

USES OF INTERNET TECHNOLOGIES IN CHILD SEXUAL ABUSE CASES

Presentation Supplement

TYPES OF TECHNOLOGY

Peer-to-Peer Networking

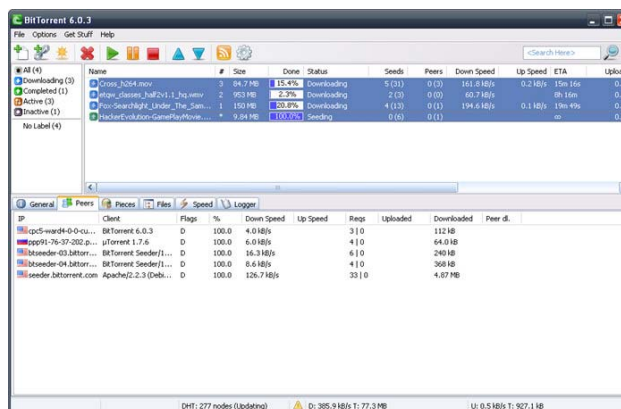
Networks in which computers are equal partners using common file-sharing programs that allow users to connect directly to each other's computer hard drive to search for and exchange files of all kinds. The programs are used to download Internet files including music movies, books and magazines. While not always illegal, it often is.

BitTorrent is an example of a popular peer-to-peer networking software. It can be downloaded for free from the BitTorrent website.

Once the user has installed the program on their computer, they can search for a variety of files. A user can find books in PDF format, movies that are still in theaters, copies of Microsoft Office, or pictures from a recent magazine. The distribution of all of these files is illegal for copyright and other reasons. However, another illegal use of the software is for distribution of child pornography.

Suppose the user wants to find pictures containing the keywords "child pornography." The user can simply go to Google and perform a search for "child pornography torrent." When they find the description of a file they want, they download the torrent to their computer and open it in BitTorrent. The torrent file has information describing the actual file (picture or video) the user will download.

What separates peer-to-peer networking from the rest of the Internet? When a user downloads a file on BitTorrent, the file itself is coming from other users' computers, not from the BitTorrent server. In contrast, in the early days of music downloading, downloads came directly from a server. This made it much easier to place legal blame on the software provider. Currently, the shift in hosting responsibilities to



the user allows the software provider to say that they cannot control what their users are sharing online.

Therefore, when a user opens a torrent file in BitTorrent, the software searches the entire network to see how many others have the same file. A file might be downloaded by hundreds of users at a time. When the user's computer begins downloading it, the computer takes pieces of the file from each computer until the download is finished. Thus, each of the users was a distributor of parts of the file, but not the entire file. Some computers have a faster connection to the Internet than others. Those with a faster connection will often share more parts of the file.

The download of a picture may take less than a minute. An hour-long video may take between a half-hour and several days depending on how many other users have the file and how fast their connection is.

How can it be used?

Suppose "John" recently downloaded BitTorrent to his computer in order to download music. During one search, he noticed a result that seemed to suggest it was child pornography. Curious, John decided to download it. He later decided to download more and now has a collection of approximately 200 photos on his

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computer.

His computer is connected to the Internet through a cable service, and John never turns his computer off. He also never closes BitTorrent because he is constantly downloading large video files which take several days to complete.

One night, Officer Smith is searching for child pornography on BitTorrent in order to catch distributors. One file name that comes up appears to be child pornography, and he downloads it. The file is being downloaded from four different computers, one of which is connected to the Internet with an IP Address of 10.177.17.153. Smith obtains a subpoena and finds that the account belongs to John.

Several questions arise. Where are the files? Can Smith contact BitTorrent to help provide evidence? If John is only distributing “part of a file,” is he a distributor of child pornography?

Program Settings

BitTorrent can be personalized with a variety of settings. Below is a quick run-through of some of them.

Incomplete Downloads

Once a user begins to download a file, the incomplete “snippets” became available for download from other users. Thus, if a user attempts to download a picture containing child pornography but never completes the download, the parts of the file may still remain on their computer for download by other users.

Also, just because the download has not been completed does not mean that a part of the picture cannot be viewed.

Security Settings

A user may turn off file sharing so that they are still able to download files from other computers on the network, but those users cannot download from them.

Using a program like BitTorrent allows the

user to restrict search results so that copyrighted files and/or adult content do not appear.

Chat Software

While a user is connected to programs like BitTorrent, they are able to chat with other users. For example, if they had been using BitTorrent, Officer Smith could have started a chat conversation with John.

