

A basic anatomy of the Internet

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This is the first of a series of articles dealing with the practical applications of the Internet in business. Initially we tackle the daunting task of providing an overview of the whole edifice, whilst unravelling some of the jargon.

So what is the Internet?

This question can of course be answered on a number of levels, at one level it is a world wide network of computers connected through the global telecommunications infrastructure with a common set of standards (or protocols) for communication.

On another level it is a completely new medium for communicating information and transacting business using computers and phone lines.

Who owns the Internet?

Computers, being inherently rather formal beings, need to use clearly defined protocols to help them communicate. Most of the familiar applications of the Internet such as email and the World Wide Web are based on open standards. What this means in practice is that nobody... not even Bill Gates, owns the technology which makes the whole system tick.

Also the basic components of the system can be made to work on most types of computer and with almost any form of telecommunications or data network. Consequently no one organisation owns the infrastructure either.

How does it grow?

One of the defining characteristics of the Internet is its capacity to grow in an apparently organic manner. This owes much to the system's origins. The basic components of the Internet were designed to provide a fault tolerant system for connecting military command and control centres at the height of the cold war. This produced a technology for identifying and locating computers, and then communicating information between them, which is inherently simple and decentralised.

The upshot of this is a system which anyone can join at almost any level, either as a consumer or as a provider of services. The whole system grows almost like a road network with information motorways between major centres of population and webs of smaller roads linking motorway to city centre and city centre to homes and businesses.

And what is the World Wide Web (The Web)?

Having linked computers and allowed them to talk to one another over the phone, the next step was to find ways to communicate information. The Web provides a standard way of displaying and linking information and services held on the Internet. Information on the web is displayed as pages like the pages of a book and these pages are linked to form a giant and ever expanding reference library.

Even more exciting from the perspective of a business is the ability to do business directly from the page. If you liken the Internet to a giant yellow pages then, increasingly, finding a business in the directory transports you straight into the showroom.

How do web addresses work?

Every web page has a unique address known as a Uniform Resource Locator or URL. For example the following URL identifies the tourism section of the Isle of Man Government web site. << <http://www.gov.im/tourism/> >>. The first part << <http://> >> simply tells us the protocol so that we know this is a web page. The second part << www.gov.im >> is known as the domain name. This identifies the computer on which the pages are hosted. The final part << [/tourism/...](http://www.gov.im/tourism/) >> is the path to a directory or file on the host computer.

Locating web pages on the Internet revolves around the domain name and an associated numerical address known as the IP address. When you type a web address into your computer it sets off a cascade of events rather like a digital treasure hunt. This process is controlled by a piece of software known as a domain name server (DNS) which talks to the computer responsible for each part of the domain name until it knows exactly where to find your page. The IP address is the digital equivalent of the domain name you type in which is actually used by the software to find the computer hosting the page.

The last group of letters in a web address is known as the top level domain and each top level domain is administered by a specific organisation which maintains a database of the location of web pages within that domain.

Although there is only one registrar for each top level domain, e.g. InterNic in the states for .com and Advanced Systems on the Isle of Man for .im, this information is propagated around the internet to thousands of computers or DNS servers providing both resilience and performance benefits.

Where does a browser fit in?

A browser is the piece of software that manages how your PC uses the web. It sends out requests and retrieves information. It also knows how to display the pages you retrieve properly on your computer. The two best known browsers are Microsoft's Internet Explorer and Netscape's Navigator.

What does an Internet Service Provider (ISP) do?

An ISP provides a gateway for your PC to connect to the Internet as and when you want to. The ISP maintains a permanently open connection to the Internet and a network of computers to provide the services you require when you connect. For example your ISP will provide a mail server which acts like an electronic sorting office collecting your email and delivering it to you when you next dial in. Similarly the DNS services described above which allow your computer to surf the web are provided by the ISP.

In the next few articles we look at the benefits of the Internet in more detail before describing the options and practicalities of doing business on-line. We will also examine the specific benefits associated with locating your 'e-business' offshore in the Isle of Man.

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