UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON GOVERNMENT REFORM – STAFF REPORT
PREPARED FOR REP. TOM DAVIS AND REP. HENRY A. WAXMAN
MARCH 2003

CHILDREN'S EXPOSURE TO PORNOGRAPHY ON PEER-TO-PEER NETWORKS

WWW.REFORM.HOUSE.GOV | WWW.REFORM.HOUSE.GOV/MIN

EXECUTIVE SUMMARY

At the request of Reps. Tom Davis and Henry A. Waxman, the Chairman and Ranking Member of the Committee on Government Reform, the General Accounting Office and the staff of the Government Reform Committee investigated a new challenge facing parents of children growing up in the digital age: the widespread prevalence of pornography on peer-to-peer networks accessed through file-sharing programs. This report summarizes the GAO findings and describes the results of the congressional staff investigation.

File-sharing programs are popular Internet applications that allow users to download and share electronic files apart from the World Wide Web. The first such program, Napster, was used by as many as 1.6 million people simultaneously. Since Napster was shut down by court order, newer file-sharing programs have surged in popularity and have become one of the most popular uses of Internet technology. One of the most popular current file-sharing programs, Kazaa, typically has four million simultaneous users. Other popular file-sharing programs include Morpheus, iMesh, BearShare, LimeWire, and Grokster.

Parents are often unaware of how these file-sharing programs operate and what risks they pose to their children. Almost all news coverage of file-sharing focuses on the ability of users to trade copyrighted music and movies. This report examines a darker side of these new programs: the risk they pose to children of being exposed to pornography. The report finds:

- **Pornography is widely available on peer-to-peer networks accessed through file-sharing programs.** File-sharing programs operate like a vast digital library available without charge to users. The pornographic section of this library, which children can freely access, is enormous. Nearly six million video, image, and other files identified as "xxx," "porn," or "sex" were available for downloading on just one popular peer-to-peer network in a recent two-day period. Moreover, GAO found that there is easy access to illegal child pornography via file-sharing programs.

- **Children using file-sharing technology can be exposed inadvertently to pornographic content.** After searching for "Britney," "Pokemon," and "Olsen twins," GAO found that more than half of the files it retrieved were pornographic, including 8% with child pornography or child erotica.

- **Parental tools to prevent children's exposure to pornography on peer-to-peer networks have limitations.** Many parents rely on parental control software like Net Nanny or Cyber Patrol to limit their children's access to online pornography. Although some of these programs can be configured to block any access to file-sharing programs, they generally do not have the capacity to allow access to file-sharing programs while filtering out pornographic files. Settings exist on popular file-sharing programs to reduce inadvertent exposure to pornography, but these can be circumvented.

BACKGROUND

The Rise of File-Sharing Programs

File-sharing, the trading of electronic files between two or more users, was first popularized in the 1990s by the software company Napster. Napster provided free and easy-to-use software through which users could connect their computers to one another — known as a peer-to-peer networking — to trade music files. At its peak in February 2001, Napster had as many as 1.6 million simultaneous users.[1]

In 2000, the recording industry initiated litigation against Napster to protect its copyrights. This litigation resulted in a federal court injunction against Napster, which forced the company to shut down its centralized servers in July 2001.

How does file-sharing work?

Peer-to-peer (P2P) file sharing is a direct connection between two users' computers over the Internet. Using file-swapping software, a user shares selected contents of his or her hard drive with other users. To find a file, you use P2P software to search others' drives, make a direct connection to another user, and download the file from their machine.

Source: CNET.com

[1] *Neo-Napsters Proliferate in the Wake of Napster's Demise*, Broadband Week (Aug. 2001).

Following the demise of Napster, a multitude of new file-sharing software programs have arisen. These new programs differ from Napster in two important ways. Whereas Napster limited users to trading electronic music files, these new programs allow users to share any kind of file, including videos and images, as well as music content. And whereas the Napster network was centralized around one computer server which tracked the trade of files, these new programs allow direct user-to-user file trading.

The new file-sharing programs include programs like Kazaa, Morpheus, and iMesh. They first became available in 2001. Since then, their popularity has surged. In total, six of the most popular file-sharing programs have been downloaded almost 400 million times. Kazaa, the most popular file-sharing program, has been downloaded more than 199 million times. It is currently the most popular download on Download.com, a software clearinghouse.[2] *See* Table 1.