File Storage

When the file is being downloaded, but is incomplete, the default location on the user’s computer is on the user’s computer in a folder titled “Incomplete.” Once it finishes, the file automatically moves to a folder marked “Shared.”

Proxy Servers

Users can connect to the network through a proxy server. A proxy server allows the user to connect anonymously through a third-party computer. It also might allow a user to connect to the network if the computer’s security settings do not allow a connection to the LimeWire network.

File Sharing

Many file sharing problems can allow a user to share every file on their computer rather than just those stored in the “Shared” folder. Thus, there is the potential for a user to unknowingly share their private information without restriction on the Internet.

IP Address Blocking

Individual IP addresses or a range of addresses can be blocked using P2P software. If a user knew a range of IP addresses for their state law enforcement, they could block their computer from appearing in search results from law enforcement.

Potential for Abuse

Peer-to-peer networks facilitate file-sharing among CP users. The environment seems anonymous (users are only identified by IP

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address), so many people feel comfortable sharing child pornography and other illegal files on P2P networks.

A user may only share part of a file with another. Virtual networks allow closed groups to trade images.

It is worth noting that there is no way to charge money for files downloaded from other users on a P2P network.

Cellular Phones

Regular text messages, known as SMS (short message service) are small amounts of text that are sent between cell phones.

After the user types the message using his cell phone and presses send, the message is transferred to his cell phone provider through the closest cell towers. From there, the message is transferred to the server of the recipient's provider. Then, the message travels to the recipient through the nearest cell towers.

In addition to the text of the message, additional information is attached to it which helps the servers direct the messages. This information is in the form of 70 or so numbers that tell the servers the time and date, phone numbers of the sender and receiver, and other information.

Upon receiving the message, the user can choose to reply to the message. That message then travels through the opposite route back.

SMS is known as a store-and-forward service. This means that if the server realizes that

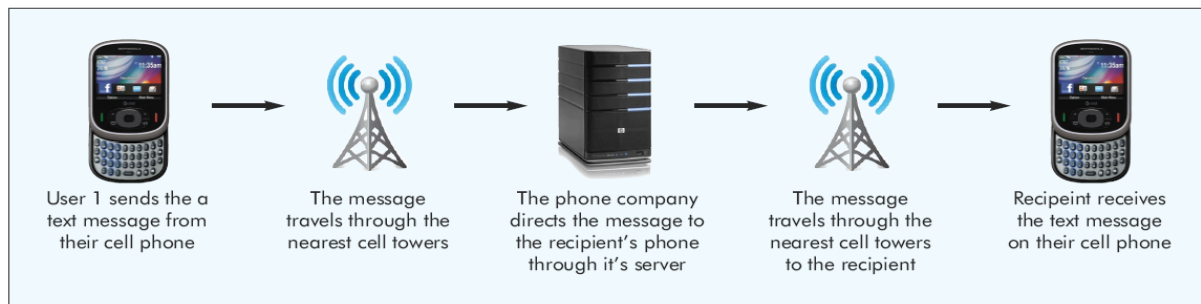
the recipient's cell phone is turned off, the message will be stored on the server until it can be delivered. Most servers delete these messages if not delivered within a few days.

Similar to SMS is MMS (Multimedia Messaging Service). MMS works just like SMS except it allows the sender to share pictures, audio, and video.

MMS is not a default service for cell phones. Both the sender and recipient must be subscribed to the service in order to send or receive multimedia messages.

Miscellaneous Facts

- Often, text messages can be sent through websites or email to a cell phone. When sent through a website, these messages are often anonymous. Text messages can also be sent from a cell phone to an email address.
- Messages are usually stored on the recipient's cell phone until they delete them. Outgoing messages are usually saved on the phone's memory as well. Since most modern-day cell phones have a large amount of memory, text messages often remain on the phone for months or even for the life of the phone.
- Like email, text messages can be sent to multiple recipients. However, unlike email, there is usually no way for recipients to know everyone it was sent to or to "reply to all".
- Some cell phones allow the user to request message delivery confirmation, which will allow them to know when the message has been delivered



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Cameras and File Storage

Most cell phones now come equipped with a digital camera built into the phone. Newer phones have cameras that are capable of taking very high-quality shots.

When the picture is taken, it is saved automatically on the phone's internal memory or memory card. The photos remain there and can be viewed on the phone or transferred elsewhere. They could be emailed or copied to a computer with a cable or wirelessly through Bluetooth.

Many cell phones can connect to a computer. Doing so allows files to be copied from the cell phone to the computer but also for files to be transferred from the computer to the cell phone. Thus, a cell phone can be a good hiding place for files.

