Broadband

BROADBAND! It seems impossible these days to open a newspaper or watch the TV without that word leaping out at you. As the WEB was the in-word of the 1990s, then Broadband has to be the one for the 2000s.

The one thing we have to ask immediately is "What constitutes Broadband?" Now, you would think that in this technological age there would be a very simple answer to that – but of course, there isn't. Most people involved in the technology from a telecommunications background would say that Broadband is any data transfer rate in excess of the 128kbit/sec offered by ISDN telephone lines. Others will turn their noses up at anything less than 2MBits/sec.

Basically, Broadband is data transfer at higher rates than was possible using a "narrowband" 56.6kps dial-up modem. To give you a feel for the different experiences of transferring files, the times taken to transfer a 50Kbyte file would be 7.4seconds (at 56kps), 3.5s (128k) 0.7s (600k) and 0.4s (1M). And it is numbers like these that tend to make people skeptical of their need for Broadband. However, look at the same figures for a 32MByte file – 1hr 15 min at 56k but 4min 44sec at 1M speeds – still a delay but far more reasonable. You must also take into account when looking at such figures that they assume that the link is running at maximum rate all the time – something that might not always happen.

But I can hear you thinking that most people do not transfer such monumental files. Well, can you remember 1959 when STD (Subscriber Trunk Dialling) started? I remember someone saying "It will never be of any use to me – I do not know anyone that far away to talk to"! And now we just pick up the phone and dial the far side of the world and don't even marvel at the speed of connection or the clarity of the voice at the other end. Soon you are likely to look back at the steam-powered days of 56.6k modems with equal nostalgia.

There are a number of Broadband connection services. The telephone companies are offering ADSL (Asymmetric Digital Subscribers Link), which as its name suggests there are different transfer rates for information being downloaded to you and being up-loaded from your machine. The information is carried on the same copper wires that used to just power your phone – and you can use the phone at the same time. The sheer physics of putting so much information down a pair of copper wires puts a physical limit on the distance the information can be transmitted accurately and so some outlying areas cannot be directly connected to an enabled telephone exchange. Other delivery mechanisms are now being used, such as satellite connections or "mesh radio". In the latter case the connection is made to a receiving station that then offers service at its location but also onward transmits the signal to other stations.

The Cable TV companies, who established a Broadband distribution network to deliver TV programmes now use cable-modems to "back-haul" your information in the reverse direction over the same system.

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If from this article you remember only one word – make that word AORTA. Which stands for "Always On Real Time Access". This is the facility that will make the big difference in the future. It is not just that Broadband access makes the transfer of data easier and quicker – it is the fact that the connection is on all the time, with dial-up connections you had to have the intelligence and knowledge to establish the connection and then be dynamically involved in the process of accessing the required information. In the always on world, software packages (that know the types of information that you like or want) will be able to seek-out that information without your involvement – ruminating or scavenging for new information or updates. In this new world you will have information that might be of interest pushed towards you. You will be surrounded with potentially interesting information not faced with a complete mountain of information from which you have mine the bits you want in real time.

The always On nature of these connections means that it is possible to share the single connection amongst a number of machines. Very rarely will you be using the whole bandwidth of the connection all the time. A simple home-network will allow a number of machines to transparently access the link – no more squabbling over access to the Internet, *e*-mail access or games services. Just as the phone call migrated from the single instrument in a draughty hallway to devices in each room, so information will move from the single machine in the "study" to multiple machines spread throughout the home.

There are currently over 1 million customers using these new systems and the services that they deliver. Once there is delay-free, easy, effortless access to information then services, such as on-line games, sharing of pictures or short videos, will become as easy as a telephone call used to be.

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