Overcoming
deployment challenges for UK altnets

by Mike Knott, Market Development Manager FTTH, Corning

As the full fibre network gathers pace across the UK, the key to success for UK altnets will be finding solutions for speed and scalability of the build process.

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Slowly but surely, the UK has grown into a real hotbed for fibre-to-the-home (FTTH) activity. As of the start of January 2021 some 21% of UK homes and businesses have access to a "full fibre" network, up from 14% in May 2020 and representing coverage of circa six million premises passed.

Leading the charge is Openreach who are building at scale, and this has created a race to deploy across the UK. Investors have recognised the opportunity for telecom infrastructure projects and are supporting a range of alternative operators (altnets) with funding. Our UK altnets cover the full range of build strategies – at one extreme we have platforms that concentrate on dense urban builds, others cover mid-sized towns and cities, while at the other end of the scale some focus on low density rural construction.

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Large scale FTTH deployments also need a lot of people, some with specialised skills. When many operators are building in parallel, those skills become scarce and when any resource is in demand it naturally becomes more expensive. This particularly applies to skilled fibre installation resource. Splicing is a highly transferrable skill, and operators and contractors alike are finding it increasingly difficult to retain quality staff.

Despite the outcomes from the recent Wholesale Fixed Telecoms Market Review, the difficulties faced by altnets are many and varied. The challengers are challenged and that is why certain manufacturers like Corning have stepped forward to provide solutions to passing homes faster and more cost effectively.

Network Architecture Choices

Since the earliest days of FTTH there has been much discussion about the relative merits of passive optical network (PON) versus Point to Point and Centralised versus Distributed Split architectures. Many factors influence this, but whichever is selected, the outside plant connectivity solution should be able to handle all configurations.

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The capability to speed up deployment is more influenced by a lower level of architecture, focusing on the configuration of network terminals and the method by which customers are connected – in this context we define the network terminals as the point at which customer drops are connected into the network, so the interface between Homes Passed and Homes Connected.

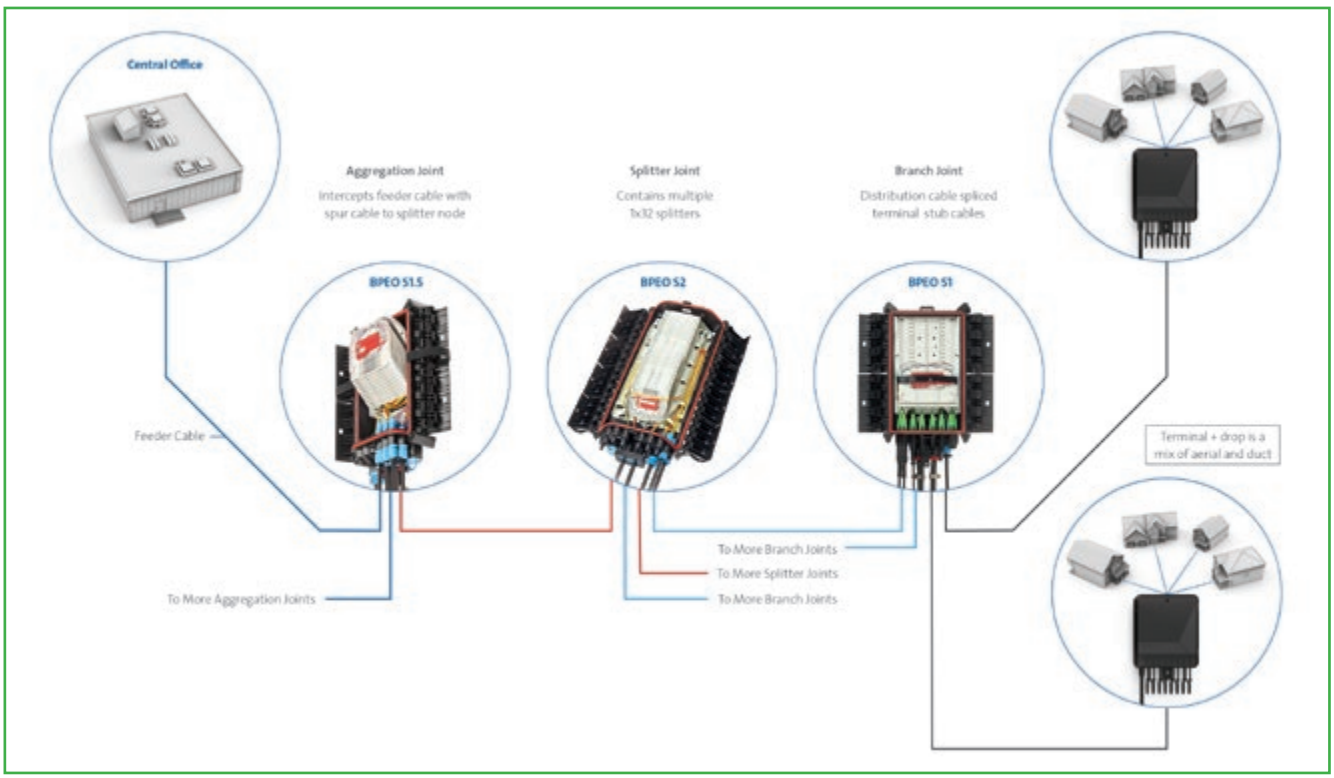
Network terminals can either be pass-through or stubbed. Pass-through terminals have the disadvantage that fibres in the distribution cable must be accessed at homes passed using precisely the skilled fibre installation resource which is in such short supply.

