

## “Cab anyone?”

The aim of this short article is to discuss the issues of cabinets, the green or grey metal cupboards by the roadside, in the incumbent telco Fibre-to-the Cabinet (FTTC) solution. Similarly, we pose the question should FTTC ever be considered ‘fibre-optic broadband’, and can this be considered future-proof or Next Generation Access (NGA)?

### What is FTTC?

Fibre to the Cabinet is effectively a way to shorten the distance from the telcos active equipment to the subscribers premises by bringing the active equipment out of the exchange and installing it in cabinets closer to the subscriber. It is the street cabinets which benefit from a fibre service whilst the subscriber simply gets an improved service over the same copper telephone wires to the home.

### Significant Improvement?

Yes. Because the main problem with the use of copper wires for broadband is the problem of transmitting higher frequency signals over longer distances, and hence reducing this effective distance does significantly improve the bandwidth to the subscriber.

### How good is it?

Speed increases up to 40 Mb/s for those very close to the cabinet may be possible, but for those a mile from the cabinet the maximum speed is likely to be up to 20 Mb/s, assuming the copper wires in the cable are still of a good quality and well installed.

The reality with cabinets is that some of us would get around 30 Mb/s, which today in 2011 would be a decent broadband speed, but many in rural communities would get less than half of this speed, and in some cases quite possibly no appreciable improvement.

### Is it future-proof?

No. There is scope for upgrades to the speed of the copper signal on FTTC access networks, and BT are suggesting that soon they may install a version capable of up to 80 Mb/s for those very close to the cabinet, with possible higher speeds thereafter. The reality is that these speeds have not yet been rolled out and hence proven on real networks with old copper cables, and it is likely there would be problems for those not as close to the cabinet, and hence quite variable broadband experience.

The scope for modest upgrades alone does not in my view mean it can be claimed to be future-proof. We are with broadband at a point similar to the coming of electricity years earlier. Before electricity arrived many people were used to oil lamps, and if offered an improved oil lamp may have considered it. Indeed the vendors of such lamps could claim further possible improvements for the future, and would point out the advantage of keeping there existing supply with no need for disruption to the home. Despite this, however, it was clear to many that electricity was the way forward, and few of us would now wish to be without it.

Similarly, it is clear to many that the future will bring a whole range of broadband services that will require true fibre-optic broadband with fibre-to-the-home (FTTH) a necessity. Indeed several other countries are already rolling out 1 Gb/s broadband speeds, and this can only realistically be offered with FTTH, so if we wish to install a competitive access network infrastructure we will need FTTH, and FTTC can only be regarded as a stop-gap measure.

### Is FTTC a Useful Stop-Gap?

Potentially FTTC can provide a quick-fix stop-gap that will provide some with a reasonable broadband speed increase, but there is also a danger which is particularly acute for rural areas, and this is that FTTC can condemn a community to a second-rate access network for a long time. The reason is that whilst FTTH might be economically viable for a rural community group with a large, majority community buy-in, this will be compromised by a proportion of the community having significantly better speed and service than others, and the divided community that can result.

Whereas the economics are easier to justify in urban areas, in rural communities it is likely that an FTTC network would never be upgraded to full FTTH by the network owner, and it will most likely require a community self-build.

### **The End-Game?**

It is clear that within the next 10 years or so, access networks in developed countries will need to be full FTTH networks with optical fibre coming into the home. Many countries have FTTH already and others are rolling it out now, and if we don't want to be left behind in the UK we have to do FTTH now, and particularly in rural areas FTTC could prove to be more damaging than helpful to achieving NGA for the UK.

### **Cost of FTTH**

It's often said that FTTH is just too expensive and difficult to justify in some sub-urban areas never mind rural areas where the economics just don't add-up. This is true for telcos, and is due to their costs in cabling the long distances between properties and population clusters in rural areas, it is not due to the technology where optical fibre cables are actually much cheaper than copper cables.

### **Why is Rural FTTH Prohibitive for Telcos?**

There are several reasons why telcos can't deliver commercially viable FTTH in rural areas, but chief amongst them are:

- telcos seek a 3 to 5 year payback for their investment;
- telcos dig down roads at high cost for digging and reinstatement;
- it's difficult for telcos to engage with rural communities.

### **How do Rural Communities Make FTTH Viable?**

Communities in rural areas have several advantages over telcos that can enable them to build commercially viable access networks:

- they can negotiate free wayleaves across farmland for community benefit;
- soft-dig can be done by the community for low-cost civils;
- community spirit can yield better initial uptake;
- expensive in-home installation can be done by community volunteers;
- they don't need a short-term payback.

### **Is Community Network Ownership Viable?**

Yes. It is not only viable, it can be hugely beneficial to communities. They can provide a level of service that will attract in business and jobs, without the need to provide large profits for corporate share-holders.

The day to day management and maintenance of the network can be sub-contracted out to professional companies, with this becoming cheaper and easier as more communities build and own their own access networks.

### **Fibre GarDen Approach**

By planning for a fibre-rich network, we are rejecting a stop-gap FTTC solution which would be costly to install with minimal improvement for many subscribers and a relatively short-lived life. We are going straight for a best-of-breed FTTH network with the capability to provide faster broadband than most inner-city networks in the UK.

*This information note was written for **fibre GarDen** by John Colton, FInstP. John is a director of fibre GarDen, technical director of Lucid Optical Services, a fibre optic technology specialist training company, and a director of the Fibre-optic Industry Association (FIA).*