

A COPPER-TO-FIBRE MELTING POT

An ambitious copper-to-fibre switchover, which will support gigabit-capable connectivity, is underway. **Alex Bell** speaks to some of those who are disrupting the scene in our region

Over the next few years, UK communications regulator Ofcom is aiming to migrate the whole country's communications network from copper to fibre, on an exchange by exchange basis.

In its Levelling Up White Paper, published in February this year, the government set a target of 2030 for gigabit-broadband to be available nationwide, with coverage for at least 85 per cent of premises expected by 2025.

Once this target is achieved, it will close the curtains on copper wires, which have been the pillar of the UK's communications infrastructure for more than 100 years.

Put simply, the ageing wires, which are currently used to deliver broadband services to businesses, households and organisations, will be replaced by fibre.

Full fibre broadband is up to ten times faster than the average existing home broadband connection and around five times more reliable than the traditional copper-based network, providing more predictable, consistent speeds.

It's critical to our connectivity requirements – both today and in the future.

But what is happening now, here in the North West? Who are the so-called alt-nets (alternative networks) disrupting the scene and just how radical is the ongoing

upheaval of the UK's communications network? Can the lofty ambitions of Ofcom be realised and, if so, how?

Community versus commercial

Shaun Gibson, group chief executive of internet service provider Telcom, speaks of a need to be 'careful to avoid overbuilding'.

He says: "There is a high risk of alt-nets all competing over the same patch and ignoring the actual communities that need it the most as the commercial attractiveness might not be there. BDUK is doing a lot of work to try and encourage commercial investment where it's needed the most through its UK Gigabit Voucher programme and F20.

"Another challenge is a lack of skilled workforce needed to build the networks. There is currently too much network

"There is currently too much network needing to be built and not enough engineers to build it."

Shaun Gibson

group chief executive, Telcom

needing to be built and not enough engineers to build it. Providers are having to find creative ways to meet the capacity constraints such as through the Telecommunications Engineer Bootcamp we've set up."

Manchester-based Telcom is currently in the process of deploying more than 2,000km of new fibre network infrastructure to support fibre rollout to more than 250,000 homes and 125,000 businesses.

It comes after an investment raise last summer, which enabled the group to expand nationwide but with a special emphasis on the North of England, and the building of large-scale fibre networks across Manchester, Leeds, Liverpool and Birmingham.

"As much as everyone talks about the importance of physical connectivity, digital connectivity and access to it is equally important," adds Gibson. "The infrastructure we're building will ensure everyone has access to full fibre infrastructure."

Gibson is also keen to ensure that a "digital divide" isn't created.

"Ensuring we don't create a digital divide by ignoring those for whom full fibre might be considered a luxury, and only prioritising affluent areas, is important," he adds.

"A number of providers are tackling this

through the introduction of social tariffs. We have taken action to ensure no one misses out by launching our WeFibre arm in 2021, which is specifically designed to meet the needs of both rural and social communities."

Looking at some of the biggest hurdles linked to this undertaking, Gibson notes: "Another key challenge will be interconnection and interoperability between broadband networks to ensure that the end customer has choice and the ability to switch. This is a problem being worked on as we speak with initiatives such as Common Wholesale Platform vying to be the wholesale layer and thus the solution."

According to research by the Centre for Economics and Business Research, the North West would benefit from a £5.5bn boost if everyone in the region is connected to full fibre.

Expectations for increased bandwidth are growing, and will continue to do so. That means faster connections, downloads, streaming services and

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Charlie Ruddy

chief executive, BeFibre

data transfer. Enterprises and individuals want it now, and are expecting even more in the future.

Charlie Ruddy (below) is chief executive officer of broadband provider BeFibre and Digital Infrastructure.

Warrington-headquartered BeFibre launched in December and aims to provide connectivity that's 13-times faster than other providers.

The alt-net received £100m of private funding to roll out its nationwide plan to connect 1 million homes by 2027, across 80 cities and towns across Britain. "Digitally,

the UK is a third-world country," says Ruddy.

"We're the fifth largest global economy and yet when it comes to broadband, we're 48th for internet service provider download speeds according to World Population Review – way behind leaders Monaco, Singapore and Hong Kong.

Planning ahead

Ruddy believes there's never been a better time to bridge the gap between "being an economy and society that wants to be a first-world country and having the digital infrastructure to support this development".

He adds: "We shouldn't be solely looking at what happens when the big copper 'switch-off' takes place – the end of life for the public switched telephone network in 2025 – or even five or 10 years from now. As a nation, we should be planning 20, 30, 40 and even 50 years down the line.

"That's how countries achieve the digital success they do. They focus way beyond the moment and innovate to solve problems before they even happen. Britain was once a country which led the way in telecommunications. Now our broadband services rank well outside of other countries in the world." ➤

➤ Ruddy says the telecoms industry can help 'us' compete.

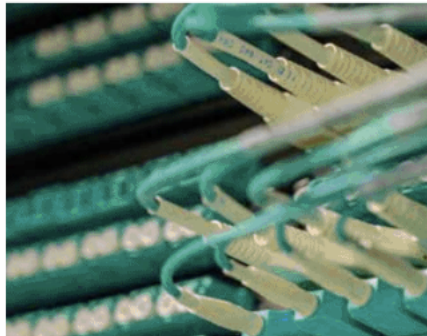
"For too long now," he says, "the sector's been full of broken promises and must change. Customers should feel that when they buy broadband with 100Mbps speeds, for example, that's exactly what they receive."

"However, the challenge is there's a product in the UK marketed as 'fibre broadband'. Technically, it's not 'full fibre' because there's still copper going to the property."

