

BT wholesale

Towards the network of the future

Gavin Jones
BT Wholesale

Agenda

Towards the network of the future:

- 5G status update
- 5G in action

Building the network of the future:

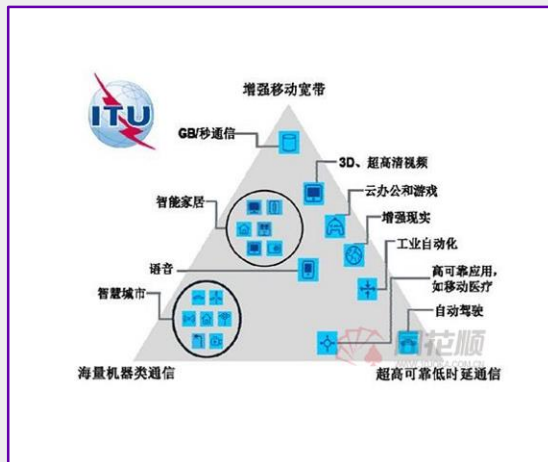
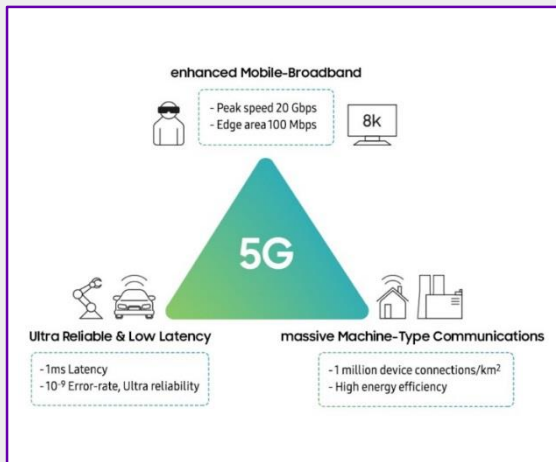
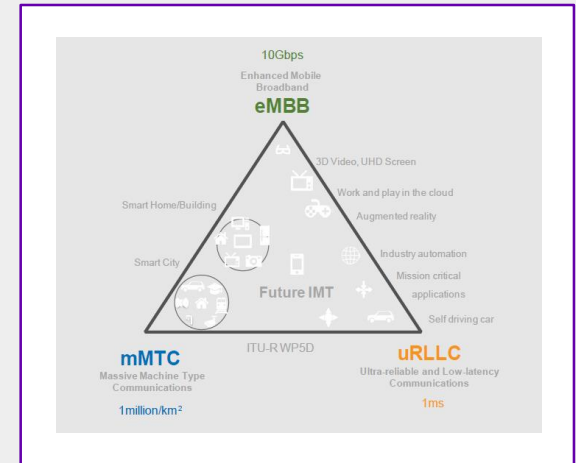
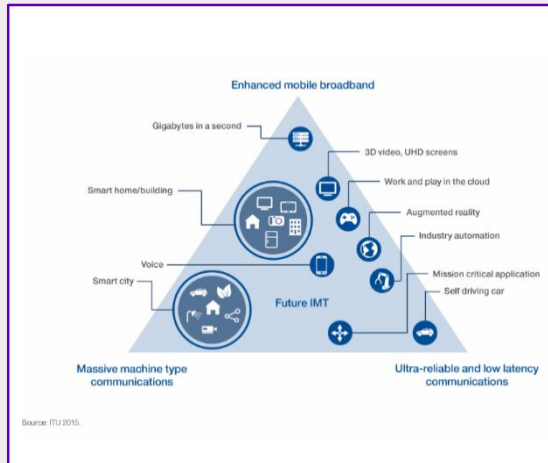
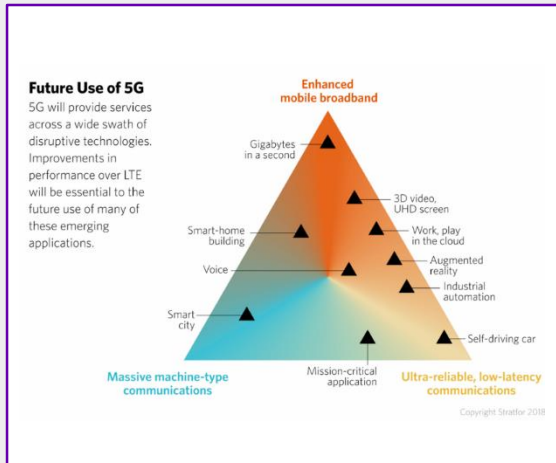
- Future of 5G
- Internet of Things (IoT)
- Securing the network of the future.

