Are Telecoms Exchanges the Next Bottleneck for ISP Growth?

Executive Summary

Originally used as telephone switching facilities, telecom exchanges are now vital hubs for broadband connectivity. The UK needs to take measures to ensure that exchanges are prepared for the rising demand for high-capacity, low-latency networks. Of particular importance is the BT Openreach exchange closure program, which will gradually phase out approximately 4,500 legacy exchanges, leaving only 1,000 in operation. To build scalable, robust, and future-proof telecoms networks that support Project Gigabit and high-speed connectivity across the country, strategic planning regarding the use of exchanges is crucial.

The knowledge of industry leaders like **Steve Glendinning** (Group CTO, Netomnia, YouFibre, Brsk) and **Justin Leese** (CTO & COO, Ogi) is combined with Altnets' own insights and internal research to produce this whitepaper. With an emphasis on updating Optical Line Terminals (OLTs), implementing higher-density Passive Optical Networks (PONs), and enhancing power, cooling, and physical layouts to increase efficiency, scalability, and future-proofing, it examines the opportunities and challenges that telecom exchanges face.

The Role of Telecoms Exchanges Today

Telecoms Exchanges have long formed the backbone of telecommunications networks, evolving from their traditional role as voice-switching exchanges to today's critical hubs that aggregate, route, and manage vast amounts of broadband traffic.
The deployment of high-capacity fibre networks, along with rapidly shifting expectations from enterprises and consumers, has been the primary driver of this change. The flexibility and resilience required to deliver a seamless digital experience are now provided by modern Telecoms Exchanges, which serve as the crucial link between local access networks and the broader internet.

These facilities are facing new demands from emerging technologies, such as software-defined networking (SDN), network virtualisation, and higher-density Passive Optical Network (PON) solutions. There is increasing pressure on Telecoms Exchanges to provide scalable, high-capacity, and future-ready platforms as more devices, data, and latency-sensitive applications add to the network.

The Openreach Exchange Exit program is a key factor influencing the future of UK telecom exchanges. Only 1,000 of the 5,600 exchange buildings that Openreach currently leases are required for nationwide fibre broadband services, known as Openreach Handover Points. The goal is to establish a streamlined network of long-lasting exchanges by gradually closing the 4,500 legacy exchanges that still operate, most of which support Asymmetric Digital Subscriber Line (ADSL) broadband and older voice services, by 2030[1]. Although careful planning is necessary to ensure that customers are migrated safely to remaining exchanges nearby and with the least amount of disruption, this consolidation presents opportunities to reduce infrastructure duplication, lower energy consumption, and enhance operational efficiency.

In light of this, the key question is whether today's telecom exchanges are truly equipped for 2030 and beyond. Telecoms Exchanges run the risk of becoming the next significant bottleneck for Project Gigabit, as bandwidth consumption rises and user demands for seamless connectivity increase, unless operators make the necessary investments in capacity, flexibility, and architectural strategies to accommodate future expansion.

This paper will investigate this question by combining independent research with interviews with technical leaders in the ISP sector. The goal is to provide a clear picture of what Telecoms Exchanges need to deliver if they are to remain functional in the decade that follows.

Chapter 1: Future-Proofing and Capacity

While significant attention has been paid to upgrading the external network, the ability of Telecoms Exchanges to scale and support these upgrades is now coming into focus.

1 https://www.openreach.co.uk/cpportal/products/the-all-ip-programme/exchange-exit-programme

This section examines the main technical aspects that affect a Telecoms Exchange's ability to handle future demands, including space availability, energy readiness, equipment capacity, and fibre management. We examine the actions operators are taking to keep their network capacity from becoming a limiting factor in future growth, based on real-world insights from industry interviews and market data.

Equipment capacity

The Optical Line Terminal (OLT), a vital piece of equipment that links each customer to the larger network, is at the centre of every Telecoms Exchange. Older OLT systems should be replaced by newer, higher-capacity models that enable noticeably greater connectivity within the same physical footprint, as full fibre rollouts pick up speed.

