

Gerald's Column

by Gerald Fitton

Let's digress slightly and look at the Internet. Bearing in mind the rule (for lecturers) that "Every digression must be relevant" I shall leave it to you to guess why this digression is related to my theme "What will you (want to) use your next computer for?"

Dial up or Broadband

Let me make no secret of it. I used to strongly support 'dial up' rather than 'broadband'. Why? Because I used to use the Internet almost exclusively for exchanging emails.

I saw little point in 'surfing' and I could see no point in downloading reams of information about a topic, most of which was totally irrelevant to my needs. Furthermore I could never find what I wanted on the Internet and just kept running round in circles coming back to the same set of totally meaningless pages!

So what has changed my mind?

In a word (or seven?) "Real Time Streaming of Audio and Video".

So, what's the 'link'?

So now you (should) see the link to my theme. Perhaps you will want to use your next computer to download, in real time, such things as Radio Programmes (audio only) or even Video (audio plus moving pictures).

As I have tried my best to explain in previous articles, the equipment needed to 'stream' Audio and Video (that is reproduce the audio and video on your computer in 'real time') has to be fast. I have tried to give you numbers; that is I have tried to be quantitative about the speed of the equipment which you need to do this.

As various correspondents have pointed out to me the numbers I have given you are not always exactly right (I was taken to task particularly for getting the wrong number of lines used by a typical TV picture) but, for the main part, the numbers I have given you have not been so far out that the whole basis of my arguments have been destroyed.

Bytes and bits

'Bytes' are different from 'bits'.

I shall use an upper case "B" for "Bytes" and a lower case "b" for "bits". Although the purist will tell you that there are 8 bits in a Byte I rather like to simplify this and call it 10 bits per Byte! This inflation in the ratio (from 8 to 10) does help to offset the fact that, when exchanging information, the information which flows between two computers (or parts of the same computer) are subject to checks to see if everything has arrived all in one piece. When the check indicates that there has been corruption, then a packet of (useful) data is sent again.

I rather like 10 bits to a Byte because I can apply that scale factor more easily than I can multiplying or dividing by 8! But, if you're worried by this approximation then add or subtract about 20% and you may be a bit nearer to the truth.

Dial up

All sorts of speeds are quoted for a dial up connection to the Internet.

A 56 k modem on a good day is supposed to transfer data at 56 kbps (kilo bits per second) but my experience is that most days are not so good. I have found that a 30 kB file takes about 10 seconds to transfer; using $10 \text{ b} = 1 \text{ B}$ this is a transfer rate of about 30 kbps.

Broadband

There are various broadband 'standards' available at different prices.

In the screenshot below you will see what BT advertise as their 'standards'.

Broadband from BT
From **just £15.99*** per month for the first 3 months plus **FREE modem**** and connection when you order online

BT Broadband Basic	BT Broadband	BT Yahoo! Broadband	
£15.99* per month for first 3 months, then £17.99 per month speed: 512K	£22.99* per month for first 3 months, then £24.99 per month speed: 512K	£24.99* per month for first 3 months, then £26.99 per month speed: 512K	£26.99* per month reduced from £29.99 until 30/4/2005 speed: 1Mb
Order now >>	Order now >>	Order now >>	Order now >>
Low cost <ul style="list-style-type: none">Free online helpUp to 10x faster than dial-up1GB monthly usage allowance Twice the speed of some other broadband providers, at the same low price² More details >>	Extra support <ul style="list-style-type: none">Free online helpFree support helplineShare your broadband with more than one PCUp to 10x faster than dial-up15GB monthly usage allowance More details >>	BT YAHOO! Broadband <ul style="list-style-type: none">Email included, up to 11 email addressesPersonalised music stationVirus protectionJunk mail and virus protectionParental controlsConnect more than one PCInstant messengerAdvanced online gamingUp to 10x or 20x faster than dial-up15GB or 30GB monthly usage allowance More details >>	

Their 'standard' speeds are 512 kbps and 1 Mbps. I believe that they are working on a means of delivering 1.5 Mbps or even 2 Mbps via their telephone network.

The screenshot below shows the current situation at NTL.

NTL supply their broadband by cable and not via the 'twisted pair' telephone line. I believe that the cable has more potential for faster speeds whereas I have my doubts about whether 'twisted pair' telephone line technology can go much faster. But you might know better?

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You will see that the speeds offered currently by NTL are 300 kbps, 750 kbps and double this at 1.5 Mbps. I am reliably informed that the 300 kbps service will be speeded up to give either 500 kbps or 600 kbps within the next month or two with no increase in price.

They too are working on a 2 Mbps service but I have no idea what it will cost.

Comparison

It is not my intention to compare the BT and NTL offers. Perhaps someone else can have a go at that? Or perhaps someone can feed me or Paul with the facts? I would point out that there are things other than pure speed which have to be considered, two of which are whether there is any free web space available (for your own website) and whether there is a daily, weekly or monthly limit to the amount of data you can download. If you interest is 'streaming video' then you might easily hit your monthly allocation of Gigabytes before you reach the end of the month!

