

# Explore our range of solutions and business opportunities for mobile operators

eBook



# Welcome

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## We're here to help

This eBook outlines the main propositions and business opportunities offered by BT Wholesale to our Mobile Network Operator (MNO) customers.

- We have extensive experience of the needs of mobile networks - you might be surprised by some of the exciting solutions we can offer you!
- Our services include the planning, acquisition, build, deployment, management, maintenance and optimisation of MNO networks.
- Our comprehensive technology solutions will enable you to refresh your network so that you can meet changing customer demands.

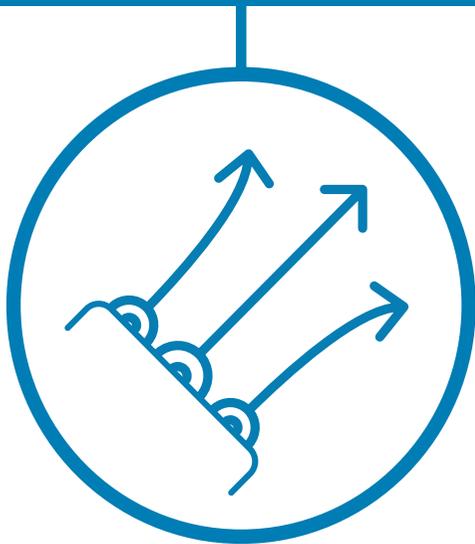
BT's architectural vision is based around a programmable network, using Software Defined Networks and virtualisation to provide you with more control, increased flexibility, and the rapid deployment of network and software services (in just minutes). We'll continue to invest heavily in R&D - we're currently investing some £1.5 billion in 2016/17 - to create a new era of networks and to give you and your customers an on-going competitive advantage.

**We hope that this eBook gives you a glimpse of the many exciting opportunities in different areas that will be available to you when you work closely with us.**



# Next Generation Access

Changes in technology and customer behaviour are transforming communications. The integration of voice and data services enables you to enhance your customer experience and deliver transformational customer engagement.



## Your issues

- You need more bandwidth, lower costs and greater flexibility. You'll also need innovation to meet the need for data (and access to it) as the digital economy keeps growing.
- Customers expect ubiquitous network coverage which will require greater use of more cell sites for 5G.

## Our solution

No problem! We understand that both the market and technology are evolving. So is our Managed Ethernet Access Service – it offers you the functionality you need to deliver your customers' requirements for 4.5G and 5G.

We'll offer you an upgrade path to 5G, based on fibre, phase synch, access interoperability and network performance/transparency.

We continue to push the boundaries: we've run successful trials of C-RAN, G.fast, 10G access and multipoint microwave, and we're developing an ever wider number of options.

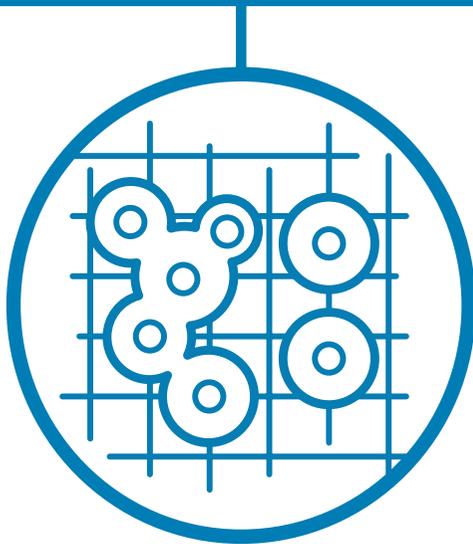
## Key features/benefits

- **Cost-effectiveness** – Lower cost, high bandwidth deployments and dynamic use of bandwidth to support growing data demands.
- **Choice** – The UK's widest choice of access options, including Fibre, Copper and Microwave utilising Ethernet and Broadband technologies over a common product – Managed Ethernet Access Service (MEAS).
- **Flexibility and support** – We enable you to offer ISP services or private network connections, scalable to meet demand. We will continue to work with you to develop the product in line with your 4.5G and 5G needs.

# Small Cells

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With advances in smartphone technology and increasing demands for data, subscribers are consuming more data and expecting faster speeds for their money. Meanwhile, smartphone and app developers want to take advantage of new technologies.



