

1. Outline of connectivity options

Uxbridge College could receive worldwide exposure on the Internet. The Internet has already changed the way we conduct business.

A Wide area network (WAN) connection of the new site to the other two sites requires the selection of a WAN connection. We can break our options down into two main types of connections:

1. Dial-up access
2. Leased line

Dial-up access is a way of connecting a device to a network via a modem using a public telephone network. Dial-up access is simply a phone connection, except that the parties at the two ends are computer devices rather than people. Because dial-up access uses normal telephone lines, the quality of the connection is not always good and data exchange rates are limited. In the past, the maximum data rate with dial-up access was 56 Kbps (56,000 bits per second), but new technologies such as ISDN are providing faster rates.

Option 1 - Analog modems

An analog modem is a device used to connect two digital devices via telephone lines. Because telephone lines usually transmit voice using analog waves as opposed to digital waves, a modem is used at both ends of the telecommunication network. Each time a device (computer) wishes to communicate the digital data is converted into analog signals which can be sent down the telephone lines. When the analog signals reach the destination they are converted back into digital signals by the receiving modem.

Strengths

This is a very cheap method for a home pc's to connect to the Internet; however this method is only for simple web browsing and to manage their e-mail.

Weakness

This is an extremely slow process and the technology has been out dated and for a medium or large organization to connect to the Internet this way would be costly and unsuitable

Conclusion

Option 1 is for a single pc to connect to the Internet using an existing telephone line. It would cost Uxbridge far too much money and would be extremely hard to manage. This method is not a feasible method for Uxbridge College to connect to the Internet

Option 2 - ISDN (Integrated Services Digital Network)

ISDN is an international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires. ISDN is digital service provided by telephone companies.

Strengths

This was a relatively cheap method in the past for a small to medium sized company to combine WAN connectivity as well as Internet connection with their phone lines.

Weakness

This relatively slow technology has now been out dated and for a small company this could be an option. ISDN is not available everywhere and can be setup can be costly and time consuming

Conclusion

ISDN would cost Uxbridge far too much money for the service they would receive as I don't feel it would facilitate the demand of staff or students. ISDN would also be extremely hard to manage. This method is not a feasible method for Uxbridge College to connect to the Internet

Option 3 - DSL digital subscriber lines

DSL is a very high-speed connection that uses the same wires as a regular telephone line. DSL is typically used in a small business or home connection. DSL comes in many different types, however the two main types are:

1. ADSL
2. SDSL

Two other types of DSL technologies are High-data-rate DSL (HDSL) and Very high DSL (VDSL). DSL technologies use sophisticated modulation schemes to pack data onto copper wires. They are sometimes referred to as last-mile technologies because they are used only for connections from a telephone switching station to a home or office, not between switching stations.

Strengths

For a single pc or a small business The advantages of DSL are enormous, for example You can leave your Internet connection open and still use the phone line for talking. The speed is much higher than a regular modem

Weakness

With DSL the connection is faster for receiving data (downloading) than it is for sending data (uploading) over the Internet. The DSL service is not available everywhere. The technology is being out dated and for a small company this could be an option. DSL is not as widely available as it should be.

Conclusion

DSL is not a feasible option for Uxbridge as I don't feel last mile technology would facilitate the demand of staff or students. This technology is much more suitable than that of options 1 and 2, but far from state of the art technology.

Leased lines

A permanent telephone connection between two points set up by a telecommunications common carrier. Typically, leased lines are used by businesses to connect geographically distant offices. Unlike normal dial-up connections, a leased line is always active. The fee for the connection is much greater than other technologies and is usually a fixed monthly rate. The primary factors affecting the monthly fee are distance between end points and the speed of the circuit. Because the connection doesn't carry anybody else's communications, the carrier can assure a given level of quality.

Recommendation – Option 4

Option 4 – T1 Carrier

T1 Carrier is a dedicated phone connection supporting data rates of 1.544Mbits per second. A T-1 line actually consists of 24 individual channels, each of which supports 64Kbits per second. Each 64Kbit/second channel can be configured to carry voice or data traffic. Most telephone companies allow you to buy just some of these individual channels, known as fractional T-1 access.

