

ADSL BROADBAND BASICS FOR THE DOMESTIC USER

AS NOTHING MAN MADE IS PERFECT, ADSL IS NOT AN EXCEPTION.

The Main Limitations of ADSL Broadband are as follows.

1. ADSL is *not* a Guaranteed Bandwidth Service. Unlike conventional leased line services, the achievable performance of the ADSL network is *not* guaranteed.
2. ADSL, as it's name suggests, is not symmetric and is only really fast in one direction (i.e. the Download Speed). The asymmetric transfer rates provided by ADSL are designed to optimise the speed of Internet downloads and as a result the upload speed on ADSL is in relative terms much slower, meaning that the service is less suitable for uploading large files from your location to the internet.
3. As ADSL uses the same copper wire as the domestic telephone service network it will therefore offer the same level of reliability as your current telephone line. Although it is designed to allow "always on line" Internet access, ADSL is not and should not be confused with a leased line service.

The Main Benefits of ADSL Broadband are as follow

1. High Transmission speed
2. Access to High Speed Multimedia Services

3. High Speed Internet Access.
4. High Speed Video Conferencing?? (Depending on chosen Bandwidth).
5. Auto handshake to optimise bandwidth.
6. Uses existing copper pairs .
7. No need to dial your ISP, can be always on-line and there should be no drop out.
8. Up to 12Mbps available per connection. Domestic users are more likely to have much lower bandwidth connections, say 256Kbps.
9. Optimises use of Bandwidth Resource. e.g. sharing voice traffic with internet access and /or more than one computer. (but remember this still shares the bandwidth).

Definition ADSL = Asymmetric Digital Subscriber Line

1. ADSL is a Wide Area Network Connection. It is but one of the various types of “ x DSL” services, some of which are available now and some which are destined for future subscriber use. ADSL transmits Data many times faster than Analogue Modems over the same copper telephone wires
2. HIGH TRANSMISSION SPEEDS. ADSL provides High Speed Broadband connection to both home and office. Transmission speeds can be as an example 8Mbps which is 100 times faster than an analogue modem. As a further example 1.5Mbps relates to 26 times faster than an analogue modem.
3. Some Broadband Routers and Modems provide an Auto – handshake which auto-senses the installed rate or bandwidth eliminating the need for a Pots splitter.
4. USES EXISTING TELEPHONE WIRE. ADSL operates on the existing copper twisted pairs and does not need specialised transmission media such as Fibre Optic Cable.
5. NO ENGAGED SIGNAL. ADSL can be continuously on line so no further need to dial your ISP to collect your e-mail or access the internet.
6. NO SHARED BANDWIDTH ? Unlike traditional or cable modems, ADSL is quoted as not using “cross-user shared bandwidth” a phenomenon that has a significantly detrimental effect on connection speeds as more users go on line . With ADSL the entire bandwidth is dedicated to a single external connection. **This from the domestic users perspective is not necessarily the case as the service providers talk about 50:1 and 20:1 contention for the locally available bandwidth. No matter**

now the service is delivered the more sensible interpretation of bandwidth or available line speeds are a Download speed of up to 256Kbps and an Upload speed of 64Kpbs or at best 128Kbps, unless you are prepared to spend some serious monthly cash to achieve the up to 1.5Mbps Download and up to 256Kbps Upload variant which can cost about £125 per month on a 20:1 contention basis. So beware of best case bandwidth quotes as nothing is perfect with copper wire communications. The plain fact is that in a worst case scenario you could be sharing your lovely broadband ADSL with up to 49 of the other users contending for your bandwidth, or 19 in a 20:1 contention basis. This is highly unlikely but there is nothing in any of the contracts to stop it happening as it is not a guaranteed bandwidth service. Some service providers, such as Tiscaly do not support Macs so if you are a Mac user ask before you commit.

7. MAXIMUM UTILISATION OF BANDWIDTH RESOURCE. Normal telephone services use a minimal portion of the actual capacity of the telephone line and ADSL uses the remaining bandwidth for high speed data transmission. This is accomplished by setting different frequency channels for different functions. Voice at the lower end of the frequency spectrum whilst data transmission takes place at a higher frequency.

SO HOW DOES IT ALL REALLY WORK?

There are two aspects of ADSL which you may want to understand

1. How the Network operates.
2. What happens on the telephone line.

The Network operates in the following simple sequence, from your home telephone line over the BT network to your ISP to the rest of the internet. So not a lot different from what happens with an analogue modem link. ADSL just allows you to always be in contact with the Internet via a permanent connection to your ISP over the BT Network. Data flows between the user and the ISP a bit like data flows round any computer network. If you decide to switch your PC off or you experience a power cut

or some other circumstance, then all that's necessary is to switch on your computer as normal and log back on, to resume the "always on" service.

The Telephone Line is just the medium that carries the ADSL service, so what happens to normal Voice or Fax telephone calls?

The telephone line therefore acts much like your TV cable coming from your TV aerial, with the exception that information moves in both directions rather than just one way with the TV. The TV cable carries signals for all the TV channels to which you have access and you select the one you wish to view but the TV still receives all the available channels from the aerial.

To provide ADSL, your telephone line operates in a similar fashion.

Two channels are used for normal calls, one for each direction to and from you and two channels are used for ADSL internet traffic one up and one down hence you hear the terms download speed and upload speed.

As ADSL is not a symmetric or balanced service the download speed is normally faster than the upload speed because the design of ADSL is to offer fast information download from the internet.

As the two channels designated for normal voice and fax traffic operate at a different end of the frequency spectrum from the two channels designated for Internet traffic there is no interference between ADSL Internet and normal voice or fax traffic. Voice or fax and ADSL internet access can therefore operate simultaneously.

OK, SO WHAT DO YOU NEED TO GET STARTED?

- 1. A BT Telephone Line.***
- 2. A Personal Computer.***
- 4. An ADSL Modem or Router.***
- 5. A Firewall.***
- 6. An ADSL Service Provider.***
- 7. Decide what speed of service you want - remember more costs more!***
- 8. A Hub? (optional)***
- 9. A Video Conferencing System? (optional)***
- 10. An IP Telephone? (optional)***
- 11. A POTS Splitter?***
- 12. An ISDN Splitter?***
- 13. Monthly Cash to pay for it.***

<http://www.broadbandchecker.co.uk>

Will determine which service options are available by entering your post code and telephone number (entering your telephone number is optional)

E&OE.

IAIN M. SMITH C 2004