## Your issues

- To achieve future data rate demands and quality needed, MNOs will have to densify their network cells by ten times or more.
- To address this, you'll need to continue increasing bandwidth availability without significantly increasing costs.
- With technology advances in both handsets and apps combined with ever increasing subscriber hunger to be always in touch, traditional methods will no longer cost in or be sustainable.

## Our solution

Help is at hand! Our Small Cell Portfolio ranges from full turnkey solutions including sites, backhaul, install and commission as well as full management to simply the backhaul itself. This gives you both a solution for existing sites and removing the complexity for new.

The backhaul solution needs to be resilient and upgradeable. We're committed to helping you to find a cost-effective way of sharing elements of your small cells infrastructure.

We've conducted over 50 outdoor trials, including the use of BT payphones, telegraph poles and other street furniture with a combination of copper, fibre and radio backhaul technologies. Beyond traditional backhaul, we've also pioneered the UK's first outdoor DAS network, with 32 sites in Westminster.

## Key features/benefits

In future you'll be able to cut your costs significantly through neutral host and network sharing models. We can offer you a unique, dual operator solution:

- Enjoy the benefits of our resilient 21C core and Managed Ethernet Access Service (MEAS) networks.
- Investment in IP VPN has led to our superb seamlessly integrated mobile backhaul services.
- We can offer a true end-to-end service, from site asset lease to managed deployment and backhaul delivery.

# Sites and Assets

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We know that access to the right sites in the best locations, along with power and network connectivity, is becoming increasingly difficult. BT's extensive Sites and Assets portfolio can make a real difference to your capabilities.



## Your issues

- You'll want greater network coverage - and with 5G you'll need even more cell sites. Small cells will need some 50,000 to 60,000 sites. Nationwide mobile networks require a lot of infrastructure which needs planning permission and sites and properties have to be acquired and managed.

## Our solution

We've already got it covered! We have many sites available and we can provide the associated network connectivity (fibre and radio services).

We're a market leader in the provision of Ethernet connections to mobile cell sites and site assets.

Our sites are complementary to backhaul capability and we can offer you a complete turnkey solution.

We have numerous site assets that help to provide an infrastructure for small cells - including phone boxes, rooftops, telegraph poles and lamp posts.

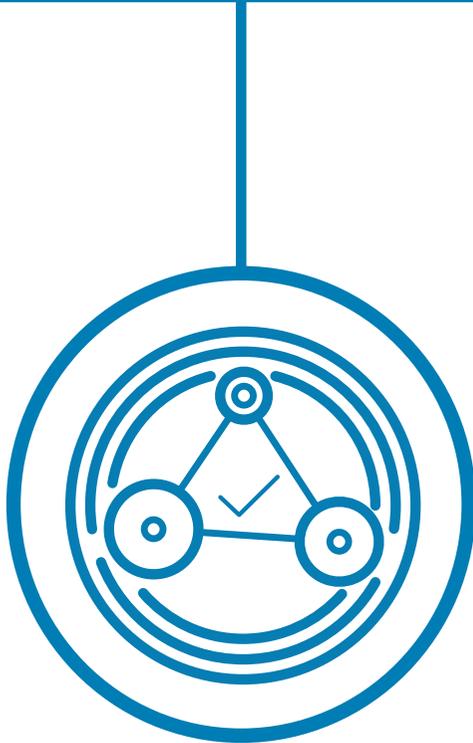
## Key features/benefits

- **Capabilities** - As a backhaul provider of choice, we implement a full end-to-end delivery. This puts us in a strong position in the market.
- **Sites** - We have 270 high towers, 56,000 phone boxes, 6,000 rooftops, 3 million+ telegraph poles and nine super connected cities available.
- **Other assets** - We have street assets such as lamp posts that you can use and telegraph poles. From one pole we can provide coverage over a radius of up to 6km in rural areas.

# Cloud Radio Access Network (C-RAN)

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Huge demands for network growth are encouraging mobile operators to consider alternatives to current connectivity solutions.



## Your issues

- The huge growth in smartphones and tablets and a move towards 'on-the-go connectivity' puts pressure on you to increase capacity and coverage.
- This creates bandwidth challenges for you, as you'll need to improve base station co-ordination; reduce power consumption; and address exploding mobile connectivity needs.

