

Advanced User Guide

Choosing an ISP and a Telecommunication Method

This guide is one of a series of "How To" Guides" produced by Enterprise Ireland to meet the needs of Irish companies, particularly our client base, the majority of whom are small to medium enterprises (SMEs) in manufacturing or internationally traded services.

They are designed for non-IT professionals charged with developing and/or implementing eBusiness/IT strategy in their companies. Hopefully they may also be of use to IT professionals.

These guides are only one of a range of eBusiness resources provided by Enterprise Ireland. Most of the other resources, can be accessed through our eBusiness webpages

www.openup.ie

Here you can access more guides and cases about eBusiness and related topics, details of solution providers, access to our free eBusiness e-zine and discussion forum, eBusiness events guide and links to interesting reports etc.

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In the early days of the web, an Internet Service Provider (ISP) provided you with access to the Internet and an email account so you could communicate with other Internet users. Just as the use of the web has become more sophisticated there are now a range of service providers that provide differing services to businesses going online.

The purpose of this briefing paper is to outline as clearly as possible the various services that are offered by Irish Internet Service Providers. Armed with this information you should be able to ask the relevant questions to select the most suitable service provider for your needs.

Connectivity

The most basic service provided by an ISP is Internet connectivity. This involves your ISP connecting your PC or network to the public Internet so that you can surf the web, send and receive email, transfer files, using File Transfer Protocol (FTP), and take part in newsgroups and chat rooms.

Dial-up

Dial-up accounts are so-called because they involve using the telephone network to dial-up your ISP and connect to the Internet.

Depending on the modem you use the highest speed available with a dial-up connection is 56Kbits/sec. The majority of new PCs ship with a 56Kbits/sec modem but older PCs may have a 33.6Kbits/sec or even a 28.8Kbits/sec modem. A 56Kbits/sec connection is fine for email and web use as long as you are not sending or receiving large data files such as graphics. However, due to the technical limitations of the public telephone network the fastest connection speeds from a 56Kbits/sec modem are around 50Kbits/sec and may even fall as low as 33.6Kbits/sec from time to time.

In Ireland currently there are two main types of dial-up accounts; subscription based services and subscription free accounts, which are sometimes called free services.

A subscription account involves paying a monthly or yearly fee to your ISP. For this you will receive at least one email address (some ISPs may provide more), and access to your ISP via an Internet access telephone number [e.g. an 1891 telephone number]. The only other bill you will have to pay is the price of the call when you are connected to the Internet.

In contrast with a free account you don't pay any money directly to the ISP. You connect to a phone number in your local call area and are only charged for this local call. The ISP then gets a split of the revenue from your phone service provider.

For a number of reasons businesses are better advised to avail of a subscription based account. Calls to an 1891 number are cheaper during business hours than the local call rates you will pay with a "free" account. If you use the Internet for any significant length of time each day you will soon recoup the costs of your subscription. Also you should note that some of the ISPs give their free customers email addresses with the word free in them e.g. user@oceanfree.net or user@gofree.indigo.ie. This may not be the kind of impression you want to give customers and suppliers. In addition, the level of support by an ISP to a subscription account tends to be better than to a free account.

If you have a small local area network (LAN) it is possible to connect all users on the network using a dial-up connection. While this will be fine for providing email for different users in the company, web access will be slow. The modem can be configured to dial-up at pre-set intervals to automatically collect email and deliver it to the relevant user on the network. If you opt for a solution such as this, check with your ISP to see if there is a maximum number of email accounts you can have, as this could possibly restrict your use of email as the company grows. If required, you should be easily able to upgrade so that your LAN connects using ISDN, DSL, or a dedicated leased line.

ISDN

ISDN (Integrated Services Digital Network) involves upgrading your existing phone line to a digital line with two channels. It is generally considered the next step for companies that have outgrown dial-up connections.

Eircom will carry out the work of upgrading your line but your ISP may resell the service to you and project manage the installation. For home and small office users Eircom sells ISDN under the Hi-Speed brand name. Eircom charges an upfront connection fee followed by a monthly line rental. The usage charges for each channel are the same as for a standard phone line. While the costs are higher than with dial-up the increased speed of connection means you can claw them back through more productive use of the Internet.

The main advantage of ISDN is that the speed of transmission to the Internet has increased. Each digital line can operate at 64Kbits/sec. The basic ISDN offering, Basic Rate Access (BRA), gives you two digital channels. The two digital lines can be combined to give you a speed of 128Kbits/sec, which is useful for transferring large files but you will incur double phone charges. Alternatively one line can be used for Internet access and the other used for a telephone or fax line. Although upgrading to ISDN may only take you from a connection speed of 56Kbits/sec to 64Kbits/sec you should see a marked improvement in your connection speed as ISDN uses a digital line rather than an analogue one. The ISDN does not need to dial up: It is almost instantaneous access.