A T2 carrier has 4 T1's ($4 \times 24 = 96$ channels) and a T3 has 28 T1's ($28 \times 24 = 672$ channels). This kind of carriers are only used by big corporations

Strengths

T1 is one of the fastest available technologies for Internet and WAN connectivity. T1 is also extremely reliable, much more reliable than an analog modem. Depending on what they are doing, a T1 line can generally handle quite a few people. For general browsing, hundreds of users are easily able to share a T1 connection line comfortably

Weakness

T1 is charged at a monthly rate and the monthly cost of T1 line varies on the distance to the local long distance carrier. Usual T1 connection loop costs run between £1000 - 10,000 per month. If a large number of users are all downloading MP3 files or video files simultaneously it would be a problem, but that still isn't extremely common

Conclusion

T1 is an expensive option, however when you consider that on T1 line is equal to 24 lines, each able to cope with a number of users (varies on the application) then T1 is relatively cheap. Considering that Uxbridge College will have many users wish to browse the web, read/send e-mails simultaneously than this is the realistic option.

Task 2 - How would bandwidth usage on a network be measured and what factors determine bandwidth availability?

What is bandwidth and bandwidth usage?

Bandwidth basically is the amount of data that can be transmitted in a fixed amount of time. Bandwidth usage quite simply is the amount of bandwidth that is being used at any given time.

First of all it is important to understand why we need to measure bandwidth usage. It is common practice to measure bandwidth on a new network when it is first implemented and functioning properly or has had any newly installed performance capabilities. This measurement is referred to as the baseline and is a record of a starting point. The baseline can also be used to compare the network performance to the baseline measurement is an effective way of finding any performance problems and can help spot specific network problems that may be caused by aging, poor maintenance practices, environment and other factors. Bandwidth can be measured in a number of ways the two fundamentals ways of measuring network bandwidth are:

1. Devices that plug into points on a Network
2. Software that uses algorithms

Devices that plug into points on a Network

There are many devices out there that measure bandwidth, but most commonly used are the sort of hand held multi meters that are a variety of features ranging from vendor to vendor and also depending on the model.

Software that uses algorithms to measure bandwidth

There are many applications that can be installed as part of the network operating system (such as Novell Netware) or third party products that can also be installed to work for the network operating system that monitor bandwidth usage. These programs use very complex algorithms to calculate the bandwidth usage. The bandwidth usage can be measured using a variety of criteria such as:

- Application
- Segment
- Groups of users
- Single user

Factors that contribute heavy bandwidth usage

There are a number of factors that contribute to heavy bandwidth usage, such as:

- Applications that are bandwidth hungry
- Peak Times
- The working Calendar

Applications that are bandwidth hungry

Certain applications are excessively heavy on network bandwidth things like, distributed databases and anything that requires a lot of server processing power. Anything that involves transferring large data files such Sound files, image files etc.

Peak Times

Certain times of day will have more network traffic. This can really affect a network, for example from 9am – 5pm Uxbridge Colleges could slow right down as a result of many

users using network resources (such as Servers, Routers, and Gateways). Bottlenecks occur and in a CSMA/CD network there will be plenty of re-transmitting.

Calendar

Uxbridge College will have a much greater number of network users during term time as in the holidays there will be very few if any students coming in to the College let alone using the network. In term time this will have the opposite effect as all the courses will be running there will be a huge demand on the network.

Recommended Purchase

Cisco are the market leaders in providing these hand held meters and I would recommend one of Cisco Fluke's as a recommended buy as part of Uxbridge college's network administration and maintenance. The fluke is a relatively inexpensive tool and can be purchased from as little as £79 or right up to £650 depending on the features (capabilities)

An acceptable response for users

There are a lot of people who have to have the latest technology constantly without consideration of an organization's budget. The latest technology is not necessarily the best solution for each organization, especially with new technologies constantly being outdated. Most companies can't afford to upgrade each time there is a new technology and Uxbridge College is no exception.. There are many steps that can be taken to reduce network traffic and one of them is the segmentation of the network. If the network is subdivided it will minimize traffic that is traveling locally (somewhere in the same network segment), however this will not reduce traffic with regards to print queues and server/ Internet access)

Task 3 – SWOT Analysis of proposed LAN and WAN

A Local Area Network (LAN) is a computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings, however if the LAN is spread over a wider geographical area and is connected using communication technologies then it is known as a Wide Area Network (WAN).