The most sophisticated multi-OLT PON systems use network capacity more effectively while supporting multiple services at once, such as 5G fronthaul and traditional broadband[2]. By using this method, operators can provide high-speed connections with minimal latency and almost all of the available bandwidth.

Modern OLT technology, especially with the adoption of XGS-PON and 25G-PON standards, enables thousands of high-speed connections while taking up less space and increasing operational efficiency, whereas traditional systems might have connected several hundred customers per unit. However, because XGS-PON is a shared network, users may not always experience the full 10Gbps speeds in practice, and regulators continue to push for advertised speeds to match real-world performance[3]. By switching to higher-density OLTs, operators can meet demand without having to buy or construct more sites and the bottleneck of increased connectivity is alleviated[4].

When asked whether central offices could become a limiting factor for UK connectivity goals, **Steve Glendinning**, Group CTO of Netomnia, YouFibre, and Brsk, explained: *"Exchanges risk becoming a constraint in areas where there is limited space or where an exchange is relied upon heavily and facing closure under the BT Exchange Closure Programme. For the vast majority of cases, they won't present a major limitation. The last 1–2% of premises, which are more remote, will be harder and less cost-effective to reach, and alternative solutions like Starlink or satellite are often more practical in those locations."*

Power and Cooling

Increasing network capacity unavoidably puts greater pressure on Telecoms Exchange cooling and power systems. Heat increases as operators install more active equipment and OLT units to handle greater quantities of data. Telecoms Exchanges run the risk of exceeding their intended power capacity if proper planning isn't done, which could result in expensive

2 Rawshan, F., Hossen, M. and Islam, M.R., "Multi-OLT Multi-Lane PON for 5G Fronthaul and Differential Services Through Access Class Priority-Based 2D Scheduling", IEEE Open Journal of the Communications Society (2024) p.6593

3 Omdia.tech

4 Zouhaira Abdellaoui, Yiyi Dieudonne, Anoir Aleya, "Design, implementation and evaluation of a Fiber To The Home (FTTH) access network based on a Giga Passive Optical Network GPON", Array, Volume 10 (2021), P.1

upgrades or operational limitations.

Thermosiphons, natural and liquid cooling, and computer room air conditioning units (CRACs) are common cooling techniques. While air-side systems are more reliable and less expensive than CRACs, which are often used in developing nations, they tend to use more energy because of components like compressors and pumps[5].

Due to the additional heat loads generated by higher equipment densities, the cooling infrastructure also requires attention to mitigate or prevent bottlenecks. Although conventional air-cooling systems had been sufficient for previous needs, ISPs should consider more effective alternatives, including free cooling technologies, direct liquid cooling, and optimised airflow management, to maintain dependability and reduce energy expenses.

Energy efficiency has gained significant attention due to rising environmental commitments, such as the net-zero targets set by the UK Government, as well as cost considerations. By reducing carbon footprints and power waste, enhancing Telecoms Exchanges presents an opportunity to align network growth with sustainability objectives.

Physical Space: Managing Growth Within Existing Sites

Physical space in Telecoms Exchanges is scarce in many parts of the UK, especially in urban or legacy network areas. These facilities don't always have the adaptability to handle the increasing density present in modern fibre networks because they were often initially built for much simpler networks.

Compact rack designs, vertical stacking systems, and modular equipment setups that

5 Alkrush, A.A., Salem, M.S., Abdelrehim, O. and Hegazi, A.A, "Data centers cooling: A critical review of techniques, challenges, and energy saving solutions", International Journal of Refrigeration, 160, pp.246-262.

enable gradual expansion without requiring significant building work are examples of solutions that operators are increasingly using to make the most of the available space. Modern rack systems not only reduce floor space requirements but can also simplify maintenance processes, enabling operators to scale networks more efficiently.
As **Justin Leese**, CTO and COO of Ogi, highlighted: *"Current exchanges are outdated, costly to maintain, and often unreliable, particularly in rural areas. Rather than trying to retrofit modern equipment into these legacy spaces, it is far more effective to deploy purpose-built cabinets."*

With increased capacity, easier maintenance, and total control over their network infrastructure, Ogi's active cabinets are a completely future-proof solution (not to mention an asset when it comes to consolidation of altnets. Active cabinets are a strong substitute for conventional telecom exchanges since Ogi creates a scalable, robust, and effective network that can easily handle expansion by depending on its own cabinets rather than rented exchange space.