Summary and close

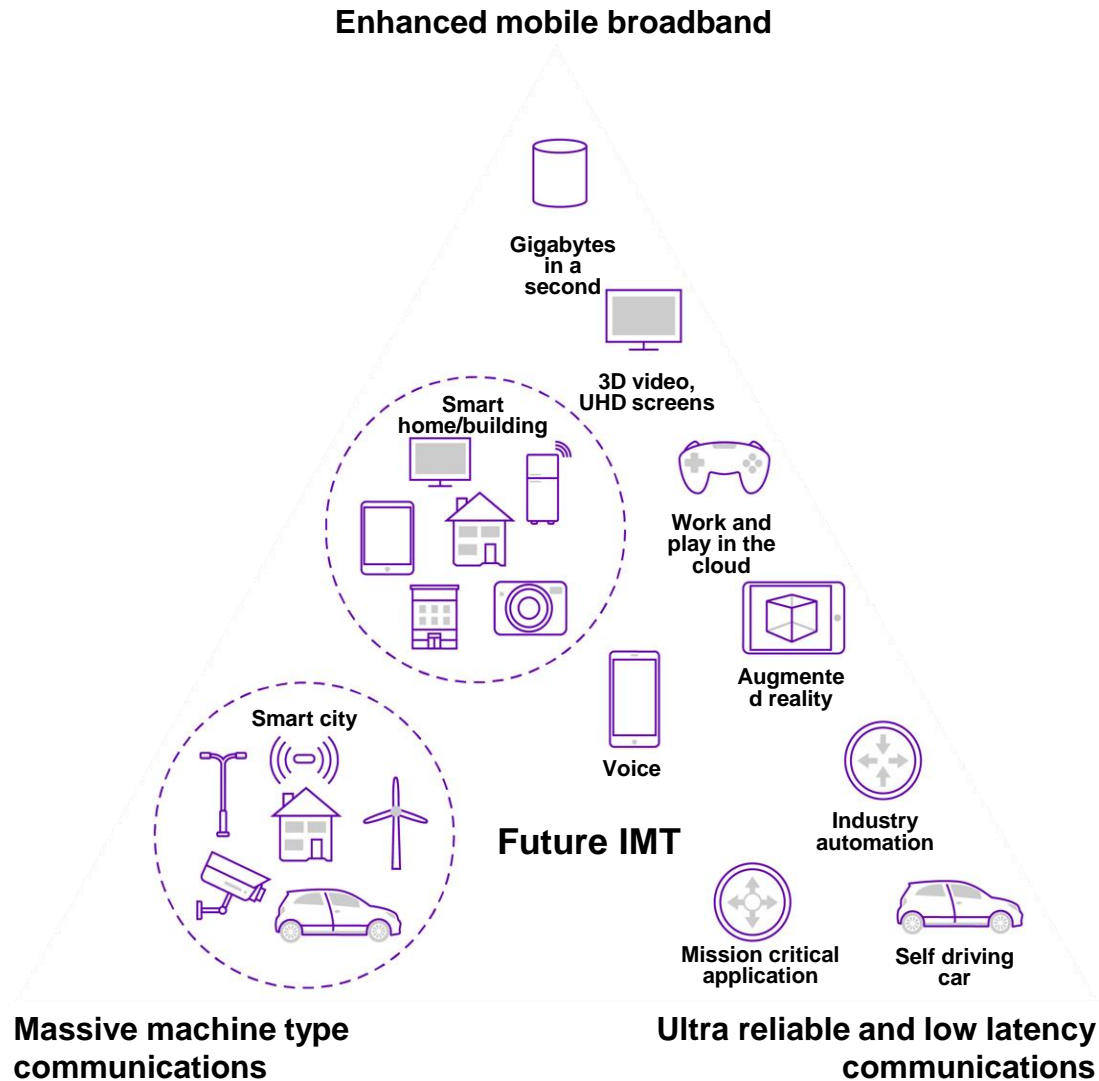
Questions



The demand for 5G



5G - A step change in the art of the possible



Our vision for 5G

A converged network that supports all services

Enhanced mobile
broadband

Missions critical comms

Machine comms



Smart
home

Agriculture

Logistics



How 5G will revolutionise the media and entertainment industry