Internet Access

Many phones now - including BlackBerrys and the iPhone - have full access to the Internet. In some cases, it works just like the Internet on a regular computer.

Users can check their email, send instant messages, access their social networking accounts, and make postings to chat rooms and

other interactive sites.

Most cell phone users today have access to a 3G network on their phone. A 3G network connects at up to 3 Mbps, roughly six times the speed of dial-up. The new 4G network technology may be up to 500 times faster than 3G.

Computers can often use a cell phone's connection to access the Internet as well. This signal can be used with a USB cable or wirelessly through Bluetooth.

The 3G connection is provided through the cell phone network and data is transmitted from servers to the phone through cell phone towers.

Many cell phones have a data synchronization option that allows their phone to upload all of the contents of the phone to a server as a backup.

Smartphone Apps

Smartphone owners have the ability to download their choice of millions of applications for their phone. These apps provide many new ways to store and exchange data and make the jobs of forensics investigators much more difficult.

Bulletin Boards and Message Boards

Traditional bulletin boards have mostly been replaced by message boards, also known as forums. Today, social networking seems to be replacing the traditional uses of these services as well, but they still are frequently used in the distribution of child pornography.

In comparison to peer-to-peer networks, Internet message boards are very anonymous and the user's IP address is not as easy to find. Further, the main difference between the two is that with many message boards, a user has to be invited.

Typically, a message board is a place where

those interested in a specific topic can go to share their thoughts. They exist for professional purposes to share information on specific topics and for educational reasons. People create them to discuss sports teams or their favorite video games or hobbies. However, they are also created to share pornography.

Each message board has a list of categories. Under those categories are various discussion topics (called threads) which have been posted by users. Under those topics are the actual posts from users of the site. Many message boards allow users to post pictures and attachments in

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Depending on the number of users in a chat room, there may be multiple conversations happening at once.

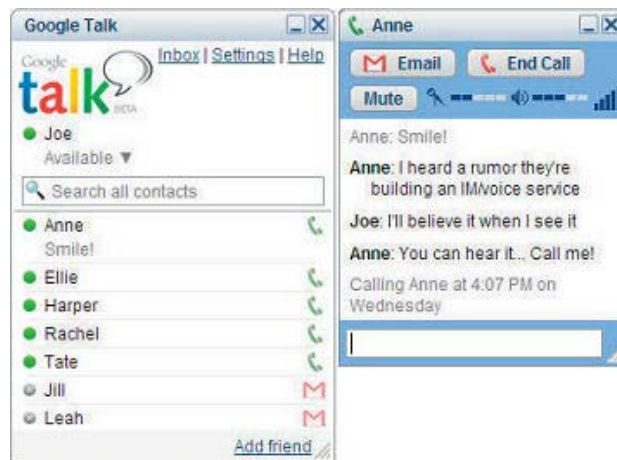
Instant Messaging

Instant messaging (IM) is used very much in the same way that chat rooms are except that users only communicate with those they have approved.

When a user opens their IM program, they see which of their “friends” are currently online. They can then open a private conversation with that friend and begin to send messages back and forth.

Popular IM programs include Skype, America Online Instant Messenger (AIM), MSN Messenger (or Windows Messenger), Yahoo Messenger, and Google Chat. Facebook has even joined the group with its own service. Many of these programs have file, picture, audio, and video sharing capabilities. It is also possible to message multiple people privately at the same time or to have a group conversation.

An account is required to use these free services, but account information can always be



fake. Even information for services requiring a valid email address can be falsified.

Conversations can be saved, printed or emailed easily. Some services also allow the user to save the conversations on the server for the user's benefit.

Potential for Abuse

Chat rooms can be private like message boards and allow users to share files like pornographic images. Instant messaging is much more private and users only communicate with “friends”. If a distributor meets someone they can trust, this would be an excellent tool for them.

Social Networking

How It Works

Popular social networking sites include Facebook, Twitter, MySpace, and LinkedIn. However, Facebook beats out the second most popular site by over four times the number of users. Facebook allows over a half-billion users to share large amounts of information with the world. People spend over 700 billion minutes per month on Facebook. Each user shares as much as they want, but often displays a picture, name, interests, educational and professional background, and contact information. Other users update their “status” by telling other users what they are doing or how they feel. They can also



upload pictures and video from their computer or cell phone.

When someone joins Facebook, they search for “friends” in order to connect with other people. A user can easily search for people they went to school with or work with. Searches can be done by name, company, school, city, or email

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address. Users can also meet others by joining groups or pages with people who have similar interests.