Strengths

Internet access

In the past most computer applications were written to be executed on standalone computers (computers that are not connected together). Today's applications can be written to communicate with hundreds of millions of computers.

Internet mixes computing with communication technologies. It makes work easier by making information instantly and conveniently accessible worldwide. The Internet will Enable staff and students to keep up with latest information released by:

- Hardware manufactures (at the fore front of technology)
- Institutions (such as Universities and research centers)

Hardware manufactures

Information on hardware manufactures can help staff and students to keep up to date with latest hardware trends, which is extremely important for almost all staff and students especially those who are involved in any of the computer related subjects.

Institutions (such as Universities and research centers)

Information released by universities and research centers could be:

Latest discoveries (new concepts as well as new technologies)

Famous lecturers delivering live and post online lectures

LANs and WANs will also enable the users to:

- Share files
- Share Devices
- Share Internet connection
- Enables fast and secure communication within chosen areas

Sharing files

Networks enable users to share files easily across a medium (usually cables). When Uxbridge College decides to implement a network one of the benefits are the co-ordination between colleagues. Both the staff and students will be able to send and receive files that are necessary for students to succeed and staff to not only do their jobs but do them effectively and efficiently. For example a student may be doing a group project as part of an assignment and may require one of his/her colleagues to view, give an opinion, or work with an essay, piece of research, image, or any other type of file. It may not be convenient for the person wishing to send or the person wishing to receive the file to say leave a class or lecture room, however with the new network it can be done within a couple of seconds. Another example of the benefits of the network is if principle needed to show a head of department some new important news letter and wanted an opinion he/she could send the file and get a response within a few minutes saving a lot of time and minimising stress.

Sharing Devices

One of the main benefits of a network is the ability to share devices such as expensive laser printers, scanners, digital cameras (moving and still images), hard disks, expensive components required for Internet connection and many other devices. For example instead of having one computer connected to a printer in every class or office where there would be queues every time students or staff needed to print anything, making printing an extremely time consuming procedure. Another alternative is to buy many printers, which would be costly (would exceed Uxbridge colleges budget) as well as be extremely time consuming. Leaving only one feasible option which is to connect all the computers in work areas (to create a network) to a single printer, scanner, or any other device or component. This would allow users to print, scan when ever he or she needs to and the whole process would be managed by the network operating system (or a program dedicated to managing printer or any other device queues)

Shared Internet connection

Sharing devices has its obvious advantages, the main one being that it is an extremely cost effective way to implement any kind of computer system. This is also the case when it comes to Internet connectivity. There are many reasons why Uxbridge College should connect to the Internet. However as outlined in (task 1) it is a very expensive procedure and would not be feasible if Uxbridge or any other company had to connect each site individually to the Internet.

Weaknesses

A new network would incur many costs as it would require experts to come in and design, implement and maintain the network.

Costs of designing the computer network

There are many costs associated with the design of a network, from the conceptual phase's right through to the final phase. Some of these costs include bringing in network experts to:

- Analyse the current system
- Design a computer network

Analysing the current system

The analysis of the current system will require thorough investigating. During the investigation the needs of everyone who is going to be managing and using the new system will be determined. As a result of the investigation the specifications (or 'Terms of reference') can be determined.

Designing a computer network

Using the specifications identified during the analysis of the current system a new system will need to be designed. Both the analysis and design phases are time consuming

Costs of implementing the network

Uxbridge College would have many costs during implementation of the network. The network implementation costs can be broken down into two simplified categories:

1. Hardware Implementation costs
2. Software implementation costs

Hardware Implementation costs

Hardware Implementation will consist of all the hardware components that are required to put the new network together

Hardware- Networks are comprised of many different computers, both workstations and dedicated servers (dedicated to serving the workstations) as well as many different network components such as NIC's (network Interface Cards) cables, hubs, switches, Routers and many more. There are also the costs of devices such as printers, scanners, Robots and many more devices.