## Our solution

Don't worry – we're committed to working with mobile operators to help you through faster data speeds and more capacity, by leveraging existing investments and by migration to 5G. A smaller site footprint will enable deployment over more asset types, whilst enhancing aesthetics. With central processing, you'll be able to obtain more data from the same bandwidth, with less power consumption and better use of your processing resources.

This enhances base station co-ordination and supports co-ordinated Self-Organising Network (SON) strategies and centralisation and virtualisation.

We conducted a worldwide first with our C-RAN trial over G.fast. We're developing high-speed, low-latency access solutions, using multiple access technologies to offer up to 10G and to support network synchronisation. We invite mobile operators to work with us to refine this innovative solution to fit your future needs.

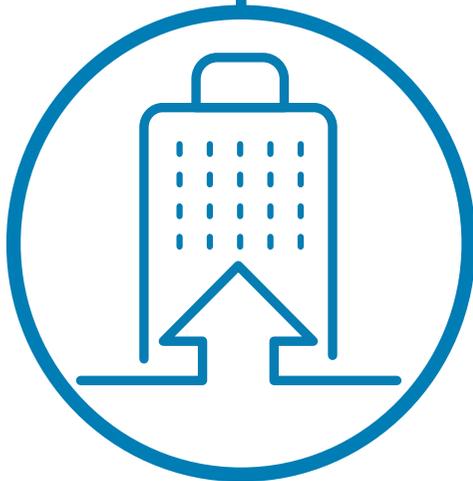
## Key features/benefits

- **Capabilities** – Our exchanges are ideal for hosting your processing equipment, telecoms products and the local connection to your backhaul network.
- **Experience** – We're a proven provider of backhaul to MNOs.
- **Versatility** – We will build a nationally available product, making our solution repeatable and decreasing your TCO through less variance, fewer parties to deal with.

# Data Centres

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One way in which you can keep ahead of your competitors is by using new technologies, such as our award-winning, enterprise-class data centre services.



## Your issues

- You want to optimise your data infrastructure by creating or enhancing a facility for your own use and perhaps supporting hosting solutions for your customers.
- You want to maximise the efficiency of your business and your operations
- You also want to take advantage of new applications.

## Our solution

We have the perfect solution. Our data centres are robust, future-proof and can be fully integrated. Our solutions range from basic hosting to turn-key, including the design, installation, commissioning and supply of equipment.

Many of our sites (including a key location such as Faraday House) have 24-hour manned security. Options available to customers include virtualisation, data processing, data centre options, software solutions and back-up.

We can move you from a legacy data centre to a new facility and can manage the migration. Our build can include N+1 resilience with uninterruptable power, 24/7 monitoring and Uptime Tier 3 resilience.

## Key features/benefits

- **Performance** – Our data centres provide optimal reliability and performance at the lowest possible cost, along with service levels of 99.95%.
- **Flexibility** – Our flexible or lower risk approach is based on operating cost models such as ‘pay as you grow’. Our data centre services can be tailored to your needs.
- **Cost savings** – Our data centres are co-located with the BT core network – you can save money (e.g. on access circuits) whilst improving your service levels.

# Rapid Response Vehicle and Continuity

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Business continuity planning involves prevention and recovery systems that can deal with potential threats. Our products and capabilities will help you with your business continuity plans by enabling rapid deployment of mobile coverage.



## Your issues

- You face increasing pressures from Ofcom's network availability requirements.
- Emergency deployments are also becoming more of an issue.
- New weather patterns are affecting both the service and communities.

## Our solution

We're ahead of the game – in collaboration with MNOs, we're building a suite of solutions that can be deployed rapidly for emergency mobile coverage and planned capability. This includes deploying a mobile service anywhere within six hours via our mobile base stations which can use all forms of backhaul technology such as satellite, microwave or fibre.

We're particularly focusing on keeping networks operational during any type of event (whether planned or an emergency) whilst also supporting enterprise and special projects.

We therefore have a fleet of vehicles, fully equipped as mobile base stations, that can be deployed in emergencies, anywhere in the UK. We can accommodate Nokia, Ericsson and Huawei equipment.