Leese noted: *"Ogi generally prefers to deploy its equipment in purpose-built active cabinets rather than in BT exchanges, as it gives us greater control, makes maintenance easier, and ensures our network remains future-proof."*

In Cardiff, this strategy has proven especially successful. According to **Leese**, power and cooling issues at Cardiff's main exchange may impact network dependability. *"We have created a separate, independent point of presence for resilience to address this. With this configuration, our larger business clients have confidence in a dependable and secure service that is not limited by the city's primary exchange. It now serves as one of Ogi's unique selling points, illustrating how infrastructure designed with a specific purpose can improve service quality and support expansion."*

Parts of Ogi's operations still rely on conventional exchanges for connectivity, though their own active cabinets give them complete control over their network infrastructure and serve as a valuable asset when consolidation opportunities arise. Openreach exchanges remain vital "meet-me" points, offering ISPs third-party backhaul and other necessary services.

Fibre Management

After the pilot closures of three exchanges (Deddington, Ballyclare, and Kenton Road), which are now almost complete, Openreach (BT) has confirmed that the next phase of its UK exchange closure program will start in Q3 2025/26 and affect an additional 12 exchanges[6].

The quantity of fibre passing through the remaining exchanges is expected to increase as a consequence of the planned closures and the continuous growth of fibre networks. This may place pressure on fibre aggregation systems in the absence of sufficient preparation, which could lead to operational inefficiencies, increased maintenance expenses, and service interruptions.

It will be crucial to have scalable, future-proof fibre management solutions, such as struc-

6 https://www.ispreview.co.uk

tured cabling designs and simplified splicing. By putting these systems in place now, operators can keep a robust, streamlined network that is simpler to grow and modify as exchanges are consolidated, guaranteeing customers' continuity and dependability while promoting long-term network expansion.

Chapter 2: Avoiding Pressure Points - Architectural Considerations for Modernisation

The physical configuration of Telecoms Exchanges and how operators may remodel these buildings to accommodate future demand will constitute the primary topic of this chapter. The objective is to demonstrate the importance of flexible, modular, and scalable design in managing consumer growth as well as in facilitating the management of maintenance, upgrades, and operating expenses over time.

Adding new equipment is only one aspect of modernising and expanding Telecoms Exchanges; another is designing a more intelligent physical layout that can accommodate future expansions, new technology, or increased energy efficiency.

Why Architectural Layout Matters

A Telecoms Exchange with poor design can easily become a bottleneck due to its physical limitations. Inadequate space planning, crowded equipment racks, and constrained pathways can impede expansion, delay rollout schedules, and raise operating costs as fibre deployment picks up speed.

Scalability must be considered when remodelling exchanges. Smart spatial design, rack systems that enable phased equipment installation, and modular layouts facilitate the adoption of new technologies without causing significant disruptions. However, simplicity needs to be balanced with density. If not properly managed, overloading a facility to its maximum capacity can result in overheating, difficult maintenance, and decreased reliability.

With wide access aisles, easily accessible cabling, and clearly marked upgrade zones, an efficient environment decreases maintenance time and lowers the possibility of mistakes. Security is also very important. Surveillance systems, restricted areas, and controlled access shield the network and business continuity from internal errors and external threats.