Hardware installation- The hardware will then need to be installed correctly and safely by skilled professionals. The professionals responsible for implementing the hardware will have to use following certain Industry standards as well industry requirements for installation of safe and functional network

Software Implementation costs

For the software implementation

Costs of software

- Cost of Operating systems
- Cost of applications

Costs of maintaining a network

- Training staff
- Network admin staff
- Technicians (in house or outsourced)
- Maintaining and fixing Network components

Conclusion

There are many costs associated with a computer network; however these costs are insignificant in comparison with the strengths and opportunities a network has to offer Uxbridge College. Uxbridge College should exploit the vast opportunities offered by making going ahead with the proposed network.

This information provided by the new Uxbridge College network would prove invaluable and would easily outweigh any costs associated with designing and implementing and maintaining a state of the art network.

Opportunities

Uxbridge College could build a computer network or even a 'state of the art' computer network. If the college went ahead then the potential future openings for the college would be vast.

Building in market

Uxbridge College will have the chance to extend its market through:

- Wider geographical clientele
- Ability to offer wider range of courses
- Converged network

Wider geographical clientele

Part of Uxbridge's network will facilitate greater web coverage. In other words Uxbridge should be able to further customize their website by linking it to the college's network allowing perspective students and staff to easily browse:

- Course details
- Tutor/staff details
- Location details
- College strategies details
- College achievements details

These details will help perspective students and staff to be sure of the course they apply to do, which in turn will ensure a higher pass rate (as details will be clearer through simply but accurately displayed information)

Converged network

At the moment most companies have separate infrastructures for voice, data, and video transport, but in a completely converged network environment, a single high performance network will provide all three services on one line. A converged network will mean greatly enhanced efficiencies.

Any of these opportunities would send out a positive message; Uxbridge is a high standard institute with cutting edge technology and is at the forefront pushing back the boundaries of these technologies.

Threats

Being left behind

If Uxbridge College did not keep up to date with the latest technologies than they will not be able to deliver some courses that require specialised equipment. As a consequence students would go elsewhere. If you don't keep up with the up to date software and hardware there's a threat of being left behind.

Competition

Uxbridge College essentially is a business and if they did not offer a competitive scope of courses covering a wide range of subjects and specialist fields than they will lose perspective students to competitors

Security

With any computer network there is also the issue of security from hackers from intruders, errors, and other threats. Uxbridge College's network will contain data and resources necessary run its organisation successfully and efficiently. That would mean that there would be data and resources on the network of sufficient value that would be worth protecting.

Task 4 – Evaluating a Network Operating system (NOS)

Every network needs an Operating System (OS) that will not only provide the network features the network to operate properly but also enable network administrators to manage the network in the most reliable and efficient way. The needs of each network are different due to the fact that every organizations network is different. This is the reason most organizations need to look at a different sets of criteria.

Evaluation criteria

An evaluation criterion provides data to make comparisons. With out evaluation criteria it is very hard to make an objective and unbiased comparison or decision. Evaluation criteria also ensure that evaluations are consistent.

Uxbridge College will have to look fundamentally at criteria such as:

- **Reliability** – how often does it corrupt files?
- **Performance** – can it handle the traffic that this network will see?
- **Adaptability** – should be able to handle a mixed bag of hardware and software.
- **Ease of use and installation** – can a non-technical person administer the account on a daily basis?
- **Affordability** – costs such as upgrades, technical support, etc
- **Security** – can it protect you from hackers, Trojans, etc?
- **Scalability** – you want the NOS to be able to work with a server that has one processor today but might have two or more added to it next year.

Evaluation of Novell Netware and Microsoft Windows NT

Novell Netware (Recommended Network Operating system for Uxbridge College)

Novell Netware was one of the first commercial Network Operating Systems (NOS) and is certainly the oldest one still widely used. Netware is extremely good one it comes to providing basic functions such as:

- File sharing
- Print sharing

These functions where the main features for the first commercial networks that where developed for businesses. Novell excelled in these areas and as a result today they still a cut above the rest when it comes to these features

A slow decline began

However as networks have evolved and the number of applications designed for networks have increased Netware failed to keep up especially when it came to Internet services. In fact one of the main reasons it has declined in the market place so much is the fact that it relied on their own elements so much (elements such as IPX protocols and server NLMs) where as Windows NT has documented and shared it's developments (developments such as TCP/IP and common executables) with third party developers. Netware is a dedicated client/server OS, meaning that Netware server contain no client capabilities and clients only communicate only with servers, not with each other (unless another NOS is installed).