Privacy settings give a user the ability to restrict access to their information. They can choose to share it with no one, just friends, friends of friends, or everyone.

Users can communicate by public message (called wall posts), private messaging (very similar to email), or by Facebook Chat (an instant messaging interface).

A new Facebook service, Places, allows a user to “check in” at their current location (such as a restaurant) using their GPS.

Potential for Abuse

In addition to reuniting with long-lost friends, Facebook has become an excellent way to meet people. Its search capabilities allow users to find each other easily.

Facebook is not a great tool for the distribution of pornography or for meeting other distributors (unless there is a secret language of sorts that allows them to inconspicuously communicate). However, Facebook does allow predators to seek out children within a geographic area. Users can share photos or video from their webcam with other users – either privately or publicly. Facebook recently announced an expansion of their messaging program which would allow file attachments.

Virtual Worlds

How It Works

When all the other methods of anonymity on the Internet fail, there is always a virtual world. Most virtual worlds are interactive between multiple users, although some are single person. In a virtual world, you choose your name, lifestyle, body, personality, job, and everything else. You can be an animal or a plant. The only thing that stops you is money.

One popular virtual world is called Second Life. It is available free to its 18 million users, although a paid version is available with more features and a weekly stipend to spend in the virtual world. Like the real world, nothing is free. You must use money to buy clothes, buildings, cars, and to pay for services. Second Life’s currency, the Linden, can be purchased using US Dollars. Selling virtual items has allowed many people to make real money, including some who have made millions.

People in a virtual world, known as Avatars, live however they are controlled. They move

around and communicate with others by chatting or instant messaging.

Second Life is available for users 18 years or older, but Teen Second Life is available for children ages 13-17.

Several countries have embassies in Second Life. The embassy for The Maldives allows visitors to talk to a computer ambassador about visas, trade, and other information.

Groups are often established based on subculture and language. Due to geographical divides, these groups rarely interact.

Oh, you can fly, too!

Potential for Abuse

Users of Second Life must follow the laws of their own countries, and Second Life has also adopted its own laws, such as a ban on gambling.

One company, Slustler, has published a pornographic magazine that is only available on Second Life for approximately 60 cents. Thus, the distribution of “real” child pornography in a virtual world is certainly an issue. However, the

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most troubling problem is what to do about virtual sex.

Second Life has become a Gomorrah of sorts. Users are certainly capable of having sex with each other within the virtual world. It is possible to rape someone on Second Life, but many complex legal issues arise from prosecution of such.

Several countries have tried dealing with the issue of an adult having an avatar that looks like a child and then having sex with other users. The United Kingdom has given this act the same status as child pornography. Linden Lab, the company owning Second Life, finally made this act a bannable offense for users. The United States once banned such activities, but the law was struck down by the Supreme Court under the First Amendment.

Animation pornography (called hentai), which involves the likeness of children, is also sold on Second Life.

Second Life also has a slave market where auctions take place.

Some scholars suggest that any illegal act in the real world is also illegal in the virtual world, but many evidentiary issues arise. How do you track someone down? What do you do with witnesses to a crime? A user's appearance can change at any time, so how do you use descriptions? For an excellent discussion on these issues, see:

Caroline Meek, Recent Development, Just Age Playing Around? How Second Life Aids and Abets Child Pornography, 9 N.C. J.L. & TECH. ON. 88 (2008)

Websites & Blogs

How It Works

Many services on the Internet allow users to create their own websites for free or for only a few dollars per month. While most website hosting companies forbid their users to store pornography of any type on their servers, this is often hard to prevent.

The average website is hosted by a company that is paid to host their files. Most pornographic websites are hosted by a provider that specializes in pornographic material since many hosts forbid pornography. Some hosting companies allow users to store files on their servers for no cost in exchange for allowing the host to place advertisements on the website.

On a typical website, every file (pages, images, videos, etc.) has to be uploaded through an FTP server from the creator's computer.

One of the common methods of sharing pornography today is to create a blog on a service like Google Blogger. A blog can be created in seconds, and photos uploaded only seconds later.

The blog and photos are immediately available to anyone on the Internet.

Potential for Abuse

Since free websites or blogs can be established so quickly and anonymously, child pornography may be shared for hours or days before it is found and shutdown. With the right exposure, that could enable thousands of users to download the images or video.

E-mail

How It Works

The transmission of text messages and attached files through e-mail servers.

Potential for Abuse

May be sent to a child as part of a grooming process. E-mail is often considered risky by "seasoned" users, for danger of unwittingly sending e-mails to undercover investigators.