Table 1
Downloads of Popular File-Sharing Program

File-Sharing Program	Total Downloads	Weekly Downloads
Kazaa	199,981,000	3,025,000
Morpheus	109,846,000	194,000
iMesh	45,378,000	436,000
BearShare	18,137,000	18,000
LimeWire	15,233,000	10,000
Grokster	7,091,000	102,000

Source: Online at http://download.com.com/3101-2001-0-1.html?tag=dir.

At any given time, these file-sharing programs are being used by millions of people. On a recent day, for example, Kazaa had more than four million users

---

2 Online at http://download.com.com/3101-2001-0-1.html?tag=dir.

connected to the network simultaneously — two and a half times the number of users Napster had at its peak.[3] *See* Figure 1.

Many of the users of these new file-sharing programs are under the age of 18. Research done by Peter D. Hart Research Associates for the Recording Industry Association of America has found that of those who download files through file-sharing programs, 41% are

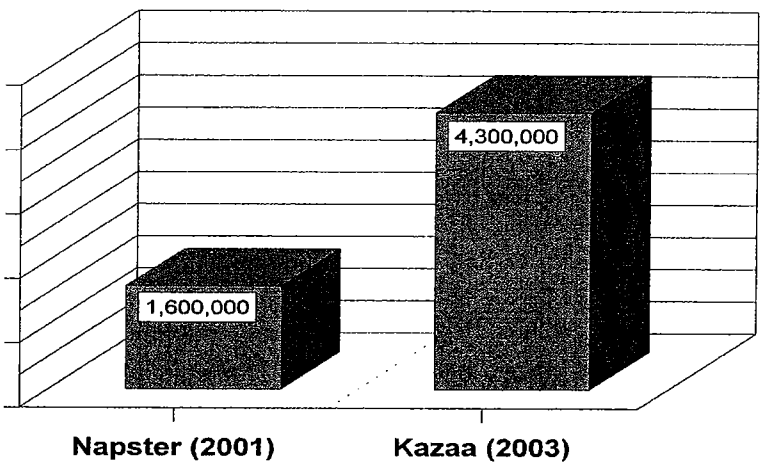
File-Sharing and Universities

The popularity of file-sharing programs among young people is causing problems at colleges and universities. Northwestern University reports that, at times, nearly 100% of its bandwidth is being used by file-sharing programs. The University of California at Berkeley has capped bandwidth usage and, according to the school newspaper, "The popularity of newer file-sharing programs . . . (has) been blamed for the network slowdown."

- *NU pressured to crack down on file sharing on computers,* Daily Northwestern (Oct. 25, 2002).

- *Bandwidth Capped for Dorm Residents,* Daily Californian (Oct. 5, 2001) (online at www.dailycal.org/article.asp?id=6538).

Figure 1
Simultaneous Users of the Most Popular File-Sharing Programs



Source: *Neo-Napsters Proliferate in the Wake of Napster's Demise,* Broadband Week (Aug. 2001). On February 5, 2003, at 3:00 p.m., Kazaa indicated 4,339,000 concurrent users.

[3] On February 5, 2003, at 3:00 p.m., Kazaa had 4,339,000 concurrent users.

between the ages of 12 and 18.[4] Other data shows that nearly 44% of Americans between the ages of 12 and 17 have downloaded music files from the Internet, including through file-sharing programs.[5]

The Purpose of This Report

Although file-sharing is enormously popular among digitally connected youth, the public at large is unfamiliar with these programs. Almost all news coverage of file-sharing focuses on just one issue: the ability of users to trade copyrighted music, movies, and videos. As a result, many parents who know about these technologies view copyright concerns as the only major issue these programs raise.

The content available through file-sharing programs is not limited to copyrighted music and motion pictures, however. It also includes graphic pornography. When searching the Web, children are somewhat shielded from the most hardcore pornography by the need to use a credit card to pay for access. But on file-sharing programs, even the most offensive content, including illegal child pornography, is available for free. This raises new and difficult issues for parents.

Reps. Tom Davis and Henry A. Waxman, the Chairman and Ranking Member of the Committee on Government Reform, requested this report and a companion report by the General Accounting Office to examine the prevalence of pornography on peer-to-peer networks and the issues they raise for parents. These reports are a followup to a report on this issue released by Rep. Waxman and Rep. Steve Largent in July 2001.[6]

---

4 Peter D. Hart Research Associates, in-house research conducted for Recording Industry Association of America (undated).