## Key features/benefits

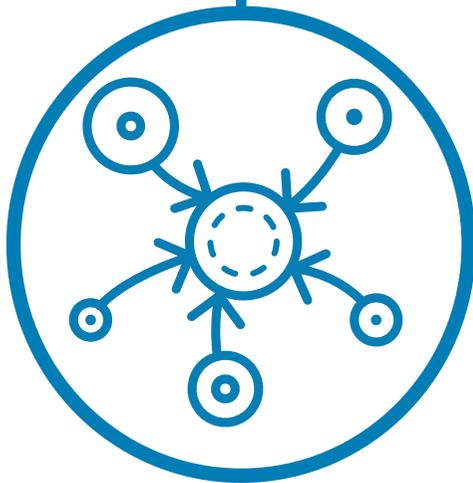
- **Accessibility** – It can be deployed during floods, even if other forms of communication don't work.
- **Versatility** – And you can access it at short notice for corporate events or small gatherings.
- **Cost-effectiveness** – Our quick and cost-effective deployment provides a service until a long-term solution is found.



# Managed Professional Services

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The fast moving evolution of technologies and services within the mobile network domain provide a challenge to Mobile Operators, who need to have the correct people, processes and tools in place to deliver key programmes and services in a cost-effective and highly planned manner.



## Your issues

- To deliver wide ranging network technology uplift programmes (4G, 4.5G, 5G)
- All whilst simultaneously providing the in-life services which constantly improve network performance and end user service and quality.

## Our solution

We provide mobile specific managed services that are cost-effective and deliver wide ranging programmes that help transform your network performance and quality. We have over 1,000 mobile service professionals dedicated to our MNO customers.

We offer a range of services including full radio access, network operation centres, field maintenance services, network optimisation, planning and delivery services and commercial flexibility with bespoke customer models.

Our mobile professional services are widespread and encompass 4G RAN planning, programme and delivery services; 2G/3G/4G RAN optimisation services as well as transmission planning, design and deployment programmes for fibre and microwave. Other examples include end-to-end small cell network capacity and coverage uplift projects and network and people transformation services.

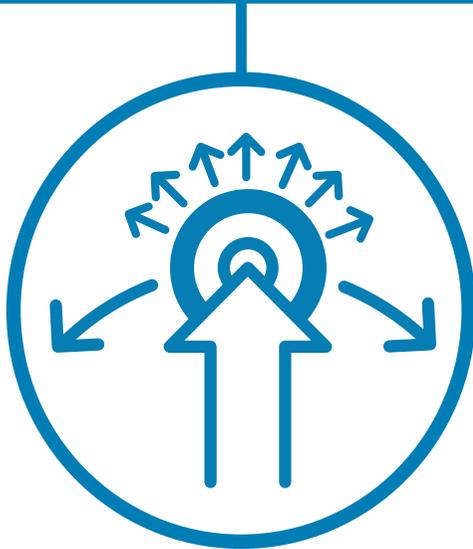
## Key features/benefits

- **Portfolio** – We have a full mobile centric suite of professional services available to deliver from small to large managed services programmes.
- **Bespoke** – From one-off programmes up to larger services and operational transformation programmes.
- **Advanced** – Leading tools and process capability.
- **Experience** – We have a strong track record of delivering large and complex managed services and outsourcing programmes.

# Managed Transmission Deployment

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Transmission networks are becoming increasingly complex with multiple protocols, vendors, property issues and technologies leading to a larger number of dependencies. They must be deployed in a controlled, predictable and effective way.



## Your issues

- You have highly complex transmission network and multiple programme teams
- The level of re-visits and aborts causes re-work and raises your costs, it takes time to resolve and causes delays and unpredictability in your network rollout.

## Our solution

We have an extensive pool of skilled transmission and deployment engineers and continue to grow these teams.

Our tracking and reporting capability is continually undergoing developments which allows us to manage dependencies across the various elements of a transmission network. This lets us minimise unforeseen issues.

We've put a series of capabilities in place that allow us to track, deal and resolve all the standard blockers that are experienced in the transmission world. These include acquisition issues, wayleaves, local authority planning delays, site enablement and construction, hub and child dependencies, network configuration, site share, managed access and activation planning.

We've deployed over 4,000 leased line, and over 2,000 microwave based transmission solutions for our customers.