To upgrade to ISDN you will also need an ISDN modem (also known as a terminal adapter) or router. An ISDN modem is used when only one PC on your network will be connecting to the Internet. An ISDN router or similar solution will be used if more than one user on your LAN requires email and Internet access.

To connect to the Internet using an ISDN line you will need to get an ISDN account with your ISP. Charges for this service vary, some ISPs provide it for free, others charge a monthly or yearly fee. You should check with your ISP whether they support 64Kbits/sec or 128Kbits/sec access or both.

In addition to Basic Rate ISDN, Eircom also provides Fractional Rate and Primary Rate ISDN, which offer more digital channels. Primary Rate allows for up to 30 ISDN channels and is usually used for video conferencing, call centre applications or to provide remote access to a corporate network for tele-workers. Fractional Rate can deliver up to 16 channels.

Users [home or small office users] should be aware that ISDN is a pay as you use service. It should be regularly assessed against other 'lump sum' telecommunication options, which are paid on a lump sum basis irrespective of use [e.g. Leased Line or DSL]. A well known 'rule of thumb' used by companies was that they should consider replacing the ISDN option if they were using the line more than 2 hours per day. Obviously, local prices for the respective options would determine the applicability of this rule of thumb.

DSL

DSL (Digital Subscriber Line) also involves upgrading your existing phone line to a digital capability. It offers higher speeds than ISDN and is expected to replace ISDN over the next few years. DSL provides an always-on connection to the Internet so you do not have to wait for your modem to dial-up when you wish to connect to the Internet.

DSL requires your local phone exchange to be upgraded. DSL upgrades the current phone line but it can still be used for voice calls while you are surfing the Internet. There will be different DSL products available, from those that are suitable for connecting a single PC, to high-end products that will connect your entire LAN to the Internet. It is expected that unlike ISDN, DSL will involve a flat monthly fee for access.

DSL will not be available [initially at least] in rural parts of the country. This is primarily due to the infrastructure expense of providing this service. Accordingly, some vendors are providing access to the Internet for these rural areas via a satellite DSL service. This service tends to work very well for browsing the Internet and for e-mail. However, companies have experienced problems with this service when transferring large files [e.g. graphics] by FTP.

You may see references in the papers to ADSL, this is simply one version of DSL.

Leased Lines

Currently digital leased lines are the main option for companies that have outgrown ISDN. A leased line is a high bandwidth connection between two points - usually between your company's premises and your ISP but they can also be used between branch offices and a head office. Companies including such as Eircom and Esat can provide both leased lines and Internet access while other ISPs will subcontract the provision of the physical leased

lines but provide the Internet access themselves. The later option is not necessarily more expensive as the ISP will purchase the leased line at wholesale rates.

Leased lines are not readily available in all parts of the country and waiting times tend to be shorter in urban areas. The bandwidth of leased lines varies from 64Kbits/sec up to 34Mbits/sec and your ISP should be able to advise what bandwidth is most suitable for your purposes. Leased lines can be upgraded after the initial installation but it is better to over-specify your bandwidth, as an upgrade may not be immediately available.

As well as a higher speed connection, leased lines provide a permanent, dedicated connection to your service provider which means you can run sophisticated Internet applications from your own office, such as hosting your own web site. Most ISPs charge a fixed monthly fee with no download limits, which makes budgeting for your Internet infrastructure much simpler. Your connection will be covered by a service level agreement (SLA). This should include a guaranteed level of uptime - usually 99% or increasingly 100% - which means you will be compensated if your leased line goes down.

Frame Relay

Frame Relay is another high-speed transmission technology that is generally used by companies with a number of locations that they wish to connect for secure private data communications. It operates at speeds from 64Kbits/sec to 2Mbit/sec. Frame Relay generally operates over the nationwide ATM networks that a number of the larger ISPs operate.

ATM

ATM allows for the transmission of voice, data and video over a single connection at speeds of up to 622Mbits/sec and is useful for companies with multiple sites. Access speeds range from 34Mbit/sec to 622Mbits/sec. ATM is generally the preserve of multinationals and other large corporations.

Wireless

Wireless Internet access falls broadly into two camps - fixed and mobile. Fixed wireless access is provided by suppliers including Eircom, Chorus and Esat and gives you a high-speed connection to your ISP without the need for a leased line. A transmitter on the roof of your premises connects to your ISP's nearest point of presence; typically a receiver within line of sight of your premises. Fixed wireless broadband is expected to become popular in areas where DSL is not available but it is not currently widely deployed in Ireland.