Remote production



Allows production staff to do multiple events in an evening

Dramatically reduces production costs

Supports a small camera production

Work in conjunction with fibre at bigger grounds



Better work / life balance for staff



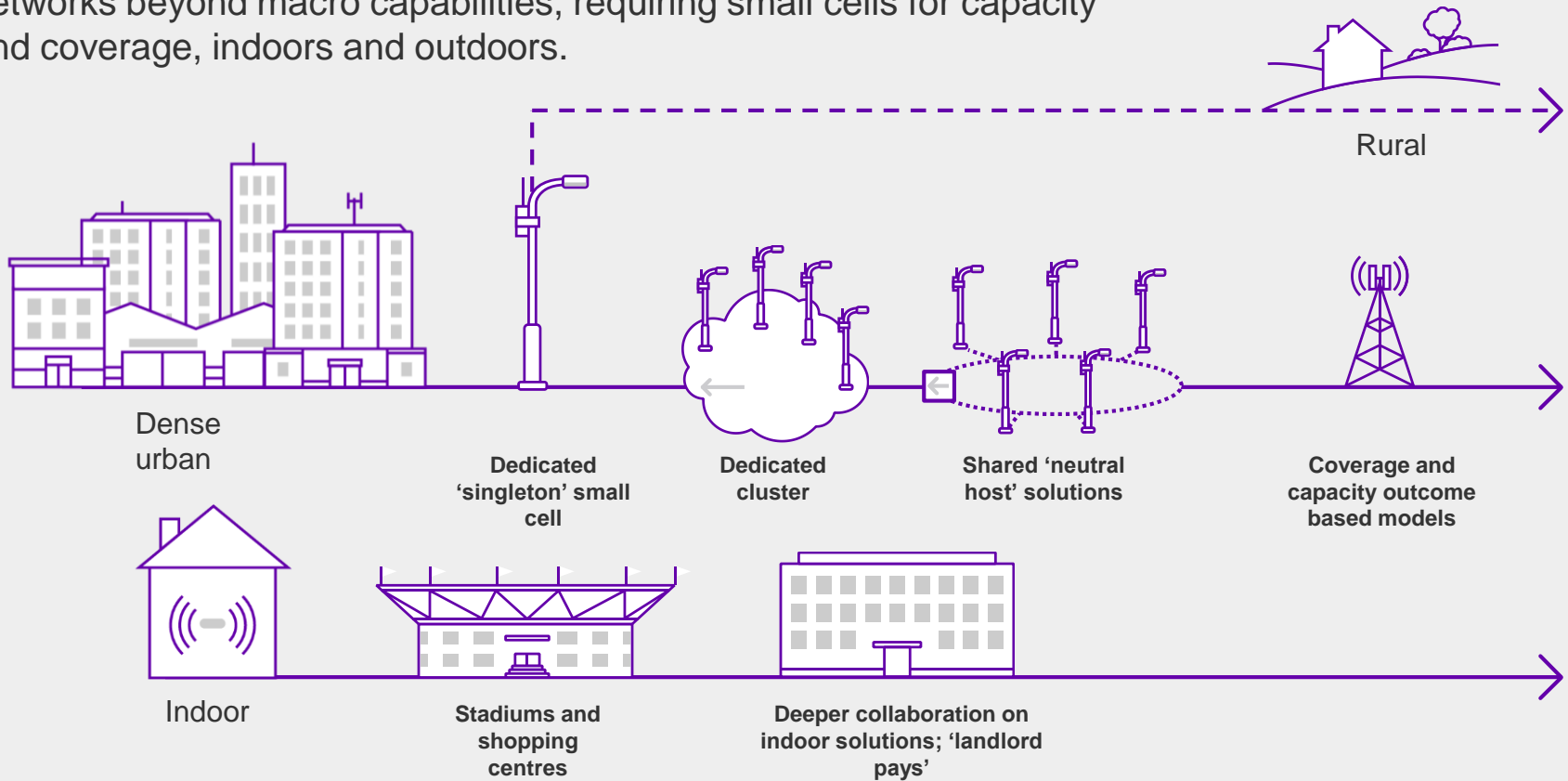
Using 5G will overcome limitations of 4G

