

# **BT Broadband Enabling Technology**

Is BET a viable solution for rural areas?

*Adrian Wooster  
CTO of CBN  
September 2009*



## BT BET: the future of rural broadband?

The Digital Britain process recommended a “universal service commitment” of 2Mbps – that where it was reasonable, every household and business in Britain should reasonably expect at least 2 Mbps broadband.

BT’s initial response to this is something they call “Broadband Enabling Technology” or BET. So what is BET, and it is a useful addition to the kitbag of rural communities trying to receive broadband?

This paper takes a look at the implications of the BET, but if you want to skip straight to a one line synopsis, it is difficult to see how BT’s BET can be anything but a cynical attempt to delay investments in realistic solutions to rural broadband problems.

### What is BET?

In many ways BT’s BET system is the kind of thing you get when you lock a bunch of very clever engineers in a dark room without access to the people who will have to experience the outcome of their deliberations, and with a scant description of the requirements.

The reason the description is scant is because the Digital Britain process has never elaborated on what they meant by their 2Mbps universal service commitment, so BT has taken advantage of the vacuum to announce something which at first sight solves the problem.

BET is based on one of the large family of DSL technologies:

- Most people are now familiar with ADSL, and a growing number of its newer brother ADSL2+;
- SDSL has been offered to businesses for some time, although because it was limited to just 2 Mbps symmetrically it has never seen the same success as ADSL;
- We will soon become more aware of the more nippy VDSL as BT’s “fibre to the cabinet” trials progress
- So now meet SHDSL, progeny of SDSL – the odd-balls of the family

Most members of the DSL family work by stealing the frequencies the human ear can't hear to create a signal which can be used for the Internet. Because the Laws of Physics determine that higher frequencies don't travel as far as lower ones, DSL technologies support a shorter range than a traditional analogue voice service and the faster the DSL technology, the shorter its range.

VDSL, the fastest member of the family, works over the shortest distances, so equipment is only ever installed in the green street cabinets located much closer to homes and businesses than traditional telephone exchanges where you'd find ADSL equipment.

In theory, placing VDSL equipment in street cabinets will help everyone, rural and urban, but in practice it isn't a good choice for rural areas. The problem is that in rural areas there are fewer cabinets and they are still often too far from homes and businesses. So if BT wanted to stay loyal to the DSL family it needed a new relation.

The reason SHDSL is odd is because it grabs the low-frequency voice grade signals to boost its distance; it takes over the whole phone lines rather like a dial-up connection except broadband is permanently on and can't be turned off.

However, over the distances BT is talking about it will still only deliver 1 Mbps, so they are bonding two lines together to achieve the government's 2 Mbps target; "upgrading" to BET will require at least one new phone line if you want to retain an analogue phone service as well.

The one factor not made clear in BT's announcements was just how many new phone lines BET will need. It may be possible to bond two SHDSL signals together using four wires inside a single phone lines, or they may have opted for a more traditional approach using a single pair of wires from each of two dedicated phone lines.

***As a minimum, BET will double the number of copper cables needed by its customers but it may triple them – and still only supply 2 Mbps, or half the UK average speed***

---

Compounding the issue, these are typically the same areas that suffer from line sharing devices or DACS; this is BT's solution to the shortage of copper cables in some rural communities, and which blocks broadband signals. Since BT is only required by Ofcom to remove DACS under the current Universal Service Obligation where "it is reasonable" there is still likely to be a lack of copper in some areas where BET is most needed.

DACS is most likely to exist in vibrant rural communities, so there is an above average probability that anyone who may want a BET service will require cabling all the way from the telephone exchange several miles away.

***Where additional cables are needed, laying a fibre is cheaper and the service it can offer is far superior at double the distances BET is capable of***

---

Whatever the solution to rural areas might be - this isn't it. BT's solution is technically very clever but sadly proves, as if any doubt remained, that engineers shouldn't run businesses.

## About CBN

The Community Broadband Network has a track record of delivering innovative, community-based broadband solutions in areas that are geographically hard to reach (remote, rural areas) or that suffer from urban deprivation.

CBN was launched in the UK during January 2004 by the then Rural Affairs Minister Alun Michael and Broadband Minister Stephen Timms. During 2004-5 CBN supported over 100 local broadband projects with direct consultancy and mentoring, and provided online information and support for a further 200.

In more recent times, the focus of the CBN members has shifted towards the provision of higher-speed next-generation broadband services, including higher-capacity wireless and fibre-optic networks.

CBN is leading the formation of INCA, a trade association for independent next generation broadband network builders, and in creating marketplace in which these new services can be made available in an open and fair manner.

CBN is represented on the Executive of the UK Broadband Stakeholder Group, the body that brings together government, industry, RDAs and business to drive forward the broadband agenda. CBN is a member of the NOMAD Wireless Forum bringing together a range of public sector and private organisations active in promoting wireless initiatives. CBN is active in the Connected Neighbourhood Forum linking the 10 local authority Digital Challenge finalists.

CBN's experience has attracted international attention and we are supporting community broadband development in Africa supported by UN-HABITAT.

### Adrian Wooster

Adrian is a CBN's Chief Technology Officer, where he specialises in next generation broadband strategy and architecture.

Adrian has worked for almost 20 years in the international telecommunications industry, and been actively involved in the community broadband movement for the past few years. His work on policy-based smart-edge networks gained international recognition.

Previously, he has been the Global Communications Architect for large Silicon Valley corporations, and product strategist for a major competitive telecommunications operator. In 2004 he formed GTC; an organisation which focuses on developing innovative technology projects with a focus on their impact on communities both domestically and in international development work.