So how can we progress as a digitally savvy nation? "Firstly, we must offer fibre-to-the-premises (FTTP) and reliable speeds that don't break promises," says Ruddy. "Secondly, intuitive disruptor brands or 'alt-nets' are coming to the market with symmetrical networks that offer upload speeds as well as download. And thirdly, we must build and develop infrastructure

"We must build and develop infrastructure that can cope with the demand for hybrid working."

Charlie Ruddy
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that can cope with the demand for hybrid working."

He adds: "Although we're talking about the workplace in this instance, that shift begins early on – providing schools and universities with quality equipment that everyone can access."

"The Covid-19 pandemic has accelerated technology adoption and highlighted the importance of sharing knowledge, collaborating and innovating. As we continue to learn vital lessons from the last two years, we'll all be better prepared to tackle future global disruption."

In the Fishwick and Frenchwood area of Preston, thousands of homes can now access some of the fastest internet services available.

London-based full fibre network CityFibre delivered the works as part of a £30m investment in the city. Gigabit-capable services in the area are currently available from Air Broadband.

Across the UK, CityFibre is working with launch partner Vodafone to deliver 'next-generation' broadband services, as well as with TalkTalk.

Work is now underway in the St Matthews and city centre wards of Preston. Telnet is delivering the construction programme and CityFibre's aim is for the wider £30m build to be substantially completed by 2024.

More for less

Before discussing the next-generation applications of fibre that should be on companies' radars, Gibson reveals Telcom's plan to launch a new business broadband product called PureBroadband. It will complement the group's current leased line product, PureFibre, and provide small businesses with access to ultrafast full fibre, but at a broadband cost point.

On next-gen fibre applications, Gibson says: "Ultimately fibre enhances the overall sustainability of both residential and commercial developments."

"Another key application for full fibre will be the internet of things and, in particular, smart charging points for cars that will enable them to accurately manage demand and charge time between cars."

"In the same way as you would be shocked to stay in a hotel these days without wifi, the same will become true of electric vehicle charge points, and fibre is a critical enabler."



Parts of Preston can now access some of the fastest internet speeds available thanks to CityFibre

Driverless cars as a demand driver? Think again...

Tom Cheesewright has just celebrated ten years as an Applied Futurist.

He speaks to Insider about the future of fibre in the North West

What can we expect from the future of fibre?

A lot of the conversations about what's going to drive demand for fibre are a little bit spurious. I don't really see that driverless cars are a huge demand driver because are you really going to be shipping a bigger volume of map updates and information to them? If you look at any IoT [internet of things] network, the actual size of information that is flying back and forth is relatively small but very frequent. You're not talking about huge volumes.

So what will drive demand for fibre?

There are three things. One is the continuing enrichment of media. The last couple of years are a really good example. When previously a telephone call would do, we are almost de facto expecting a video call. So, suddenly, you need enhanced bandwidth. And of course there is gaming and much more that comes into play.

The second is the use of computing capacity. The next ten to 20 years are going to be interesting in terms of trying to more efficiently use our deployed computing power. Think about all these pockets of underused computing power, whether that's on your home router, your smartphone or whether that is in your car. We're consuming all of these things and putting in an enormous amount of resources to get them out there, and they're actually getting relatively low utilisation out of them.

The third one, and forgive me for the cliché, is the metaverse and continuing that theme of enriching our interactions. If you plot the path from putting commands into a computer with a punched card, or tapping some bits into a green screen in an air conditioned room on a terminal 60 years ago, through every progressive iteration of user interface for computing since, every time they have gotten richer in terms of the media they use. But they've also become more computer intensive, so more of



Tom Cheesewright

the thinking load goes onto the machine. It has a lot to do with interpolation and extracting information from the real world. You put that in a metaverse context; there are various stereoscopic cameras that are trying to understand everything they see. A super hub for graphics processing to render photorealistic characters, spaces, spaceships, robots and whatever it may be in front of you. So you are shipping vast quantities around, and the 5G networks that are going to be handling most of that are going to need a lot of backhaul.

What role are startups playing?

There are a lot of companies out there at the moment looking at unused capacity, whether it's inside the network, at the edge of the network or actually out in the customer premises, and how to turn that into useful capacity. Maybe our carbon footprint from an electricity perspective will go up. But we can get away with digging fewer minerals out of the ground, recycling and making better use of the resources and at the same time see a performance increase when it comes to user experience. Shipping all of that data around and networking all of these devices is kind of a hidden demand from most users, but could be quite interesting.

In terms of the North West, do you see any great challenges that will have to be overcome?

You mentioned the shift from investment in road and rail to fibre. In some ways the problems are the same: you get most value when you can interconnect the slightly disparate hubs of the North West and ensure no one's disenfranchised. Although a lot of the alt-nets are doing a good job of putting together a business case for reaching the parts that other providers haven't reached, that doesn't necessarily stretch much beyond the metro areas. One of the greatest advantages of living in the North West is you can be close to a city without living in it and still have rapid access. But if you're going to do that, you're going to want incredibly good broadband provision. Finding an economic model that actually gets further out into areas that haven't been well served in the recent past is a really interesting challenge.

You've got some alt-nets in your client roster. What kind of work do you do with them?

Hyperoptic is the most recent example, which is primarily looking at the changing way that we live and work. They work with a lot of property companies so are interested in trends and finding out what hybrid working really means for things like the design of homes and broadband provision.

Finally, how did you become an Applied Futurist?

I blame my mum. She bought me a book called the *Usborne Book of the Future* at a book fair in Ealing in 1981. I was obsessed with the book as a kid and still have it. After starting a blog about the future in 2006, I did some amateur broadcasting and in 2012 took what I call an assisted leap from my startup. The blog turned into a business and the job I do now has lasted twice as long as any other role I've done.