One step closer to the future

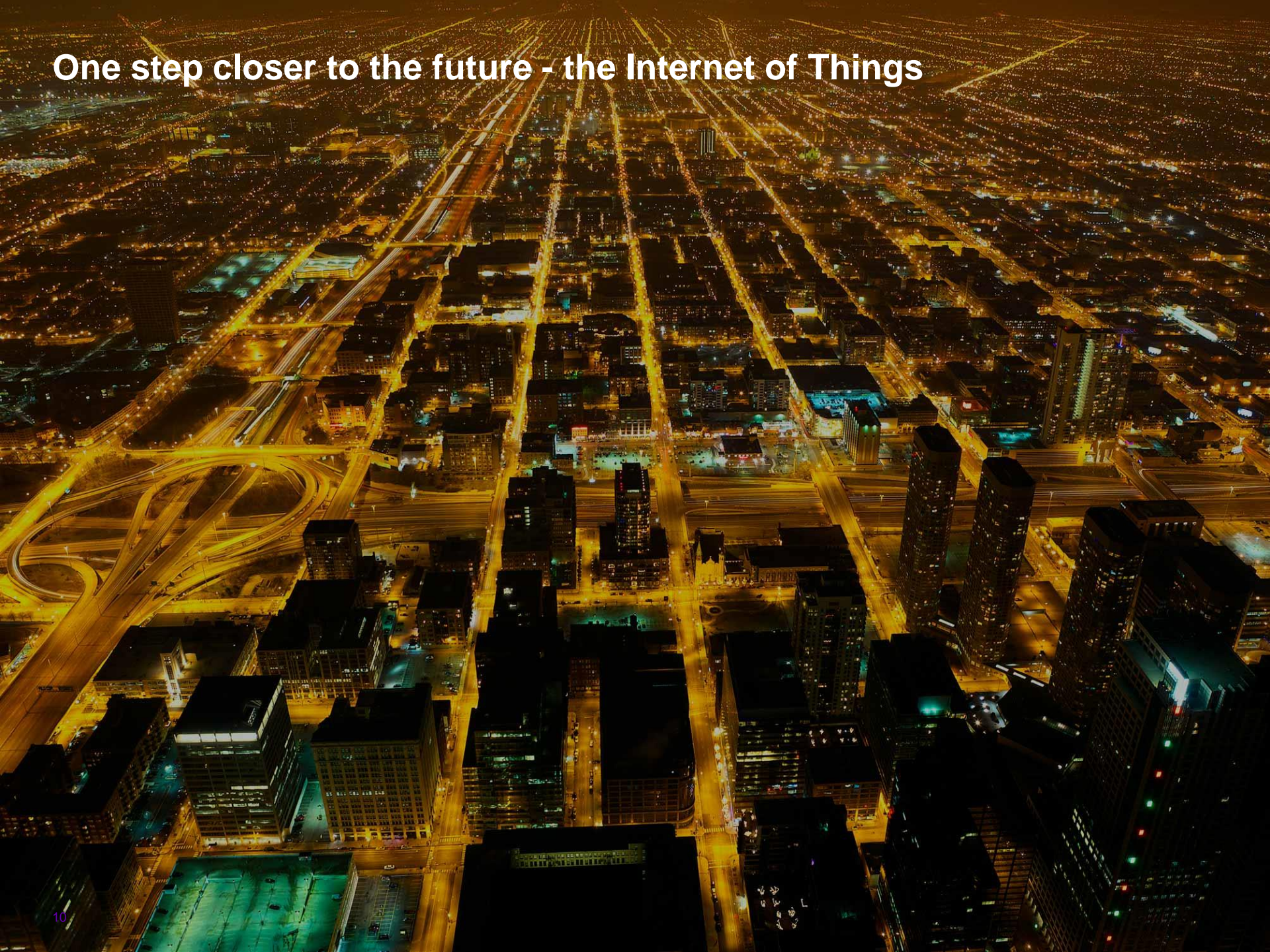


Evolving beyond today's models with smart cell thinking

As customer demands for an 'always connected' experience grows, operators will need to improve both coverage and capacity of the networks beyond macro capabilities, requiring small cells for capacity and coverage, indoors and outdoors.



One step closer to the future - the Internet of Things