Novell bounces back with Netware's Novell Directory Services (NDS)

The NDS is a directory service that provides all sorts of useful information about network elements including hardware and software and information on any users, or groups of users. As the NDS has been on the market longer than any of the competitors equivalents (such as Microsoft's Active Directory) there are many more third party products that utilize its capabilities. It has been tested far more vigorously and as a result is far more reliable than its equivalents.

Novell's latest edition of Netware (Netware 5) now offers the option of using its native IPX (an outdated protocol) protocols or the more popular Microsoft developed TCP/IP. This option means the NOS is able to use more third party manufactured applications.

Netware clients are DOS or Windows systems with a client package installed that provides server connectivity. It is possible to connect Netware clients to other client OSs, such as Macintosh and UNIX, however additional software is needed.

Netware has earned a reputation as a server OS as opposed to an application sever. Netware is best known for providing users with basic file and print services.

Reliability – Netware is one of the old school NOSs and is very reliable when it comes to network management, file and print management`.

Performance – Netware is a robust NOS and providing the network administration staff are competent professionals there should be no reason for crashes, however crashes are inevitable, so good planning will go along way.

Adaptability

Netware is not as adaptable across different software applications as Windows NT and is known to be more problematic; however Netware 5 is a step in the right direction with the option of adopting TCP/IP as its native protocols making it more compatible with various applications

Ease of use and installation – Novell's NDS makes administrating work groups very easy and is known for its ease of use particularly when compared with any equivalent

Affordability – costs such as upgrades, technical support, etc

Security

The traditional file system is secure and there is a wide range of applications available for prevention of unwanted access.

Scalability

Netware is not as scalable as Windows NT. The traditional file System is scaleable.

Windows NT 2000

Windows NT has had some catching up to do in the world of NOSs

Initially there were less applications available for Windows NT as it was a much newer NOS, however as they've been developed they tend to be easier to install. Windows NT provides fundamental features such as, file and print management services although they are not as experienced as Novell at providing these features. Novell has had time to mature these services and as a result it's better at doing so. Windows NT had some good ideas such as automated server configuration, which enabled users with less expertise to configure NOS's

Windows NT 2000 now has a lot to offer in the world of NOSs

Windows NT Operates as a peer to peer NOS. This means that each computer can function both as a client and as a server. As a result there is a separate version for the workstation and the server. The main differences between the two are:

- Number of features
- Number of users supported
- Cost

Number of features

Windows NT server has the ability to function as a domain controller (DC) for the network and includes features such as:

- WINS (Windows Internet Naming Service)
- DHCP (Dynamic Host Configuration Protocol)
- DNS (Domain Name Service/System)

DHCP

Dynamic Host Configuration Protocol assigns a new IP address each time a host connects to the network or some systems can be set up to assign a new IP address while the host is still connected. Dynamic addressing simplifies network administration because the software keeps track of IP addresses rather than requiring an administrator to manage the task. This means that a new computer can be added to a network without the hassle of manually assigning it a unique IP address.

WINS

Determining the IP address for a computer is a complex process when DHCP servers are assigning a new IP address dynamically. Windows Internet System is a system that determines the IP address associated with a particular network computer.

DNS

Domain Name Service is an Internet service that simplifies the request of an IP address. Each time a user types in a Domain name (an Internet address) the DNS service must translate the name into the corresponding IP address. For example, a user enters the domain name www.UxbridgeCollege.com might translate to 198.128.192.2

On the other hand Windows NT workstation lacks all these features but is still able to interact with other workstations on a peer to peer basis.

Reliability – Windows NT has quickly become a household name in the world of NOSs and is relatively reliable

Performance – Windows NT excels in performance and has a number of features to deal with performance, especially server performance.

Adaptability – Software is now available in abundance for NT and is extremely easy to install, however there are still conflicts.

Ease of use and installation – Windows NT have caught on to a few of Novell's features combined with their automated server configuration features have become possibly the easiest NOS to install with relatively little expertise to install.

