

Thoughts on Openreaches G.Fast

James Newton, IP Engineer for Spitfire shares his initial thoughts on G.Fast

The future of broadband is here, kind of...and it's fast, really fast. G.Fast, the aptly named evolution to BT's increasingly pervasive VDSL technology, is being trialled in few select regions of the UK, and it's hoped that a more general rollout could begin next year. Initially it will be offered at up to 300Mbps, but this could scale to speeds of up to 1Gbps (1,000Mbps).

Does this mean that very soon every home in the country will have Gigabit internet connections? In a word. No.

Firstly Openreach's FTTC infrastructure, the backbone for these superfast broadband offerings, still only covers 86% of the country, and while this is an impressive figure, it has been many years in the making (the rollout began in 2010). G.Fast requires them to further extend this infrastructure, and it is not expected to be available for the majority of the population until 2025.

Secondly, and perhaps more importantly, the quoted speeds are, unsurprisingly, best case scenario speeds. This is the case with most modern DSL offerings, which are often advertised being 'upto' a certain speed.

To appreciate why this is you need to understand a little bit about the limitations of the UK's aging copper infrastructure. As you increase the length of a copper line its impedance (electrical resistance) increases, along with its susceptibility to electromagnetic interference, in real world terms this means that amount of data you can transmit down it over a given time period reduces as you increase the line length.

DSL has been designed with this in mind, so while it can work on lines up to 6km long, the service you will get progressively slower the longer your line is. In essence, a shorter line is a quicker line.

As the name suggests, FTTC, or Fibre To The Cabinet, uses fibre optic cabling all the way to your local cabinet (the green boxes you see on pavement). This significantly reduces the length of the copper line portion of your service, and since Fibre optic cabling can cover much greater distances than copper without suffering the same kind of signal loss, your speeds will be much improved. FTTC is the foundation of VDSL connections.

G.Fast installations go one step further, taking the fibre optic cabling all the way to your local distribution point, which will normally be a nearby telephone pole, or frames unit in your building. Sadly G.fast is still a rate adaptive product, and the ever decreasing length of that copper cable is still a limiting factor when it comes to speed. If your office is a long way from the distribution point, you are not going to be able to feel the full potential of G.Fast.

The real revolution will come when FTTP, or fibre to the premises, becomes mainstream. When this happens speeds of up to 1Gbps could be available to anyone willing to pay for it, irrespective of how far you are away from the exchange, cab or distribution point.

Openreach were actually offering FTTP in some locations as recently as 2015, but due to escalating costs has had put a stop on all new orders for this product. The rollout will no doubt resume in time, but at what pace is anyone's guess.

For time being we have to rely on G.Fast to satiate the UK's ever growing desire for low latency, high bandwidth connections. The good news is that early indications suggest it is well up to the task.