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Peer To Peer (P2P) File Sharing: How It Works

By Peter Nisbet

Peer-to-peer (or P2P) file sharing systems connect users (called nodes) directly together. Some are true networked systems while other contain an element of the client-server structure. That is they contain an element of the original Napster centralized server system where clients are fed by a central server. Examples of this are the original Napster (Napster is now a 'pay for music' site) and OpenNap which replicates the original Napster functionality.

It was the central server which eventually destroyed the Napster system sins, once the server was forced to close, the whole system ceased to function. The P2P systems are now much more widely used. In these every user can be connected to every other user who is logged on. When you download music or movie files you can be doing so from you next door neighbour, or someone on the other side of the world. You have access to literally millions and millions of files: everything on the other users' hard disks in fact, and everyone has access to yours. There is no central server, so the system cannot be shut down.

Examples are eDonkey, which is combined with Overnet, the FastTrack network and the Gnutella network. Software which operates on these networks is:

Limewire and Bearshare who both use the Gnutella network. Morpheus which uses all three networks. Kazaa and eMule which operate on the eDonkey/Overnet networks and Ares with its own network. Microsoft has its own system in WinMX, but it is reputed to be complex and has its limitations.

There is also BitTorrent. This has a following among those interested in sharing audio-visual files such as Movies and TV shows. The original and official BitTorrent client tends to monopolize a connection so that other internet business cannot be carried during downloading though this has been resolved in an alternative free version

BitTorrent is different form of P2P file sharing. With normal systems such as the Gnutella system, you will typically download a complete file from one source. In some cases the software allows you to download the one file from a number of contributing sources, thus speeding up the process. With BitTorrent, on the other hand, you download different bits of the file from a number of different sources

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(each file is split into about 1,000 pieces). This not only speeds up the transfer of large files around the network, but also allows you to upload a file at the same time as you are downloading it.

Brian Dessent likens it to a book. A group of people round a table each have different pages of a book. They want to get the whole book, they let each other know what pages they have and what they require. Eventually the pages are passed around till a whole copy is obtained. If there are any pages missing, someone is available with the whole book (called a `seed') who can supply what is missing to complete the book

Invented by programmer Bram Cohen, BitTorrent is therefore different to any other kind of P2P network. It works differently to other systems in its search facility: it has none! Users must first carry out a web search to find the file they require. There are , however, several BitTorrent search engines on the web such as BTBot and TorrentSpy.

In addition to simultaneous downloading from multiples sources which is common with most of the modern P2P applications, eDonkey2000 also allows sharing of file segments where the file size is larger than 9.8M. As with BitTorrent, this allows you to upload a file while you are still downloading it so that the more popular files can be very rapidly distributed round the network. The problem with this is that sometimes the whole file cannot be found, and you are left with part of the file which you must complete at later date. This cannot happen with traditional P2P systems such as Gnutella (e.g. Limewire and Bearshare).

Free Downloading

The P2P networks such as Gnutella and BitTorrent are free. Many companies will try to charge you for downloading the software, but they are taking advantage of your ignorance. However, you should be careful when selecting the free software.

The majority of free download programs comes with bundled adware and spyware (also free of course!). An example of adware is the pop-ups which appear on your screen and are devilishly hard to remove. Sometimes the only way is to switch your computer off and on again. Spyware sits on your computer and send back messages to advertisers as to what you are doing or watching so that ads can be customized to your preferences.

At its nastiest, spyware can copy your credit card and banking details. It can also record keyboard clicks which allows all sorts of Big Brother activities. Employers can find out what you have been logging into all day, strangers can identify number strings which could be credit card and bank account details, including your passwords and login details. All very nasty, so beware of free downloads.

Spyware and adware can be removed using software similar to anti-virus programs. Beware of the free versions, however, since they can put their own adware and spyware on which, naturally, are not removed during the cleaning service. You are better to use reputable paid software

However, back to download systems.

So, while most P2P software is available free, I would go for the paid version. The payment normally has the option of a one-off lifetime payment of up to around \$39, though frequently less. This covers maintenance of the site and 24/7 support. The software itself is free. It also generally ensures that the software is free of adware and spyware.

Peter Nisbet is a graduate research chemist with a great interest in audio-visual file formats and codecs, and legal file sharing. Read about his views on the legal and so called illegal aspects of P2P on

<http://www.legalandfree.com>

If movies are your thing, try

<http://www.online-free-movies.com>

Legal Music Download Sites VS P2P File Sharing.

By Anna Rowe

This article compares the differences between legal music download sites VS file sharing networks.

1) Music files available for download:

The p2p file sharing networks heavily outnumber the legal music sites when it comes to the amount of files available for download. A p2p application provides millions of unlimited mp3 music files, while a legal music download site provides legitimately licensed music files in the hundreds of thousands.

2) The cost of downloading music:

You can download p2p file sharing networks for free, or for a very cheap one-time fee. A legal music download site is usually either "subscription-based" or "pay-per-download". A legal site will also usually charge extra for the ability to rip or burn music.

3) Variety of files available for download:

A legal music site mainly provides ONLY music files for downloading. A p2p application gives you, besides music files, full movie, game, video, software, TV show and ring-tone files to download as well.

4) Legal Issues & Controversy:

Legitimate legal music download sites are completely free of controversy and 100% legal to use. P2p file sharing networks, while legal, are not without lawsuit concerns and controversy due to how the file sharing technology can be used.

If you choose to use a p2p file sharing program, there are potential risks you need to be aware of,

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including:

Lawsuit Risks – Peer to peer file sharing networks have been ruled legal in a court of law. However, if you download and share "copyrighted material" you could risk becoming targeted, and possibly sued, by the RIAA (Recording Industry Association of America).

Virus And Privacy Risks – In using a file sharing application, you risk the possibility of installing harmful spyware, viruses, worms and malware on your computer. And if that's not bad enough, many p2p applications also leave you exposed to online hackers and identity thieves that can steal you personal information.

Legal Music Download Sites VS P2P File Sharing – Summary:

At first glance the p2p file sharing networks may seem to offer an easy way to get unlimited free file downloads. But remember, nothing is really free and this is especially true with the p2p file sharing applications.

The file sharing programs come with a price of increased privacy and security threats, and potential RIAA lawsuit risks. The **ONLY** way to guarantee getting safe music downloads online is by using a legitimately licensed music site that provides downloads of music legally licensed from the record labels and artists themselves.

Article by Anna Rowe, webmaster of

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that provides music download site

reviews and quality online music download solutions. Sign-up for a Free Mp3 mini-course that details critical facts about downloading music online.



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