Network NAB 4

Peer to peer, or P2P computing has become a huge craze in the new millennium. The technology lets individuals directly chat, exchange files, and share computer power and storage space. It has changed profoundly the way people use computers.

Today, current Internet users require a basic functions and software to gain access to the Internet. They simply have to connect to their ISP (Internet Service Provider), who give them a temporary IP address. ISPs also provide additional services, which we take for granted, such as pulling in your e-mail. If you were to have your own personal IP address then such facilities, as these would not be provided for you.

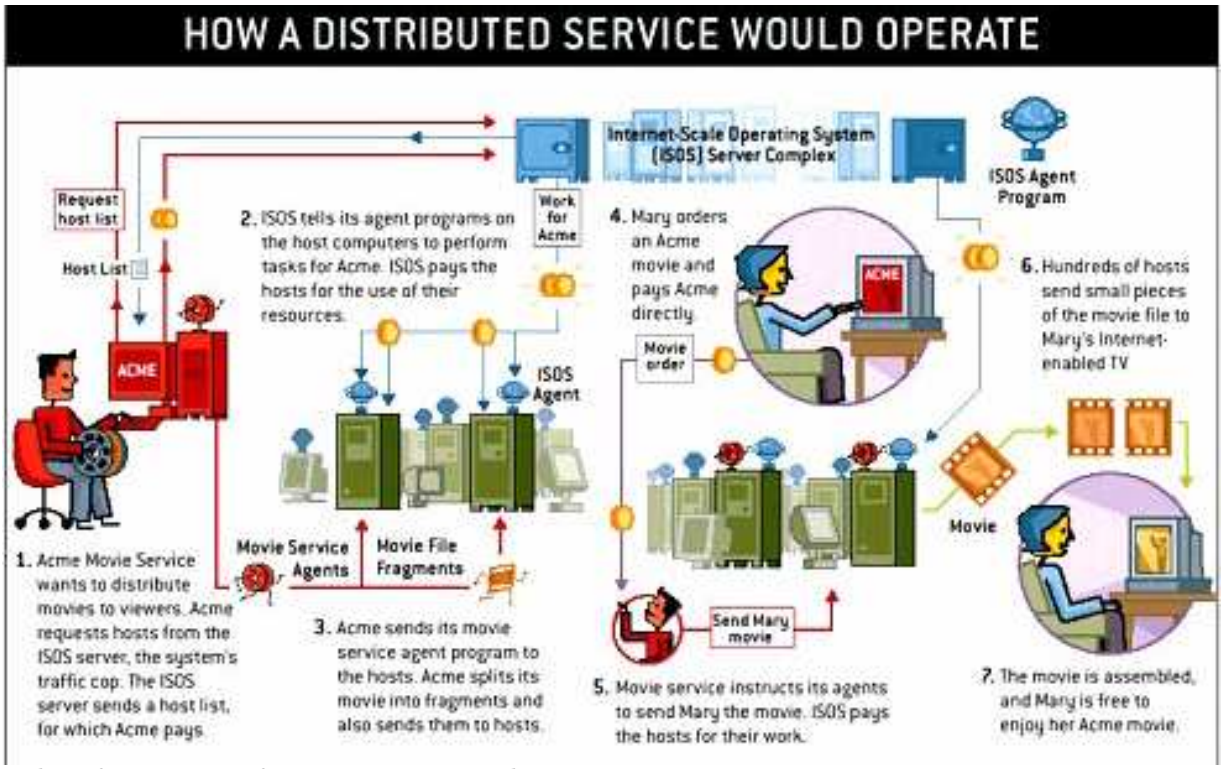
Just witness the Napster phenomenon. With so many people sharing music files it was no wonder companies fear copy write fraud. Napster shows us the next generation of the Internet, using the technology in a different way. The software application was freely available over the Internet. It used simple technology to share music files (MP3's). With each user having a unique name, each individual can down load files from each other, and in turn people can upload from them. This distribution of files serves to bring the music community closer together. During download there is a direct point to point access between clients, witch of course is a security issue as the IP addresses of the registered computer is readily available for others to see and misuse.

The future sees Napster influencing other types of networked software applications. Already alternative MP3 sharing systems e.g. Gnetella have been created, who support the sharing of all files (not just MP3 format). Gnetella provides a private, secure shared file system. There is no central server like Napster; instead, a request for a file is passed from the server computer to the client's request.

But the sharing of music files is not all that peer to peer computing allows. In fact that is just a small percentage of its uses. The newest idea forming from peer to peer networking is that of sharing computer your personal computer with other people. There are two types of peer-to-peer networking: storage and computing. Organizations such as Gnetella, Morpheus and instant messaging services are examples of storage networking whilst Cancer Research and SETI are examples of computing networking. Where user's computers can be accessed and used in processing data on behalf of the organization.

By this I do not mean letting someone into your own to use your pc while you are at work, but in fact allowing companies to take over your pc when it is not at use. To do this a thin layer of software will run on your computer allowing access to the company. This type of application might benefit distributing data processing or online services such as file storage systems, databases or advanced web search engines. It is not just the companies that will benefit from this breakthrough of old technology. The owner of the pc will be paid for allowing their computer to be used and also given added extras, for example,

while the company are using her computer they are also sending a series of movies to the computer. It can almost be seen like a barter economy that provides free services in exchange for processor time and disk space. For example a pc owner might specify that the computers processor can only be used between 9am and 5pm unless a very high price is paid. But the cost of the company owning and running all the required hardware would greatly exceed this payment. So both parties are gaining from this win - win situation. So in basic terms it works like this: -



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The future prospects for a system like this are strong. Already more than one hundred and fifty million hosts are connected to the Internet, and the number is growing exponentially. At the moment there is many companies using this idea. Cancer Research for one. They search for possible cancer drugs by testing which of 3.5 billion molecules are best shaped to bind to any one of eight proteins that cancer needs to grow. Another example of distributed systems is GIMPS. This is the search for the larges possible prime number. About 130,000 people are signed up, and five new primes have been found, including the largest prime number known, which has four million digits.

So there we have it. The new generation of the Internet. Peer to peer computing has in fact changed the way we, and others, use our Internet time. For our own benefit – Napster and Gnetella – free music, games, documents. Research benefits – Cancer Research. All this from simple networked computers. The future sees peer-to-peer networking growing. With ADSL interconnections becoming more readily available, hosts are connected all

day, every day, allowing for companies to have more time at a faster connection rate. So more solutions can be found, more songs can be downloaded. The Internet remains an immense untapped resource. The revolutionary rise in the popularity of the World Wide Web has not changed that – it has just made the resource pool larger. The future sees that when work is saved in your computer it wont be saved to your own personal computer, instead split up into tiny parts and saved all over the world. If your computer, or even the Internet and every computer in the United Kingdom crashed your work will not be lost. Extra hardware and software will be all you will need to recover your files from across the Atlantis and beyond.

Who knows what will result? At the moment magazines and newspapers are talking about a society where the Internet will dominate. Where we can go on holiday leaving computers all over our homes so we can check up on essentials such as water, electricity or food supply. We could check our fridges from Hong Kong to send an order to Tesco's so that when we return we will have enough tea, coffee, sugar and milk. Who knows what will happen! Who knows what mad ideas people will come up with! All I know is that one-day we will be doing things with the Internet that we could, at present, never even dream about.

Bibliography

Guardian Newspaper Archive
The Herald Newspaper Archive
Graphics and articles – scientific American – www.sciam.com