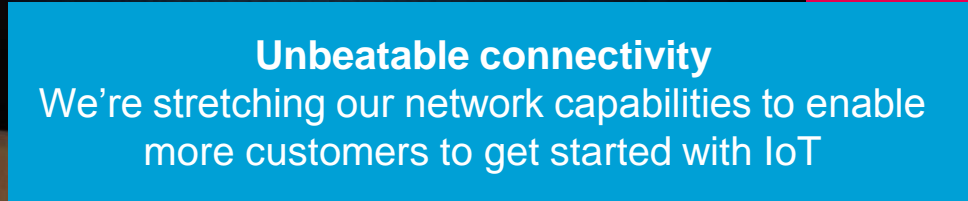
Focus industries for our IoT proposition



Intelligent retail



Connected transport



Unbeatable connectivity

We're stretching our network capabilities to enable more customers to get started with IoT

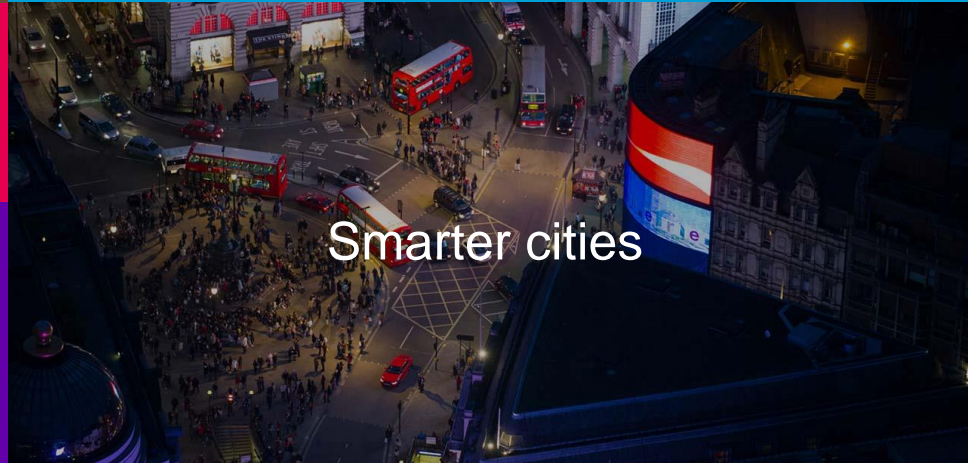


End-to-end security management and capability

We keep solving security problems so they don't affect our customers' take-up of IoT