If not properly planned, four crucial technical areas—port density, power availability, physical floor space, and fibre management—frequently turn into points of strain in Telecoms Exchanges. If the infrastructure does not exist to scale effectively, each of these factors can restrict capacity and impede expansion as broadband demand rises.

Port Density

Due to the rapidly increasing demand for broadband, operators need to connect more users without increasing their physical footprint. Port density is therefore a crucial design factor, particularly in Optical Line Terminals (OLTs).

Due to their higher hardware requirements and smaller user bases, legacy systems were inefficient in terms of both space and power. High-density OLT solutions, on the other hand, can significantly boost the number of customer connections per shelf, lowering maintenance and installation expenses while facilitating scalability.

Up to 64 users in Ethernet PON and 128 users in Gigabit PON can be connected to an OLT PON port. However, factors such as the type of service, fibre distance, the signal strength, and the amount of bandwidth required determine the ideal number of users per port[7]. When designing their networks, ISPs have to strike a balance between providing quality service and cutting costs.

Power and Cooling

Another growing issue is power availability. The need for steady electricity and cooling increases with the number of devices a Telecoms Exchange has and the power of those devices. However, legacy sites may not be equipped to handle the high-power, high-density demands of today.

Increased energy consumption and negative environmental effects are being attributed to the growing demand for telecom services, particularly with the 5G upgrade. Reducing carbon emissions, operating expenses, and electricity consumption is a growing priority for UK network operators, pushed by the government's 2050 net-zero goals.

A large portion of network infrastructure currently runs on diesel (DGs) and grid access. Although it is still difficult to replace DGs, steps to reduce diesel use involve optimising the DG load, installing larger batteries, controlling generator speeds, and using direct current power. [8] The most promising renewable option is solar photovoltaic systems; however, their sporadic nature makes it challenging to depend entirely on them for reliable, uninterrupted power.

7 https://www.vsolcn.com/blog/how-many-onus-can-an-olt-pon-port-support.html#:~:text=An%20OLT%20PON%20port%20can,quality%20when%20designing%20PON%20networks

8 Deevela, N.R., Kandpal, T.C. and Singh, B., "A review of renewable energy based power supply options for telecom towers", Environment, Development and Sustainability (2023) p.52

Smoother growth is possible by upgrading electrical systems with scalable backup options and modular power supply units. Similar to this, improved airflow design and energy-efficient cooling techniques, like free and passive cooling, lower operating costs and long-term power consumption.

Space and Fibre Throughput

Future upgrades, as well as existing equipment, must be taken into consideration when designing a space. Over time, Telecoms Exchanges may become impractical if there are no clear routes for expanding cabling and equipment. Because more connections entail more splicing, more movement, and a higher risk of faults, fibre management is particularly important.

Dedicated fibre corridors, scalable trunking systems, and easily accessible, clearly marked fibre trays are essential to minimise downtime and maintain network reliability during repairs or upgrades. Capacity, security, and simplicity are powerful advantages in a Point-to-Point model, where every customer has their own fibre connection to the Telecoms Exchange; however, effectively managing the volume of fibres can be challenging. According to research, efficiency can be enhanced in two ways: in the active cabinet, by using compact transceivers to increase port density and reduce power consumption; and in the passive cabinet, by employing a single Optical Distribution Frame (ODF) with smaller connectors to save space.[9] These architectural choices guarantee that Telecoms Exchanges remain scalable and effective while simplifying fibre handling.

The layout of Telecoms Exchanges has a significant impact on whether or not the growing demand for faster broadband facilitates ISP expansion. Modernising these sites involves more than just adding more equipment; it also entails designing adaptable, modular, and effective layouts that facilitate future improvements, lessen maintenance requirements, and guarantee dependable service. Telecoms Exchanges run the risk of becoming bottlenecks due to poor design, but with careful planning, they can be strong facilitators of long-term scalability.