5 *Digital Music Behavior Continues to Evolve*, Ipsos-Reid (Feb. 1, 2002) (online at www.ipsos-reid.com/pdf/publicat/docs/TEMPO_DldingPrevalence.pdf).

6 Committee on Government Reform Minority Staff Report, *Children's Access to Pornography through File-Sharing Programs* (July 27, 2001).

The GAO investigation examined three questions:

1. The ease of access to child pornography on peer-to-peer networks.
2. The risk of inadvertent exposure of juvenile users of peer-to-peer networks to pornography.
3. The extent of federal law enforcement resources available for combating child pornography on peer-to-peer networks.

This report provides additional information about the quantity and popularity of pornography on peer-to-peer networks. It also assesses the ability of parental control programs like Net Nanny, Cyber Patrol, and others to block pornographic content on peer-to-peer networks.

FINDINGS

Pornography Is Widely Available on Peer-to-Peer Networks

There is no published data on the quantity of pornographic material available through file-sharing programs. In response to an inquiry from the Committee, MediaDefender, a company with expertise in peer-to-peer networks, undertook an assessment of the amount of pornographic content that is available to children using these programs. MediaDefender searched for pornographic files available for downloading on the FastTrack network, which is the peer-to-peer network used by several popular file sharing programs, including Kazaa and Grokster. The search terms it used were words commonly associated with pornographic material.

KEY FINDINGS:

In one two-day period, there were almost six million pornographic files available for download on one peer-to-peer network.

The pornographic files available through peer-to-peer networks include many files containing child pornography.

For one two-day period, MediaDefender searched the networks for files containing the terms "porn," "xxx," or "sex" in their file names, titles, keywords, or descriptions. MediaDefender found almost six million files available for download that had a least one of these terms present.[7] If peer-to-peer networks are conceptualized as a digital library available for free downloading, MediaDefender found that the pornography section of this library makes nearly six million titles available to children and other users.

As part of its investigation, GAO looked specifically at the availability of illegal child pornography on peer-to-peer networks. Using 12 keywords known to be linked with child pornography, GAO found many files with names associated with child pornography images. With the assistance of the Customs Service CyberSmuggling Center, GAO analyzed 341 of the images it downloaded through Kazaa. Of these, nearly half were determined to be child pornography.

Searches for Entertainment Figures Popular with Children Yield Many Pornographic Files

KEY FINDING:

Of the images found using the search terms "Britney" "Olsen twins," and "Pokemon," more than half were pornographic.

Even if children are not searching for pornography on peer-to-peer networks, they are likely to be inundated with pornography as they use file-sharing programs. To assess the degree to which a young user might inadvertently access pornographic content while using file-sharing programs, GAO used the Kazaa program to search for files containing terms that a young user might try when looking for videos and images of entertainment figures popular among children. The specific terms used by GAO were "Britney," for popular female singer Britney Spears; "Olsen twins," popular child actors; and "Pokemon," a cartoon character popular among children.

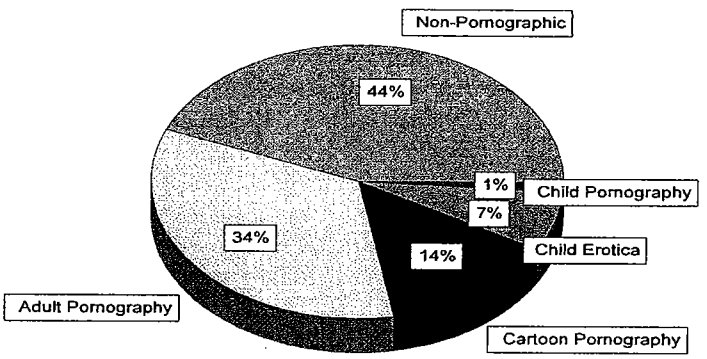
---

7 MediaDefender, original research conducted for the House Committee on Government Reform (Mar. 7, 2003).

Working with the Customs Service CyberSmuggling Center, GAO found that 56% of the files it retrieved contained pornographic or erotic content. Among the files retrieved by GAO, 34% contained adult pornography, 14% contained cartoon pornography, 7% contained child erotica, and 1% contained child pornography. *See* Figure 2.

Figure 2

Images Found Using Search Terms "Britney," "Olsen twins," and "Pokemon"



Source: GAO, *Peer-to-Peer Networks Provide Ready Access to Child Pornography* (Feb. 2003) (GAO-03-351).