I chose the NTL 300kbps service for my 'I must try it' experiments partly because it offers 55 MB of free web space (for my experiments) and partly because (so far as I can see) they do not have a monthly limit which I might exceed whilst experimenting with my 55 MB website.

Installation

I telephoned BT and asked a few questions. The most significant answer was that it would be about four weeks before an engineer could get around to reconnecting my BT 'phone line and only then could a test be done to determine if the line was suitable for broadband.

One Friday at about 17:00 I 'phoned NTL to see what they could do. The pleasant lady on the 'phone took my details and said someone would 'phone me back in about an hour. I received a call within the hour and I was told that the engineer could call and install the broadband modem sometime on Saturday afternoon.

In the event the engineer telephoned me at about 09:45 and asked if he might come earlier. I agreed; he arrived at 10:00. It was installed by 10:30 and he left me with a CD, the modem (checked by him to be working) and brief instructions about connecting it to my computer!

Cutting a long story short, I followed (rather badly) the (totally accurate and well written) on screen instructions, 'phoned a help line (an 0845 number) twice (I messed up writing down my password!), and I was on broadband by 11:30 that Saturday morning!

It worked. Indeed it worked so quickly that I thought (at that time) that 300 kbps was as fast as I would ever want to go.

Router

I exchanged emails with a friend who knows much more about these things than I do. I must give her a mention. My knowledgeable friend is Tonnie Demarteau; she has written articles for Archive in the past about fonts.

Tonnie suggested to me that I go to my favourite computer shop and buy a Router. Her principal reason for suggesting this was that a Router provides a substantial degree of protection against unwanted attempts to access my computer. The secondary reason was that it would enable me to connect all my computers to the Internet.

After a quick lunch I popped out to my favourite shop, formerly Gigabyte but now called Manor Supplies, where I am well known as a customer with a rather 'flaky' knowledge of how computers work! After some discussion I bought what is called a Wireless Router.



The instructions were very straightforward (even to someone like me!). I unplugged the NTL modem from my computer and plugged it into the 'modem' port of the router.

By the way, I have been told that this "router" is pronounced "rooter" and not "row-ter". The latter is a machine tool for cutting wood or metal! What's in a word? It's what it does and how it does it that's important!

I didn't use the wireless part of the router for my 'first' computer. I connected an Ethernet cable between the computer and one of the four Ethernet ports on the back of the router.



Wireless Connections

You will see the two aerials sticking up from the router. These can exchange signals with other wireless devices using frequencies around 2.4 GHz (GigaHertz).

I plugged a "Wireless Network Adaptor" into the USB port of my number 2 computer and, to my delight, that second computer was immediately on the Internet!

I took my laptop round to my next door neighbour's house (they are very kind to me and don't patronise me unduly!) and, to their great surprise, when I plugged in the Wireless USB adaptor, it too was on the Internet!

I plugged my Wireless USB adaptor into their main computer (they are on dial up) and, after just one false start, that too connected to my wireless router and from thence, via the NTL broadband modem, to the Internet at 300 kbps.

We took the opportunity to download about 100 MB of upgrades to their main computer. It all worked at about 10 MB every five minutes. Whilst leaving the system to do its stuff I was plied with cups of tea and biscuits (and pleasant chat) until all the downloads were complete. I resolved to upgrade my laptop and other machinery.

My son, David, brought round his desktop box and his laptop. We had a happy hour upgrading them by downloading files from the Internet. Everything went reasonably well with only minor 'glitches' due to our (joint) lack of experience.

Finally, I took out my iPAQ hp 4150 hand held PDA machine which has a built in wireless connection (as well as Bluetooth and Infra Red). I configured it in about a minute (or should I say David did!) and the next thing I knew was that he had connected (via the Internet) to a web cam in San Diego and we could see the boats moving on the small (320 x 240) screen.

At this point my eldest grandson, Craig, wanted a go with the iPAQ. He found some absolutely horrible music radio station 'streaming' what I can only describe as "noise" into ears (of mine) which I suddenly wished were just a little more deaf than they have become!

He took a walk down the street with the iPAQ in his hand and earphones plugged into the human interface he had made with the machine. He reported success (how can you call music like that a success?) about 100 yards down the road.

Streaming Video

So we had proved that the 300 kbps modem would stream what might loosely be called audio (later I found that I could stream BBC Radio 4 with as much success!). But could it stream video?

I see that I have reached what Paul might describe as my 'upload limit' for this month so, for the answer to that question, you will have to wait another four weeks.

Don't miss the next thrilling instalment.
Make sure your subscription to Archive is up to date or you might miss it!

Communication

Thanks for all your emails, letters and discs.

These days I am finding an increasing number of my correspondents are sending me CDs they have burned rather than floppies. That is because the files they are sending me are much larger than can be fitted onto a floppy. I guess it is a sign of the times?

I am no longer on dial up.

You can send me larger files as email attachments.

However, one side effect from my new (broadband) toy is that I have a second email address. In future I would like you to email me at <gerald.archive@ntlworld.com> and not at the 'abacusline.demon' address. This latter email address will gradually fade away.