Mobile wireless access involves using a GSM mobile phone to connect laptops and other mobile devices to connect to the Internet. Your ISP does not have to specifically support this feature, as it is the same as dial-up access except using a mobile phone. The speeds attainable on a GSM network are limited to 14.4Kbits/sec but Vodafone's Work Anywhere service delivers speeds of 43.2Kbits/sec.

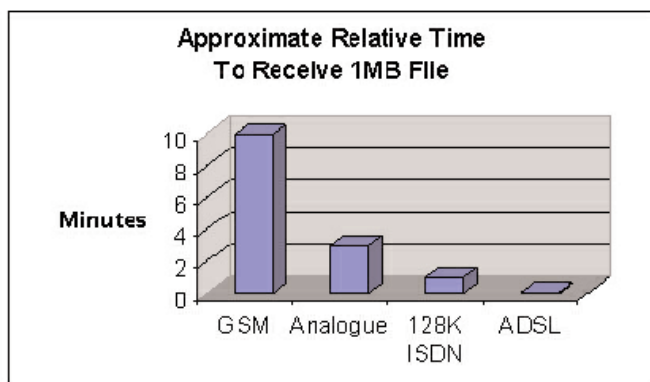
Issues to consider when choosing your Telecom options:

Cost

This includes a connection fee, ongoing payments to the telecom operator and possibly the need to buy new hardware or software when you change the type of telephone connection.

Speed

The speed, or bandwidth, of your connection is a key factor determining how long it takes to send a data file down the telephone line. Below certain minimum speeds, facilities such as video conferencing are impractical. Your telephone connection is only one of the factors determining your working speed. If your network or the websites you most often deal with are completely overloaded, things will be slow, no matter how fast your telephone connection is. However, when considering different options, you should ask about the average speed and/or the guaranteed minimum speed of the line.



Note: GSM is a standard mobile phone. Analogue means a standard old-fashioned home phone.

Reliability and security.

Certain connection options pose much greater reliability and security issues than others. Some companies may even use a mixture of telecommunication options to ensure reliability. For example, although a leased line is traditionally 'up' over 99% of the time, a company may still have an ISDN line as backup for continuous access to their web-site.

Email services

For many businesses email is the most important Internet application. It allows for cheap and fast communication particularly when dealing with people overseas.

If your company already has a LAN it is relatively straightforward to provide each employee with an email address from your domain name (see below for more details on domain names). Your ISP should be able to handle the management of your domain so that all mail for your company goes to your ISP. It remains in your mailbox until your mail server connects and then distributes it to the relevant people in your company.

As well as these basic email services your ISP may provide other value-added services. Web-based access to your mail means that your staff can check their mail from any PC that has an Internet connection and a web browser, this is particularly useful if they are on the road a lot.

Domain name registration

A domain is your company's address on the Internet such as abccompany.ie or abccompany.com. To get a domain name you will need to register with the relevant Internet Registry. For Irish domains the registry is IEDR (www.domainregistry.ie). Your ISP will be able to deal with them to register your domain. You should check with your ISP that you would be able to transfer management of the domain if you decide to no longer use their services. You should also ensure that you are the registered owner of the domain and not your ISP.

If you are serious about doing business on the Internet you will want to register your own domain name. You should also consider registering domains for any trademarks or brands that are associated with your company.

There is a charge for every domain name registration. Also, registration now tends to be more bureaucratic than before in that formal company documentation is required before the domain name is approved. However, this does tend to counteract certain 'entrepreneurs' who try to register a well-known company name or brand name and then try to sell it back to the actual company.

Hosting

No matter what kind of account you sign up for with an ISP, you should receive some free web space - generally between 5 and 10MB. This may be suitable if you just plan to establish a small-scale site to provide information

on your company. For anything more advanced such as an e-commerce or database driven site you will need to host your website on your own company web server or with specialist web farm service provider. This means that the server your site runs off is located in the ISP's web farm and they look after the day-to-day management of it. Your site benefits from your ISP's high-speed connections to the Internet. If your company decided to have the web server located in the company offices, you would have to invest in expensive infrastructure such as leased lines from the ISP to the company site. You would also have to work about issues such security, redundancy, disaster recovery and so on. However, you should ask your ISP if it has multiple redundant connections to the Internet backbone. This ensures that even if one connection goes down your website will still be available on the Internet. The electricity supply to the hosting centre should also be redundant with a generator and uninterruptible power supply (UPS) ready to kick in if there is a problem.

It is important that your ISP regularly backs up the data from your site, particularly if you are taking customer orders or other important data. These tape backups should be stored off site in a secure location and should be tested on a regular basis to ensure their integrity.

