

# INFORMATION SERIES

## E - C O M M E R C E F O R S M A L L B U S I N E S S

### FACT SHEET # 10

### BROADBAND - WHAT IS IT?

SMEs have a number of options when they choose to connect to the Internet. An increasingly attractive option experiencing strong growth and delivering full strength Internet is called Broadband.

#### HOW FAST IS FAST?

Broadband is a generic term that has come to mean any kind of fast Internet access. It has been developed to give users instant and permanent Internet access. Broadband is always on, meaning you don't have to dial up to get online. Charges are not time based, but instead relate to the amount of content you download or are a flat monthly fee which allocates you a set amount of content, over which an excess fee applies.

The speed at which information travels between the Internet and a computer is measure in kbits/s (kilobits per second) or Mbits/s (megabits per second). A kbit is one thousand bits and an Mbit is one million bits. A bit is a "unit" of information containing a 1 or a 0.

When using broadband the speed at which information is downloaded from the Internet (ie, information is received from the Internet) is different from the speed at which you upload (ie, information is sent to the Internet). Broadband is generally called 'asymmetric' because of this. Symmetric connections, where the speeds are the same for both downloading and uploading, are available but are usually more expensive.

Generally speaking, uploading speeds are slower than download speeds, but a fast download speed is more critical because much more information is usually be downloaded rather than uploaded.

Advertising of broadband speeds are usually indicated as download speed/upload speed. This means that an advertised speed 512/128 will allow you to download information at a maximum speed of 512 kbit/s and upload at a maximum of 128 kbit/s.

## UPLOAD AND DOWNLOAD LIMITS

Most ISPs limit the amount of data you can upload or download over a given period of time, usually one month. The limit can vary from 250 Mbytes to several Gbytes. Some ISPs include upload traffic in their limits; others do not count upload traffic at all.

## TYPES OF BROADBAND

Five main types of broadband Internet access are available in Australia:

**1. DSL** (Digital Subscriber Line) uses existing phone lines in delivering high speed Internet access. The most common form of DSL is ADSL (Asymmetric Digital Subscriber Line).

Advantages of ADSL include:

- There is no need for extra infrastructure (since it only uses the existing phone line)
- It does not tie up the phone line
- The Internet connection is not shared with anyone (unlike cable broadband access)

Disadvantages include:

- ADSL is not available everywhere (it is only available where the local telephone exchange is ADSL enabled)
- ADSL may not operate at high speeds (if at all) if you live more than 4km from the telephone exchange

**2. Cable Access** is delivered using pay TV cable networks.

Advantages of cable broadband Internet access include:

- It is cheaper than other broadband technologies
- It does not tie up the phone line
- Once connected, other facilities such as pay TV can be accessed

Disadvantages of cable include:

- Cable is not available everywhere (it requires the physical cable to run past your premises)
- The cable is shared by users in the same area and therefore as usage increases, the service slows down

**3. Satellite Access** uses a satellite dish to connect to the Internet. There are two categories of satellite broadband access – One-way satellite and Two-way satellite. One-way satellite only allows uni-directional communication with the Internet (ie only downloading of information is available, while an ISDN line or dial-up modem is usually used to upload data to the Internet). Conversely, Two-way satellite allows downloading and uploading of data (however, this involves higher equipment and installation costs).

Some advantages of satellite broadband access are:

- It is available everywhere
- A single satellite service is able to support a large number of users within the satellite “footprint” (this makes it an attractive option for SMEs that wish to provide access to many, dispersed offices or branch locations)

Disadvantages include:

- One-way satellite still requires a dial-up modem or ISDN line in order to request information from the Internet (meaning your phone line will be tied up while you are connected to the Internet and a separate dial-up account will be required with an ISP)
- Satellite is more expensive for a single user due to the cost of infrastructure and use and two-way satellite dishes are more expensive again (however, for SMEs providing access to multiple users within their organisation, a satellite service may be more economical)
- Satellite connections can be affected by exceptionally heavy rain

**4. Wireless Access** provides broadband access with a ground-based antenna system (similar to a mobile phone). A PC card plugs into your laptop and communicates over the airwaves with a local access point, which then relays the information via a cable or ADSL link to the ISP. Wireless services are especially useful for workers, such as contractors and consultants, who often have no fixed office.

Wireless broadband is a rapidly emerging technology with moves underway to make it more accessible in the near future.

The advantages of a wireless service include:

- It provides access to users even when they are away from their office

Disadvantages include:

- The use of directional antennas requires line-of-site between the transmitting and receiving points, which can cause problems in certain areas

**5. ISDN** sends data via a digital phone line to national and international destinations. Its speed and clarity enable the sending and receiving of text, voice, videos and images. The speed of ISDN connections can vary from 64 kbits/s for fast Internet access using two phone lines, up to 2 Mbits/s using multiple lines.

Advantages of ISDN include:

- It is a well established and reliable technology widely used by business
- It is often available where ADSL and cable are not

Disadvantages include:

- Basic ISDN services are only slightly faster than the maximum speed available for dial-up connections
- ISDN is relatively expensive compared to other broadband technologies

## WHAT ARE THE BENEFITS OF BROADBAND?

Broadband Internet access has a number of advantages over conventional dial-up Internet access.

Speed:

- Broadband is generally 10-20 times faster than a dial-up connection
- A typical dial-up connection operates at either 28.8 kilobits per second (kbit/s) or 56 kbit/s, whereas a broadband connection operates between 256 kbit/s and 10 Mbit/s (depending on the particular service).

The difference that this speed can make is drastic: a 3 minute MP3 music file takes about 18 minutes to download using a 28.8 kbit/s dial-up modem but only about 21 seconds on a 1.5

Mbit/s broadband link

- Further, an email containing a family photo takes about 55 seconds at 28.8 kbit/s, but only about 3 seconds on a 512 kbit/s link

Access to applications

The high speed of Broadband gives access to applications that are either not feasible at the speed of a dial-up connection or just annoyingly slow. Broadband facilitates:

- The transfer of large files of text or graphics at high speeds
- Access to web pages (especially those with large amounts of graphics and email that are typically very slow to download on a dial-up connection)
- Telecommuting, that is permitting employees to operate from home or elsewhere with the same response speeds and level of security as if they were online in their office
- Linking several computers to the Internet through the same connection (this is particularly useful for multi-user offices or small home-based networks)
- Videoconferencing, making it faster, smoother and more practical
- Business efficiency by allowing a business to rationalise and centralise its servers.

Permanent connection:

- It's always on - when your computer is on you are connected to the Internet
- This means that there is no wasted time dialling up and waiting for your modem to connect you to the Internet
- You are not subject to annoying busy signals and you rarely experience drop outs thus, your phone line is not tied up while using the Internet
- therefore there is no need to pay for a second phone line.

Finally, there are no additional dial-up charges to connect each time you use the service.

## USEFUL LINKS

**Broadband Xchange**

<http://www.broadbandxchange.org>

Broadband Xchange is a project between Internet service providers, application and content providers, user groups and government agencies to provide a catalyst for broadband uptake and usage. This site contains a wealth of information for small business users new to broadband technology.

**The National Office for the Information Economy (NOIE)**

<http://www.noie.gov.au>

NOIE's purpose is to facilitate the creation of a world class online economy in Australia. Its functions include developing, overseeing and coordinating the Commonwealth Government's policy on ecommerce, online services and the Internet. This site provides useful research and information about broadband and its benefits.

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