Maximising The Speed And Reliability Of Your Cerberus Broadband Service

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Cerberus Networks ADSL Guide

Getting the best out of your broadband connection

How to measure your broadband speed

Determining the true speed of your Internet connection isn't as easy as you may think. There are several, often contradictory, measures of your ADSL connection speed. These include:

Sync speed (or line rate)

This is the speed at which your router connects to the local telephone exchange — the theoretical maximum speed your line could achieve in perfect conditions with good line conditions and very little traffic in your area or at your local telephone exchange. This is the figure that pops up in the little bubble in the Windows System Tray when you first connect to your router.

Maximum Stable Rate (MSR)

After ten days, your ADSL Max connection will be given a Maximum Stable Rate figure. Perversely, this is the lowest stable sync speed your line managed to achieve over that period, during which BT is attempting to find the true speed of your line. ISPs recommend you frequently connect and reconnect during that initial ten-day period so the tine can be tested at different times of day.

BRAS profile

The BRAS profile regulates the maximum throughput you'll receive on your connection. BT limits the speed you can download data across your ADSL line based on your recorded sync speeds, to help improve stability. This is initally set to 2Mb/sec, but it will increase if your line can support higher speeds. Your BRAS profile changes only when a stable connection has been made for a period of time, Which can be anything between 75 minutes and three days. Sometimes BRAS profiles can get "stuck" at that initial 2Mb/sec speed, artificially choking your connection. If you're worried that may have happened on your line, contact your ISP.

Throughput

This is the "true" speed of your connection — taken by measuring the actual rate at which data is downloaded and uploaded. Naturally, this is slower than the sync rate and often well below the mythical "up to 8Mb/sec"

Sites such as www.speedtest.net will accurately determine your actual throughput. If you're running your router off an extension socket, try performing a speed test and then connect your router to the house's master socket and run the speed test again to see how much speed you're losing.

Replace your filters

ADSL filters are a surprisingly common point of failure for home broadband connections. These seemingly innocuous little devices separate the low-end frequencies required for voice calls from the high-end frequencies needed for your ADSL connection.

Make sure there's a filter fitted to every socket in the house where there's telephony equipment attached — be that the telephone in the back bedroom, the Sky box or a fax machine. The filter should plug directly into the wall socket. If you have a two-way splitter coming off the wall socket (to serve a phone and a fax machine, for example), make sure the filter is plugged in before the splitter.

A tell-tale sign that one of your filters has developed a fault is noise on the line when you're making voice calls. Zen Internet provides a comprehensive guide to testing your ADSL filters at www.pcpro.co.uk/tinks/165broad1, but it essentially involves plugging each filter into your master socket in turn to eliminate the faulty unit.

(http://adslnation.com/support/filters.php) provides a very detailed example. Zen Internet says the SpeedTouch filters it supplies tone broadband customers are "highly reliable".

Alternatively, you could do away with filters altogether and buy an ADSL faceplate for around £17. Like the iPlate in Step 2, this fits over your master NTE5 telephone socket, and provides separate voice and ADSL connectors, instead of the single connector. It also does away with the need to fit dedicated filters on extensions, meaning you can plug all your equipment in as normal. Clarity (www.clarity.it/telecoms/adsl_faceplate.htm) has no-nonsense advice on fitting and buying these devices.

Avoid extension wiring

"Wiring is the number one connection issue" Matt Cantwell, head of product portfolio at Demon internet, told PC Pro. "A lot of people suffer simply because of poor wiring in the house." The standout piece of advice from all the experts we've spoken to is to plug your ADSL equipment into the master NTE5 telephone socket. Placing the modem or router on an extension leaves it at the mercy of the internal wiring and, in the same way broadband speeds decrease significantly the further your house is from the local telephone exchange, the same applies in your own home. However, the master socket is often awkwardly located in the hallway or lounge, and many a domestic dispute has arisen from a desire to place in full view a wireless router that looks like the offspring of Metal Mickey and a Dalek, not to mention the NAS drives, games consoles and other devices that require a physical Ethernet connection to the router.