Chapter 3: Return on Investment

Telecoms Exchange development requires careful investment planning that strikes a balance between the initial cost of improvements and future network expansion and efficiency gains. Managing a Telecoms Exchange or similar facility (such as a data centre or switching station) is costly as it requires backhaul network equipment, servers, routers, multiplexers and switches.[10]

Although initial capital expenditure (Capex), which includes new equipment, power systems, and site renovations, is inevitable, operators should be increasingly comparing

9 Arvidsson, G., Junique, S., Persson, K.Å. and Sundberg, E., "Dense Telecoms Exchange solution for point-to-point fibre access including a novel compact dual bi-directional fibre optical transceiver", Workshop on Optical Components for Broadband Communication (2006), Vol. 6350, pp.145

10 Layton, Roslyn, and Petrus Potgieter. "Rural broadband and the unrecovered cost of streaming video entertainment." (2021). P.6

these expenses to the site's total cost of ownership (TCO) over time.

A noteworthy monetary benefit of future-ready Telecoms Exchanges is their ability to reduce ongoing operational expenditure (Opex). Higher-density equipment minimises the total number of racks and square footage required per customer served, while scalable power and cooling systems reduce energy costs over the long term. More accessible layouts also reduce maintenance time and fault resolution costs. When these savings are taken into account in TCO models, initial investment can be justified by predictable savings over time and improved network performance.

Many ISPs are transitioning away from relying solely on large, upfront investments to fund upgrades. Instead, they use a variety of financial models to spread the costs over time. This includes leasing equipment, using managed services in which suppliers handle some operations, and sharing infrastructure with other providers.

The Access to Telecommunications Networks Bill aims to improve network coverage by calling for telecoms providers to grant competitors access to their infrastructure as needed.[11] Infrastructure sharing can involve providers constructing separate passive infrastructure on shared sites, deploying their active equipment on shared masts, or sharing both passive and active components. Ofcom supports network sharing but does not require it, stating that operators should be willing to share. Disputes are handled on a case-by-case basis, and Ofcom can intervene to demand sharing if it believes access is being denied unreasonably. [12]

These adaptable approaches are popular among smaller networks that want to expand quickly without large financial risk. Infrastructure investment funds are also playing an increasingly important role, providing capital in exchange for a long-term return.

- To encourage private investment and expedite the rollout of high-speed broadband, HM Treasury introduced the National Wealth Fund, formerly the UK Infrastructure Bank. The fund is helping expand high-quality broadband across the UK, with a focus on underserved and hard-to-reach communities. Backed by £27.8 billion, it supports projects that drive economic growth and unlock private investment. [13]
    - » Netomnia, which has since merged with Brsk to become the second-largest fibre altnet in the UK, obtained a £25 million loan from the recently renamed National Wealth Fund in October 2024, increasing its total funding to £100 million.[14] The network has already assisted in connecting over 100,000 locations and will support plans to grow from its current 1.8 million locations to 3 million by the end of 2025.

- The Gigabit Broadband Voucher Scheme, an element of Project Gigabit, enables homes and businesses in areas not yet scheduled for commercial or government-funded upgrades to have faster, more dependable broadband. Up to £4,500 in vouchers can be given to qualifying locations to help ISPs alleviate the cost of installing gigabit-capable

11 https://researchbriefings.files.parliament.uk/documents/CBP-9940/CBP-9940.pdf
12 https://www.ofcom.org.uk/phones-and-broadband/coverage-and-speeds/site-sharing
13 https://static-files.nationalwealthfund.org.uk/s3fs-public/download/Financing%20the%20Future%20a%20statement%20of%20intent%20by%20the%20National%20Wealth%20Fund.pdf?VersionId=dZqF3Tn_MD_enp_j.40YgsB_Ixeyb2sk
14 https://www.telecompaper.com/news/netomnia-secures-gbp-25-million-loan-from-national-wealth-fund--1516732

broadband.[15]

» **Justin Leese**, CTO of Ogi, highlights the scheme's value: *"The Gigabit Broadband Voucher Scheme provided additional support for harder-to-reach premises. We used equity funding to build in the towns, but government funding was essential to connect outlying properties and cover the whole town, not just the densely populated areas. It's what we call our 'doughnut strategy."*

Strategies like public-private partnerships and corporate restructuring, including mergers and acquisitions, frequently make effective investment possible.[16] In some cases, ISPs form joint ventures with investors or local authorities to fund upgrades, especially in areas with strong customer growth or government targets.