Affordability – Windows NT have some very flexible schemes to tailor different network needs, however generally is still more expensive than Netware.

Security – NT has some built in security features and a wide variety of applications available.

Scalability – Windows NT works across a variety of platforms

Task 5 – E-commerce and its benefits and the communication infrastructures that have facilitated the rapid development of e-commerce

What is e-commerce?

Nowadays when we conduct business we don't necessarily have to have an immediate exchange of goods and money. The transaction can take place hundreds and thousands of miles apart. This is all a result of electronic commerce (or e-commerce). Electronic commerce is the most recent step in the evolution of business. It replaces (or supplements) the swapping of money or goods with the exchange of information from one computer to another. E-commerce is a very broad term and it can be broken up into two main differences:

1. Business to consumers
2. Business to Business

Business to consumers - Business to consumer e-commerce is mainly carried out on the web. For example Amazon.com offers lots of books for sale on its Web site. Consumers find what they like, type in their credit card number and within a few days they receive the book they ordered. Managing a bank account, and ordering a flight or train ticket are just a couple of the many things business to consumer e-commerce encompasses

Business to business -The main difference between these two types of e-commerce is that business to business e-commerce doesn't necessarily take place over the web. It takes many forms, some of which have been around for years. Electronic data interchange (EDI) is a format for exchanging business information over private networks. It was created to automate and speed the exchange of information between companies that regularly did business together. For example, on Monday a computer can automatically tell my computer those 500 cars that were ordered have been shipped. Then on Wednesday my computer acknowledges the shipping confirmation and explains that I'll be sending the money on Thursday. In this example no money has actually changed hands electronically here but plenty of business data did. If your business and my business do transactions like this often, then the automated system will save both of us lots of time and money.

Internet Commerce

This is a very general view of e-commerce and the Internet has helped to expand the definition of e-commerce. The

Benefits of e-commerce

E-commerce is extremely beneficial both to the business and to the consumers. Some of the benefits include:

- Customer research
- Pre-sales enquires
- Time saving (no long journeys or queues)
- Sales
- Advertising promotions
- Transactions
- Fund transfers

- Production
- After sales service

Most of these benefits have been available prior to e-commerce, but not with the size of the available market e-commerce offers.

Huge markets

The available markets for business are huge, which has enabled a variety of business to prosper, not just corporations, but very small business. The reason for this is with the huge market is a huge demand and setting up commerce electronic has relatively low overheads.

Low overheads

E-commerce is attractive because it reduces the cost of doing business. Sending a few bytes of data over a network is cheaper, faster and more convenient than sending someone or even making a phone call. E-commerce eliminates the need for huge sites with large numbers of employee's and all the related costs.

***Note** - The primary concern of e-commerce is security. The Internet is very public, and many people hesitate to send sensitive data over the wires where it might be intercepted by nefarious third parties. But with so many organizations benefiting from e-commerce, plenty of money is being spent on resolving any security issues

Communication infrastructures that facilitated the rapid development of e-commerce

E-commerce has been a concept for a very long time; however the correct infrastructure has only become available in the last 10 years. E-commerce has only really taken off in the last 5 years. This has been due to:

- Lack of communication Infrastructure
- Cost of hardware

Lack of communication Infrastructure

The introduction of Interconnecting of computers was introduced to the corporate world businesses rapidly to realize the potential. They realized they could tune their operations and offer new and better services. They began spending huge amounts of money on developing and enhancing the Internet. This generated fierce competition between hardware and software developers and communication carriers. The result is a communication infrastructure that enables us to conduct commerce electronically (e-commerce). However communication infrastructure can be broken down into:

- Hardware technology
- Software technology

The importance of both these technologies can't be stressed enough as hardware technologies and software technologies are the essence of e-commerce.

If the hardware/software technologies are not able to function effectively and efficiently or relatively priced then business or consumers will not use them, for example a business may advertise or even sell its products on the web but at the same time does not wasn't their website to send consumers the wrong image

Potential Consumers must have the facilities to view effectively and efficiently what they might be interested in. It's no good for business trying to sell on the web if no one can

afford the hardware/software technologies (computers and protocols are necessary devices) required to access the web.

