

Broadband Network Performance

Backgrounder

[Notes: Journalists are invited to quote and use comment and information from the backgrounder below but all comments should be attributed to Gavin Johns, Managing Director, EpiTiro.]

All of the UK's 13 million broadband subscribers want good broadband network performance; yet few actually understand what constitutes good performance.

It's not just about connection speed

The first thing that comes to many peoples' minds when considering network performance is connection speed – but the performance of a broadband network should be judged on more factors than just speed.

Although consumers, ISPs and commentators often consider connection speed to be the most important attribute of broadband, it's just one indicator of broadband performance. Good performance requires a crucial combination of speed and reliability.

EpiTiro's independent benchmarking service ISP-I™ tests several service performance aspects. This includes some which consumers are not necessarily aware of, but which are crucial to assessing connection performance, such as FTP and HTTP download speeds, ping time averages, packet loss rate and connection failures.

EpiTiro's customers use this data to identify and diagnose network problems, to prevent service downtime and to get an accurate understanding of their end users' experience.

Networks must perform according to demand

Connection failures affect all users, and a higher percentage of uptime is of course desirable – after all, there is no point having a good connection speed if the connection is unavailable.

In the last ten years, demands upon Internet services have become increasingly complex, with users requiring connections for a huge variety of purposes such as gaming, videoconferencing and Internet telephony. An ideal connection must be able to cope with all of these. For example, good web browsing

needs fast ftp and http download speeds. An online gamer will require a fast ping time. Packet loss can affect the performance of video and audio streaming.

Advertised speeds

Generally, the actual speed of an Internet connection is rather lower than the providers advertise. This is because the advertised speed is the “theoretical maximum”, the greatest speed that the technology could deliver in the optimum conditions.

The majority of connections fall in the mid-range of this maximum, so between two and six for an 8MB connection. The reality is that speeds are advertised as “up to” because they are the best speeds you could hope for. In the real world there are technical limitations on what can actually be delivered.

The speed of your connection depends on a host of factors

Most Internet connections are delivered via copper telephone lines, using DSL (Digital Subscriber Line) technology. The technical limitations for connection speed of copper wire connections include the actual physical quality of the copper wires of the phone line, the internal wiring within the end user’s premises, the end user’s hardware (modem or router) and the distance from the local telephone exchange.

Next Generation copper wire broadband

The “next generation” of copper broadband, ADSL 2+, offers speeds with a theoretical maximum of 24Mbit/s. However, the effect of distance from the nearest telephone exchange is even more noticeable for this new technology. The connection speed of ADSL 2+ falls to the same speed as standard ADSL when the connections are 2.8 km from the telephone exchange.

Cable Internet

Cable Internet is a markedly different type of broadband as it is delivered using fibre optic cables. Peak times are a particular issue for cable users due to the street cabinet system used. Fibres are deployed from the network to street cabinets, which serve around 500 premises. This means that there are a number of customers using the same capacity, which reduces the available access rate to each individual customer.

Wireless technology's interference issues

The main issues with wireless connections are range and interference. A standard Wi-Fi home router has a range of around 45 m (150 ft) indoors and 90 m (300 ft) outdoors. Wi-Fi connections can experience interference from appliances such as microwave ovens, cordless phones, baby monitors, security cameras and Bluetooth devices. They may also encounter interference in high density access areas such as office buildings.

WiMAX technology is a different type of wireless communication, often providing a connection to the Internet from an ISP to an end user and capable of broadcasting to a distance of 30 miles. WiMAX has the same problems as Wi-Fi in terms of decreasing connection speed over distance, but it also has the added problem of possible interference from weather.

Ensuring good network performance as an end user

If customers are concerned about their connection speed, they should consult their ISP. They can also consult EpiTiro's IPI (Internet Performance Indicator) reports, published quarterly and available from the EpiTiro website at www.epitiro.com.

Ensuring good network performance as an ISP

ISPs need to monitor their network's performance. One of the easiest ways to do this is to use EpiTiro's services, particularly ISP-I™, which keeps them informed on the performance of their connection from an end user's perspective. ISP-I™ delivers crucial real-time data on how Internet services perform for end users. It is essential that providers understand how customers perceive their service, so that they can improve quality of experience and retain happy customers.

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Notes to Editors

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About Epiro

Epiro offers a range of services to Internet Service Providers (ISPs) enabling them to benchmark customer performance across dial up, cable, broadband and wireless connections.

The ISP-I™ platform & technology from Epiro emulates an Internet user's activity and gathers a range of detailed statistics including connection speed, reliability, performance and email delivery for independent analyses.