There are three basic methods of connecting customer drops at the terminals:

- **Spliced Drops:** Drop cables are fusion or mechanically spliced at the terminal. Each customer installer needs to be a skilled splicer.
- **Non-Hardened Connectorised Drops:** The drop cable is connected with a conventional SC or LC connector which is plugged into an adaptor inside the terminal. The terminal has to be opened and the drop cable entry sealed for every customer connection.
- **Hardened Connectorised Drops:** The drop cable is pre-connectorised with a hardened connector which is plugged into an external port on the terminal. There is a fixed demarcation between the homes passed and homes connected operations, and minimal fibre resource is needed. This configuration also improves network reliability because the customer installer has no access to network fibres.

The optimum solution for speed of deployment both from the perspective of Homes Passed and Homes Connected is using hardened connectors and stubbed terminals. Terminals can be deployed without any fibre work and splicing is concentrated in a few locations, which optimises skilled resource.

Some of the largest FTTH deployments around the world have used this configuration. Here's a typical architecture suitable for the UK:



Civil infrastructure and physical infrastructure access (PIA)

FTTH deployment is an expensive business. At its basic level it involves digging holes in the ground and the cost of digging holes will only ever increase. OFCOM has sought to level the playing field for altnets and one of the key methods they have chosen is to allow access to Openreach's ducts and poles through Physical Infrastructure Access (PIA) regulations. The process has had its difficulties but is now being adopted more widely by altnets.

In PIA applications network congestion is becoming a problem and this will only increase as more operators deploy – we introduced our Evolv™ Solution with Pushlok™ Technology to meet this need, our newest hardened connectorised terminal and drop solution. The miniaturised connectors and terminals work just like our previous OptiTap solution but better. The terminals are less than half the size of OptiTap and the "Stick&Click" one-handed mating makes the connection process easier, particularly at height.

A critical element when developing the solution was making the design as discrete as possible. Building owners will therefore be more amenable to approving Evolv terminals on their walls, easing wayleave restrictions for MDU deployments. Indeed, Evolv terminals have been used already in some conservation areas in historic towns where permissions could not be secured for OptiTap terminals.

A single cable construction is suitable for both aerial and underground deployment. ROC Drop cable is available on both OptiTap or Evolv Solution with Pushlok Technology. Its compact dimensions and optimised bend characteristics mean it is ideal for pushing or pulling into ducts and is able to withstand the mechanical and environmental demands of aerial drops.

The future is bright

With INCA's latest study finding that altnets grew their UK coverage by 110% in 2020 and now cover 2.59 million premises, tentatively forecast to reach 29.9 million by the end of 2025 , this is an exciting time for UK fibre deployments.

Ultimately, the key to success for UK altnets will be finding ways to accelerate the speed and scalability of the build process and here is where optical hardware manufacturers like Corning can help. With a growing range of tools at their disposal after 50 years of optical fibre cable and hardware innovation, it is easier than ever before to find solutions that will give them an extra gear in the race to build scalable, future-proofed networks.

Corning's portfolio of solutions help operators to accelerate deployment, improve network performance, and minimise costs. Find out more here: **www.corning.com/emea/altnets**