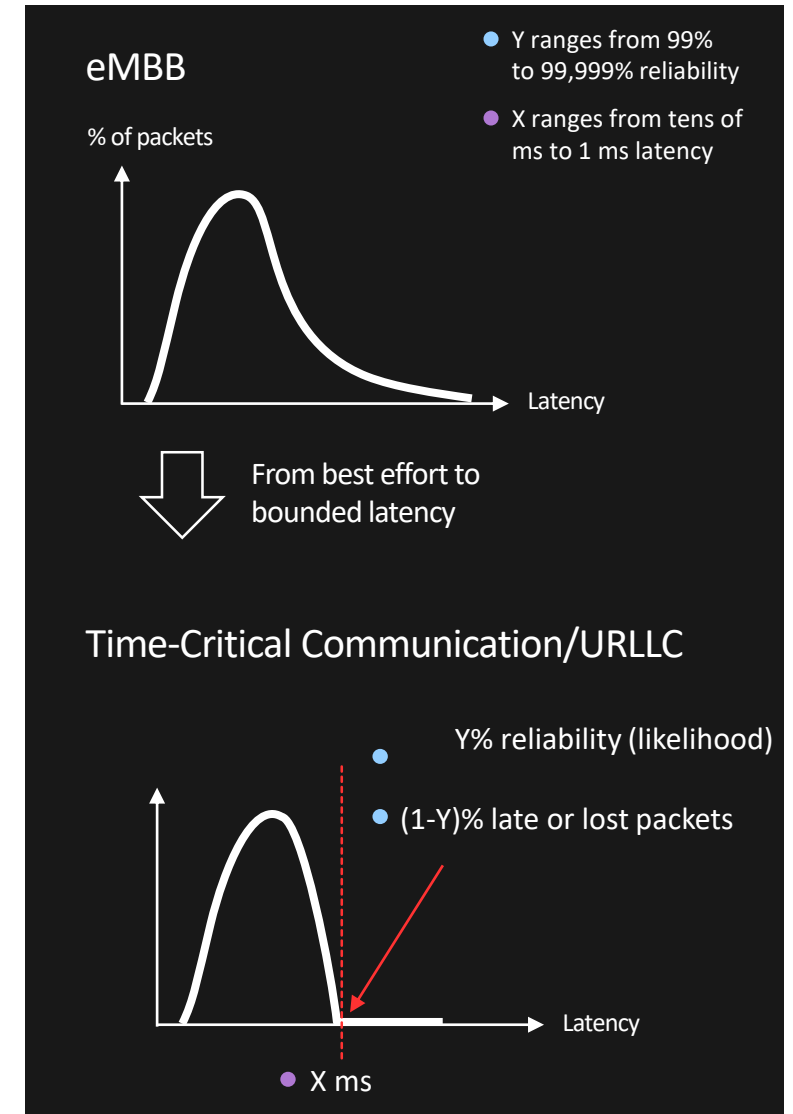
Mobile broadband type best effort latency behavior over the wireless channel causes latency peaks that can be interpreted as a lost connection in the industrial application.

Many industrial applications require a consistent latency behavior that mimics the legacy wired technologies, such as, different real-time ethernet variants.

## Solution

The new Critical IoT for Private 5G software product, and specifically the **Time-Critical Communication feature** set as part of it, brings new features to the **RAN and Core** that start enabling consistent latency on Ericsson Private 5G EP5G.

The first features help bring down the block error rate (BLER) for chosen UEs, and by configuring uplink grants (UL CG) and prescheduling **enable consistent low latency, independent of load.**



# Precise Indoor Positioning

## Customer Challenge

Some customers need indoor positioning for different use cases:

Asset tracking

People tracking

Real-time positioning of AGVs, trucks

Security, for example, geo fencing

Tool setup

Satellite-based positioning systems do not provide indoor positioning.

## Solution

Ericsson Private 5G uses radio dots to provide accurate location in an indoor environment.

The technology is device agnostic and positions any 5G device without any extra software or hardware needed on the device.

The positioning is a software feature that runs on the network controller.

The position is made available through an open API that can be used to integrate into existing applications.