During the Internet boom a large number of Internet data centres, which specialise in hosting, were set up in Ireland. Many of these are now operating well below capacity so if you are willing to shop around you should be able to get a good price. Some Irish sites are hosted in the US, where there is more competition and prices are even lower.

A data centre should have extremely high levels of physical security through the use of security guards, cameras, sensors and alarms. If you are able to enter your ISP's data centre without being challenged to identify yourself you should ask questions about their security.

Co-location

This is where you locate your own dedicated server in the network operations centre or web farm of your ISP. You rent space, connectivity, power and cabinets to host your server. This is generally more suitable for a company that already has dedicated IT staff in-house, as much of the day-to-day maintenance of the server will fall back on you.

Managed Services

In a managed services situation your ISP takes full control of your server. Some ISPs also offer a virtual server service, which enables you to have dedicated space on a server that will also host data from other companies. This is a useful service for companies starting out, as you should be able to quickly scale up to your own server if required.

Support

ISPs primarily provide technical support over the phone. Depending on your ISP this support may only be available during business hours or it may extend into the evening. If you have critical business applications running over your Internet connection you should ensure you have an after hours number to contact your ISP.

Web-based and email support are also becoming increasingly popular. Your ISP should at the very least provide details of how to configure your email and web access, giving relevant settings such as server, SMTP and POP addresses.

Your ISP may also offer tiered levels of support e.g. bronze, silver and gold, with different costs associated with different levels of support. Consider the cost to your business of being without Internet access for an hour and you should get an indication of what level of support you require.

Your ISP should also provide you with an SLA [Service Level Agreement], which will outline exactly what levels of service they are committing to (e.g. 99.9% uptime of your leased line) and what the penalties are if they fail to meet those levels.

E-commerce

Your ISP should be able to support you in the use of e-commerce on your site. There are many different forms this can take. The ISP may develop an application that you run on your own servers. They may already have an off-

the-shelf package that they can provide you with. A third model is where your ISP provides an e-commerce capability as a service - this is known as being an application service provider (ASP).

If you are considering using a particular ISP for an e-commerce project you should ask to see evidence of their previous work in this area. Ask to speak to existing customers - what has their experience been like and have they felt they were properly supported by their ISP?

Security

Once you start making use of the Internet you are exposing your company network to potential security threats. You will need to invest in anti-virus software and ensure this is regularly updated to catch the latest viruses.

In addition you should also install firewall software as this limits the type of traffic that can access your network from the Internet. In theory this should stop any malicious attacks on your network. A firewall is particularly important if your company uses a leased line or any connection to your ISP that is left open. Most ISPs will advise on the set-up and configuration of a firewall and any other security software you might need.

Costs

As in any business, costs for Internet services vary considerably between different providers. The cheapest provider is not always the one that will serve your business best. Based on the information in this document you should be able to ask pertinent questions about the services your ISP will provide. Shop around, particularly amongst the members of recognised industry associations such as the Irish Internet Association (www.iiia.ie) and the Internet Service Provider Association of Ireland (www.ispai.ie).

Irish Office Network

Office	Telephone	Fax	Address
Enterprise Ireland			
Cork	+(353 21) 800 200	+(353 21) 800 201	Rossa Avenue, Bishopstown, Cork.
Donegal	+(353 74) 69800	+(353 74) 69801	Portland House, Port Road, Letterkenny, Co. Donegal.
Dublin	+(353 1) 857 0000/808 2000	+(353 1) 808 2020	Glasnevin, Dublin 9.
	+(353 1) 857 0000/206 6000	+(353 1) 206 6400	Merrion Hall, Strand Road, Sandymount, Dublin 4.
	+(353 1) 857 0000/808 2000	+(353 1) 808 2802	Wilton Park House, Wilton Place, Dublin 2.
	+(353 1) 609 2150	+(353 1) 609 2151	35-39 Shelbourne Road, Dublin 4.
Galway	+(353 91) 735 900	+(353 91) 735 901/2	Mervue Business Park, Galway.
Kerry	+(353 64) 34133	(353 64) 34135	57 High Street, Killarney, Co. Kerry.
Louth	+(353 42) 935 4400	+(353 42) 935 4401	Finnabair Industrial Park, Dundalk, Co. Louth.
Sligo	+(353 71) 59700	+(353 71) 59701	Finisklin Industrial Estate, Sligo.
Waterford	+(353 51) 333500	+(353 51) 333501	Industrial Estate, Cork Road, Waterford.
Westmeath	+(353 902) 87100	+(353 902) 87101	Auburn, Dublin Road, Athlone, Co. Westmeath.

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