Intelligent supply chain



Smarter cities

IoT - one step closer to the network of the future

- We've just connected the latest IoT device up to our EE network.
- It's called Narrowband IoT or NB1.
- Where 5G is about fast speeds and responsiveness, Narrowband IoT allows a whole new host of battery powered devices to be connected to the internet over the EE network but at lower speeds.
- The new IoT devices send very small amounts of data and are only activated when needed.



You can use the new network together with our devices and platform to support a wide range of new projects across a range of industries.

Transport and logistics - intelligent tracking of goods in transit including monitoring of stock and temperature for sensitive items such as vaccines.

Utilities - supporting the next generation of smart meters and smart utility networks helping solve issues with electricity demand and water leakage.

Tank level monitoring - from farmers grain stores to industrial gas tanks, IoT will allow proactive refilling of tanks before they run empty.



Intelligent supply chain

Improving asset monitoring and driving down cost

- Helping customers track objects in regional, national and global locations is a complicated business.
- Our platform and mobile tracking devices make the job cheaper and easier for everyone.



2015 Royal Mail

- Automatically measures the speed and reliability of mail deliveries.
- RFID solution in 430 UK sites.
- Over 4,000 reader points collect data to monitor Quality of Service.



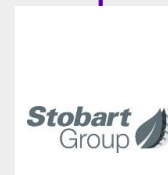
2016 Domiberia

- Asset tracking for the 1.3 billion tins the company produces each year.
- Helped them meet the European food traceability directive.



2016 Pelipod

- Manages the final mile in our field service supply chain by distributing spare parts in smart delivery boxes.
- Located at 500 of our sites.



2018 Stobart Group

- Improves flood response times by better co-ordinating 1,500 stillages carrying emergency equipment.
- EE's 4G network enables data to flow seamlessly back to the IoT platform so the company can analyse it in real time.



Smarter cities

Building better places to live

- We're using the latest digital technologies, data sharing, analytics and design to make smart cities a reality.
- Our solutions help cities to thrive economically, socially and become more sustainable.



2014 MK Smart

- Searching for innovative solutions to stimulate the economy in Milton Keynes.
- Exploring the practicalities of running an IoT ecosystem.
- Hosting the low power WAN that receives all the data from sensors.



2016 City Verve

- A £15 million collaborative research project deploying a LoRa network in Greater Manchester.
- Our IoT data hub brings together hundreds of transport and environment data feeds.



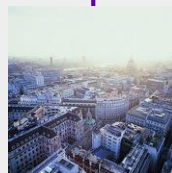
2017 InLinkUK

- A state-of-the-art network bringing ultrafast free public wifi to the UK.
- Now collecting air quality data inside an InLink in London, to see how this could benefit local councils.



2016 Redcare surveillance

- CCTV video transmission and end-to-end managed security.
- Connecting 44,000 CCTV channels.
- Active in 80 per cent of public authority control rooms in the UK.



2016 Things connected

- With partners we have installed 25 of the 50 LoRa Gateways in London.
- They are testing the city's IoT readiness.



2018 Smart lighting

- Automating street light controls so they adjust to conditions in real time.
- Option to create smart lamp posts that do many things at once, like monitor the environment, run CCTV or act as wifi hotspots.

In conclusion



BT is investing £6bn over three years to expand our high-speed network footprint

We all share a common goal - towards a full fibre and 5G future - it's both a challenge and an opportunity

We're taking the lead as the migration to full fibre and all IP continues to disrupt traditional models

BT is on a journey to realise our strategy to improve connectivity

As a BT Wholesale partner, Spitfire leverages BT's innovation and network investment

Being part of the Spitfire community makes it easier for you to develop better service offerings for your customers



Together we can all use the power of communications to make a better world