1m accuracy estimated





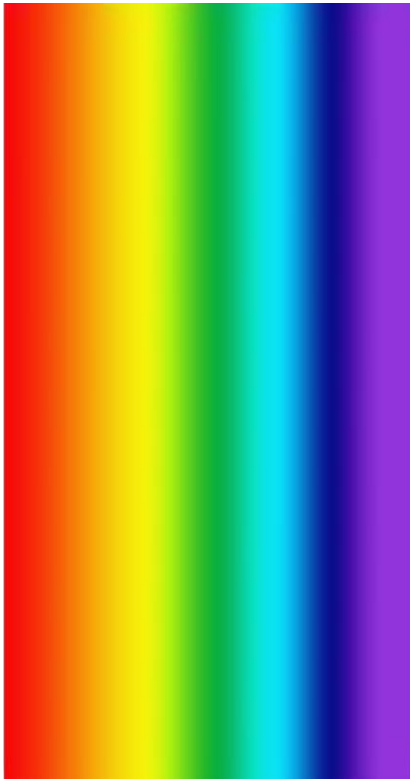


# What do you need for a Private Mobile Network?

# Private Mobile Networks



## Spectrum



## Core Network



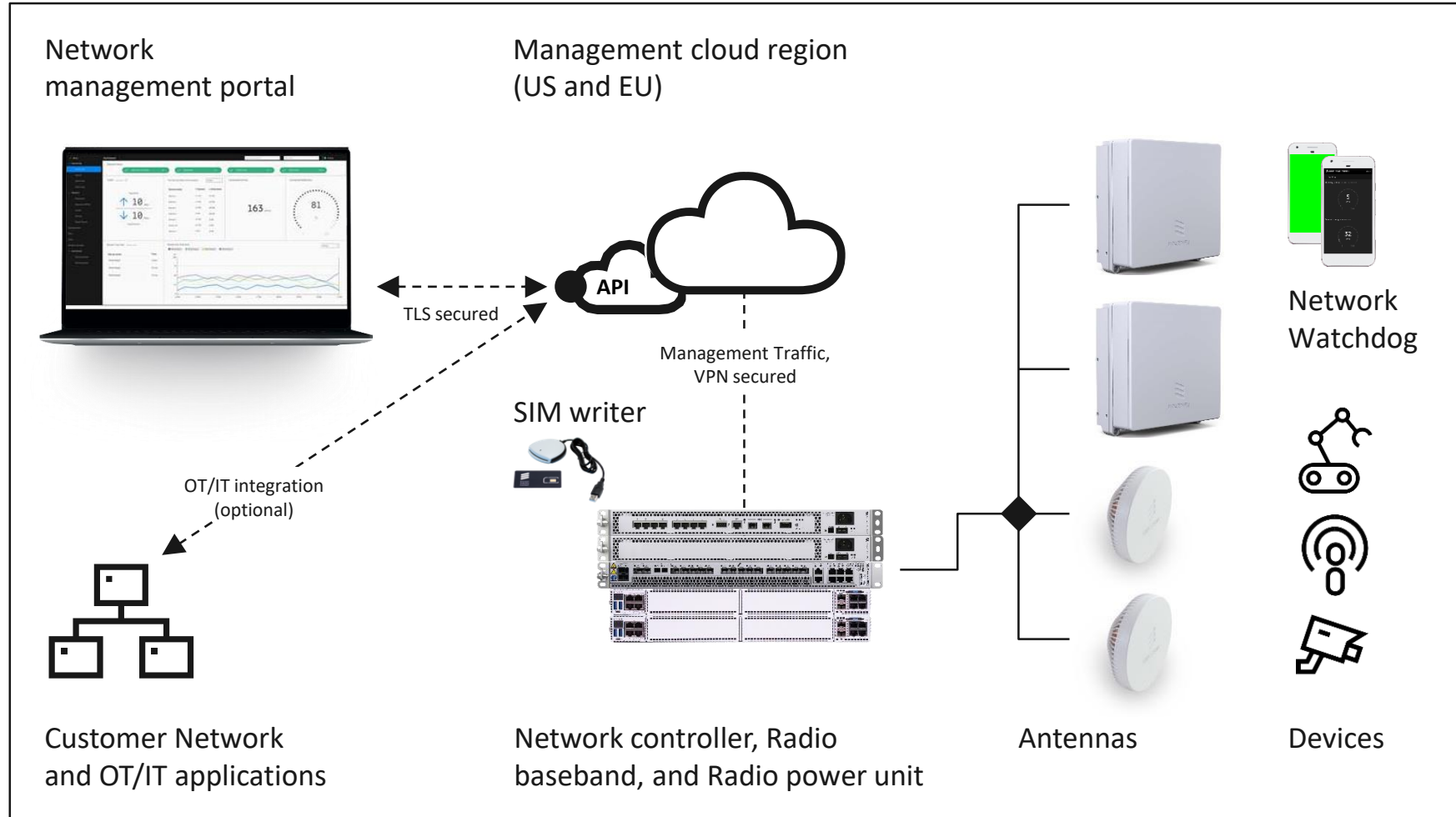
## Radio



## Devices and Applications



# EP5G Overview



- Plug & play LTE with evolution path to 5G
- Network in a box
- Self-sustained sites
- Leveraging proven Ericsson radio portfolio
- Centralized cloud backend with API integration layer