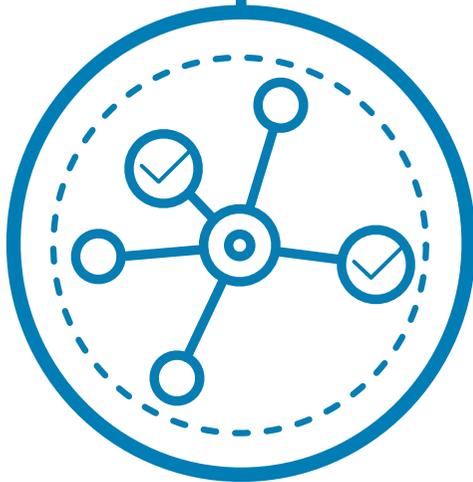
## Key features/benefits

- **Experience** – We have 150 expert transmission engineers and planners with capability covering BT leased line solutions, other vendors' leased lines, microwave deployment and dark fibre experience.
- **Quality systems** – Best in class dependency tracking and reporting systems.
- **Flexible** – A fully adaptable onshore/offshore resourcing solution that allows us to take peaks and troughs in the volumes you instruct us.
- **Fixed price** – So we share the risk with you on delays and blockers and have the same interest in resolving them.

# Retail Stores

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Mobile retail stores are busy places. The need for real-time transactions means that a fast, dependable and secure network is a business-critical requirement.



## Your issues

- You're facing fierce competition from High Street stores and other channels.
- You therefore need to provide an excellent customer experience.
- You'll also need to maximise any sales opportunities.

## Our solution

And that's where we come in! To meet your needs, we've developed a portfolio of innovative solutions designed specifically for MNO retail stores, ultimately with the aim of providing a one-stop shop for the technology you need.

For instance, we provided a fast, ubiquitous Wide Area Network for EE, with security, web filtering, applications performance monitoring, WiFi and intrusion prevention.

Our network and associated services can reach every shop in the country. Our comprehensive portfolio ranges from network connectivity, ePoS solutions and in-store WiFi through to data centres, queue reduction technology and customer analytics.

We'll enhance the critical in-store customer experience as you seek to grow your market share and develop your brand. We'll help you to engage customers with exciting experiences such as entertaining Holograms; Queuebuster; our multi-media Interactive Floor; and our dazzling Art Window.

## Key features/benefits

- **Innovation** – Our portfolio includes many innovative solutions for retail stores.
- **Efficiency** – We can use a mixture of connectivity products to give maximum efficiency.
- **Engagement** – We enhance the customer experience and increase in-store engagement.
- **Cost-effectiveness** – By acting as a sole supplier of solutions, we can offer single supplier SLAs.

# Case Study

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Here is a mini case study that underlines how we can provide powerful solutions for MNOs.



[Read the full case study](#)

## Proposition: Retail Stores

### The issue

EE's retail outlets have become increasingly busy with the ever-increasing demand for smartphones. The company needed real-time transactions which in turn required a fast, dependable network. The wide area network that links its retail outlets is vital for its operations. The company also wanted to empower its store staff with tablets over an in-store wireless network provided and managed by BT.

### Our solution

In 2012, EE chose BT to refresh and standardise its retail store network. BT Wholesale's solution included a service blend from the BT Connect portfolio which has enabled an increasing number of stores to be connected over superfast broadband. We supplied the in-store routers and also support the store-based Cisco hardware.

The stores were also connected to two EE data centres via the BT IP Connect cloud, with BT Secure Internet Gateways enabling web traffic connectivity. The solution also included managed security services from BT Assure. More recently, BT has been providing in-store WiFi connectivity across the entire EE estate, with tablets and Cisco-based wireless access points providing a new world of possibilities.

### The result

BT Wholesale's solution has led to a faster and fully resilient managed service that links all of EE's stores. The in-store wireless network has boosted efficiency and the use of tablets has created an agile sales environment that's transforming the customer experience whilst also boosting revenues per transaction.

"Our policy is real-time transaction processing, so having a dependable network is business critical. BT ticked all the boxes, supplying everything we need from a network."

**Rob Purdy,**  
IT Development and Vendor Management, EE.

## Why BT Wholesale?

- **Superb quality.** BT Wholesale is the UK's leading wholesale communications business, providing world-class solutions backed by impressive reliability and resilience.
- **Great experience.** We also have a wealth of industry knowledge, vast experience and a powerful history of innovation.
- **Excellent support.** We're at the leading edge of communications technology, so our solutions are scalable and future-proof. And with our size and stability, you can rely on us to provide excellent levels of support for you and your customers.



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