Routers and the protocols that enable critical and efficient packet switching are the main hardware/ software technologies that have broken down the boundaries that hindered expansion of the Internet and smaller WANs

What is a packet?

A packet is when the data being transmitted is broken down into small packets. Packet switching has greatly reduced the costs of transmitting data compared with the costs of dedicated lines. A Packet contains various information, such as the senders address, destination address, sequencing number, error control data, and much more. Once the data is broken down into packets the address information allows packets to be forwarded to its destination using Routers.

Task 6 – The widespread of electronic mail in business, industry and education

What is e-mail?

E-mail (electronic mail) is an electronic message sent from one computer to another. You can send or receive personal and business related messages with attachments, such as pictures, documents, music and even programs.

The widespread use of e-mail

One of the foremost and first reasons why e-mail has become so widespread in recent years is it can take days to send a letter across the country and weeks to go around the world in the conventional postal system, which is now known as snail mail. To save time and money, more and more people are using electronic mail. It's fast, easy and much cheaper than using the post office.

The widespread use of e-mail in the modern world has supplied a convenient way for people to communicate from different corners of the globe as well as within the same building.

Business has benefited

E-mail allows fast communication between companies and customers and as a result there is fast deployment of internal memo's as well as electronic messages to customers or a way of billing and confirmation. In most cases email reduces the amount of paperwork necessary. For example daily memos can be passed around offices without the hassles of excess paperwork. The result is a more fast, efficient and clean method of communication within organization. It's not just memos that can be sent as a result of e-mails. Important documents can be attached and e-mails don't necessarily have to be sent to individual recipients (receivers of an e-mail), they can be sent to a whole group of people.

Sending an e-mail to multiple recipients

This is another area that has really benefited organizations as it can seriously reduce time and costs. For example one message can be sent to everyone within an organization or promotional, after sales literature can be sent to whole database of customers. This feature has also been a key factor in the evolution of education.

Education has benefited

Business and industry are not the only area, which has benefited from e-mail. In fact education has promoted e-mail from day one. Even before the web was around (1990) universities, research centers and other education groups were communicating on a world wide scale. E-mail allowed them to exchange ideas and keep up with latest advances, which has been the key to this communication/information revolution.

Security Issues

One of the main problems that have arisen from e-mail is the issue of security. It is very easy for people on the Internet to assume a different identity. For example, when you are exchanging e-mail with someone whom you have never met in person, they may not be truthful and could assume the identity of someone else for their own benefit. Another security issue, is it can be risky and even dangerous to give out information via e-mail as it can be used to track you down or contact you directly.

Other problems that have arisen with e-mail

There are many other problems that have come along with e-mail, for example the lack of work being done in any organization where junk mail is being circulated. This is time consuming as well as the strain it imposes on the network through heavy bandwidth usage. Electronic mail is also subject to junk mail, just as the regular mail in the postal system is.

Spam

Spam mail is where any recipient is subjected to a message repeatedly sent to their e-mail address.

Bibliography

1.Books:

Deitel, Deitel, Nieto. (2002) Internet & World Wide Web How to program, Second edition Prentice Hall publications

Jean Walrand. (2002) Communication networks: A first course, second edition, Singapore, McGraw Hill Higher Education

Craig Zacker. (2000) The Complete Reference Upgrading & Troubleshooting Networks, Osborne/McGraw Hill publications

2.World Wide Web /Internet Documents:

TechFest, TechFest.com. Available:

<http://www.techfest.com/networking/standard.htm> (Accessed 28th December)

Webopedia, Webopedia.Internet.com .Available:

http://webopedia.internet.com/Networks/Networking_Standards/ (Accessed 14th January 2003)

Florida Center For instructional Technology, Florida, University of South Florida.

Available: <http://fcit.coedu.usf.edu/network/chap2/chap2.htm> (Accessed 6th January 2003)

David r. Frick & company, Certified Public Accountant, www.frick-cpa.com .Available:

www.frick-cpa.com/netess/Net_Topos.asp (Accessed 18th January 2003)

PROTOCOLS.COM, www.protocols.com .Available:

<http://www.protocols.com/pbook/tcpip.htm> (Accessed 25th January 2003)