- In 2018, Aberdeen became Scotland's first city to benefit from a £40 million CityFibre, Vodafone, and Aberdeen City Council partnership, delivering gigabit-speed full fibre broadband to nearly every home and business through a major private and public investment rollout.[17]

For operators upgrading their networks, these varied investment strategies help to reduce the total cost of ownership. ISPs can invest in Telecoms Exchanges that are more scalable and commercially sustainable in the future by distributing expenses, cutting down on replication, and securing long-term operational savings. In the end, sound investment plans guarantee that Telecoms Exchanges are a long-term asset that provides greater value throughout the network's whole lifecycle rather than a financial bottleneck.

Chapter 4: Telecoms Exchanges Across the Globe - What Can the UK Learn?

As global networks grow to satisfy the increasing demand for fibre broadband and faster services, Telecoms Exchanges around the world face similar challenges. The UK may identify efficient procedures and possible dangers to guide its own infrastructure development through a glance at how developed nations handle capacity planning, investment, and Telecoms Exchange design.

Deutsche Telekom has been urged to implement temporal and spatial load shifting techniques in its Telecoms Exchanges in Germany to boost economic performance and energy efficiency.[18] Whereas temporal load shifting, which modifies energy use to varying times of day, benefits both ICT operations and the larger energy system, spatial load shifting, which divides workloads across various locations, primarily benefits ICT systems. These tactics support Germany's broader objectives to lower carbon emissions by lowering energy costs and providing new revenue streams like selling excess capacity or participating in energy

15 https://www.gov.uk/government/publications/gigabit-broadband-voucher-scheme-information

16 Brenni, P.A. and Mugisha, H., Infrastructure Investing in the Telecommunications Sector: Emerging Issues. In The Routledge Handbook of Infrastructure Finance (pp. 455-470). Routledge.

17 https://www.aberdeencity.gov.uk/News/Press-Archive/Article?title=Aberdeen%20to%20become%20Scotland%E2%80%99s%20first%20gigabit-speed%20fibre%20broadband%20city%20in%20%C2%A340m%20project

18 Steinmetz, Andreas, Sara Mollaeivaneghi, and Florian Steinke. "Qualitative Analysis of Telecoms Exchanges Load Shifting Opportunities." P.18

balancing markets.

In South Korea, a country deemed in 2023 to have the highest broadband availability and adoption globally, nationwide operators have successfully transitioned nearly all their networks from copper to fibre, with all connections between Telecoms Exchanges and core networks now fully fibre-based.[19] The access network employs a flexible strategy: Fibre-to-the-Home (FTTH) uses technologies like GPON and EPON to deliver high-speed broadband by deploying fibre cables directly from the Telecoms Exchange to residences and commercial buildings. Fibre-to-the-Distribution-Point (FTTDP) is used in some places, where fibre is sent from the Telecoms Exchange to local distribution points and connected to existing copper lines. South Korea can maintain cost-effective rollouts while securing high capacity where it matters most due to a well-balanced approach.

Telecoms Exchanges are increasingly taking on the traits of data centres as the world's telecoms infrastructure develops. Major US telecom companies like AT&T and Verizon are virtualising their networks and shifting from costly, traditional hardware to adaptable, software-driven systems that run on commodity servers and switches.[20] This change not only lowers expenses but also makes networks more scalable and versatile.