Hooking your router to an extension socket is, therefore, often a necessary compromise. If you must use an extension socket, make sure the wire stretches no further than 3m, Cantwell advises. He also assures us that BTs broadband checker (www.adslchecker.bt.com/pls/adsl) is now "reasonably accurate" and a good indicator of how badly internal wiring may be affecting your connection if your router is plugged into an extension. "If you look at the speed of your router and it's considerably less than what BT's checker says, it's clear something's going wrong in the home."

If you're noticing a significant drop-off, check the extension wiring make sure no tacks have been hammered through the cable, for instance. "If your DSL equipment is connected to the master socket then the quality of the cabling plays a huge part in the sync speed that can be obtained; the higher the quality cable the better," said Phil Long, Zen Internet's technical support manager.

"Running network cable around your house can be simplest, but could be messy or impractical."

Fit an iPlate

BT has been testing a new device that aims to eliminate the electrical interference on the bell wire. Called an interstitial plate — or iPlate, the device has recorded impressive results in trials with around 1,000 customers who were experiencing connection problems that couldn't be attributed to a fault on the line. "We've seen huge increases in speed," claimed BT Wholesale's Ashley Pickering. "On average, it makes one and a half megs of difference."

The £10 iPlate can be installed without the help of an engineer— you simply remove a couple of screws on the front of your master NTE5 telephone socket, insert the plate and retighten the screws.

It would be worth asking your ISP for one if you're suffering from an intermittent connection and can't find faulty electrical equipment in your home.

Keep your router up-to-date

Your choice of ADSL router can make a huge difference to the actual speed of your connection. BT demonstrated two different routers connected to exactly the same 8Mb/sec ADSL line that varied in speed by as much as 3Mb/sec nearly half the available bandwidth of the line.

Although BT Wholesale benchmarks the performance of dozens of different ADSL routers, it claims European legislation prevents them from recommending specific models. That isn't much use to the customer at home who's wondering whether their router is to blame for their slovenly speeds. So what can you do? First, it's critical that you keep your router up-to-date with the latest ADSL standards. BT's Ashley Pickering recalls how many customers had problems with the popular SpeedTouch USB modems when BT moved the network to ADSL Max services, because they needed new firmware to achieve the maximum speed.

"When people move from 8Mb/sec to ADSL2+, it will only work at a reduced speed if you don't have an ADSL2+ compliant modem". 'Most routers introduced within the last year or so should be capable of ADSl2+" claims Pickering. It's clearly a good idea to consider upgrading your hardware every time you upgrade your connection.

Test your TVs

'You'd probably have replaced your router, rewired the house and spent a considerable amount on your ISP's technical support line before deciding your TV was to blame for your faltering broadband connection. But according to BT, TVs are just one of the innocent looking culprits that could have a catastrophic effect on your connection. Satellite set-top boxes, microwave ovens and even Christmas lights can put the brakes on your broadband.

"We've seen faulty set top boxes that have caused lots of problems." said Ashley Pickering of BT Wholesale's broadband access solutions team "It's generally the power supply a capacitor that's gone a bit leaky and started to emit more electrical noise than it used to. A slightly faulty power supply in a television can degrade the performance of your line."

The electrical interference wreaks havoc with the bell wire — this is the line that used to make old-fashioned phones ring, and now does little more than act as a conductor for electrical interference, severely hampering the speed of your ADSL connection in the process. BT Wholesale showed PC Pro just how debilitating such interference can be in a demonstration at its Gatwick headquarters. It showed how an ADSL connection running at 3.8Mb/sec was reduced to only 700Kb/sec when a nearby fluorescent lamp with a faulty power supply was switched on.

So how can you tell if your home electronics are hurting your bandwidth? Pickering admits it isn't easy, largely because the device with the leaky power supply will probably still be functioning perfectly normally.

It's often a case of trial and error: switching equipment on and off, one by one, until you find the one that's doing the damage to your connection. One handy tip is to tune an AM radio to 627KHZ and listen for crackling when you turn the device on, as this is a sure sign of excessive electrical interference.