The Cybersecurity and Infrastructure Security Agency (CISA) of the US Department of Homeland Security stresses that Telecoms Exchange disaggregation and virtualisation could boost resilience and lower individual points of network failure.[21] To improve system recovery in the case of outages, CISA also suggests making sure that the network is physically diverse, has built-in redundancy, and seeks restoration services like Telecommunications Service Priority (TSP).[22]

To facilitate this transition, Telecoms Exchanges are being upgraded to resemble edge data centres by upgrading them with cutting-edge mechanical and electrical systems.[23] Next-generation applications that demand low-latency, high-performance computing near end users, such as AI and self-driving cars, depend on this evolution.

For the UK, these examples offer valuable perspectives into how Telecoms Exchanges may develop to satisfy projected demand. The US's emphasis on virtualisation and resilience, South Korea's flexible fibre rollout, and Germany's intelligent energy load shifting all highlight the value of flexibility, progressive infrastructure design, and policy alignment.

Steve Glendinning, Group CTO of Netomnia, YouFibre, and Brsk, notes: *"We don't look directly at international models, as telecoms is different in every country, but we do pay attention to what others are doing, especially the technical teams in the industry. Networking is a useful reference in the telecoms sector."*

The UK can future-proof its network while promoting sustainability and economic efficiency by making investments in software-driven, scalable systems and guaranteeing resilience

19 Hyeongjik Lee, Seonkoo Jeong, Kwanghee Lee, "The South Korean case of deploying rural broadband via fiber networks by implementing universal service obligation and public-private partnership based project", Telecommunications Policy, Volume 47, Issue 3 (2023) P.9

20 https://www.geo-tel.com/telecom-central-offices/

21 https://www.cisa.gov/resources-tools/resources/risks-telecommunications-central-offices

22 https://www.cisa.gov/resources-tools/resources/risks-telecommunications-central-offices

23 https://www.geo-tel.com/telecom-central-offices/

through innovative planning. By embracing global lessons, the UK could establish itself as a pioneer in next-generation telecoms infrastructure and guarantee that its networks are resilient enough to meet future digital demands.

Conclusion

Can ISP growth be hindered by telecom exchanges? Yes, in particular circumstances, but they generally don't have to be. Outdated systems, space limitations, and legacy infrastructure can impede network performance and postpone service rollouts. Purpose-built infrastructure, on the other hand, can offer scalable, future-proof alternatives that lessen dependency on conventional exchanges while streamlining maintenance and enhancing operational control, as creative solutions like Ogi's active cabinets have demonstrated.

However, as "meet-me" points for backhaul and third-party services, traditional exchanges—especially Openreach's—remain essential. In order to meet mid- to long-term network needs, it is crucial to ensure equivalent connectivity solutions and to plan with communications providers, as planned closures may limit access to these resources.

The upgrade and expansion of the UK's fibre infrastructure must coincide with the development of telecom exchanges. Practical advice for future-proofing is provided by lessons learned from international networks in South Korea, Germany, and the US, including virtualisation, modular layouts, energy efficiency techniques, and flexible infrastructure design. ISPs can build robust, high-capacity networks that support cutting-edge services like 5G fronthaul, high-density PON deployments, and next-generation broadband by integrating these lessons with strategic investments in scalable technology.

ISPs can overcome legacy limitations, outdated infrastructure, and space constraints by implementing forward-thinking strategies, such as deploying purpose-built active cabinets or modernising existing exchanges with high-density, energy-efficient layouts and virtualisation. By using these tactics, networks can support new technologies like 5G fronthaul and high-capacity PON systems while scaling effectively and maintaining dependability. The UK can make sure its exchanges are no longer a hindrance to growth by investing proactively and strategically, establishing the country as a pioneer in next-generation, future-proof telecom infrastructure.

By investing in adaptable, high-capacity infrastructure, Altnets are in a unique position to provide technology that is faster, more dependable, and future-proof. Together, we can close connectivity gaps, reach underserved communities, and help the UK achieve its Project Gigabit objectives by embracing innovation, scaling effectively, and employing both owned and shared infrastructure. The time to take action is now; prepare your network for the future and lead the nation's digital revolution.