Even the names of the files are often obscene or pornographic, containing references to graphic sexual content. These file names would be seen by a child even if he or she did not download or view the content of the files. Figures 3, 4, and 5 display the redacted results of recent searches performed by Committee staff for "Britney Spears," "Olsen twins," and "Pokemon."

Figure 3

Kazaa Search Results for "Britney Spears"

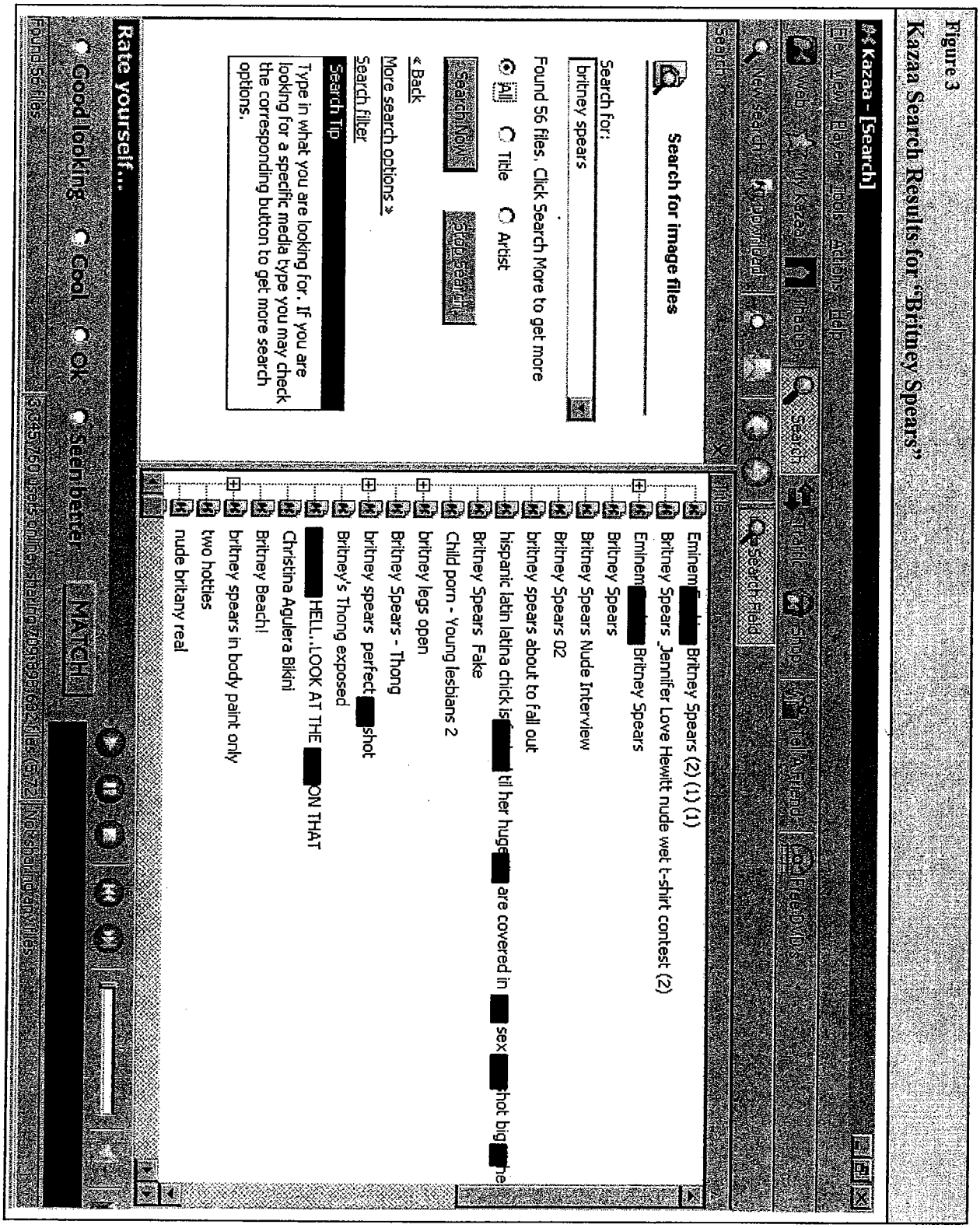


Figure 4

Kazaa Search Results for "olsen twins"

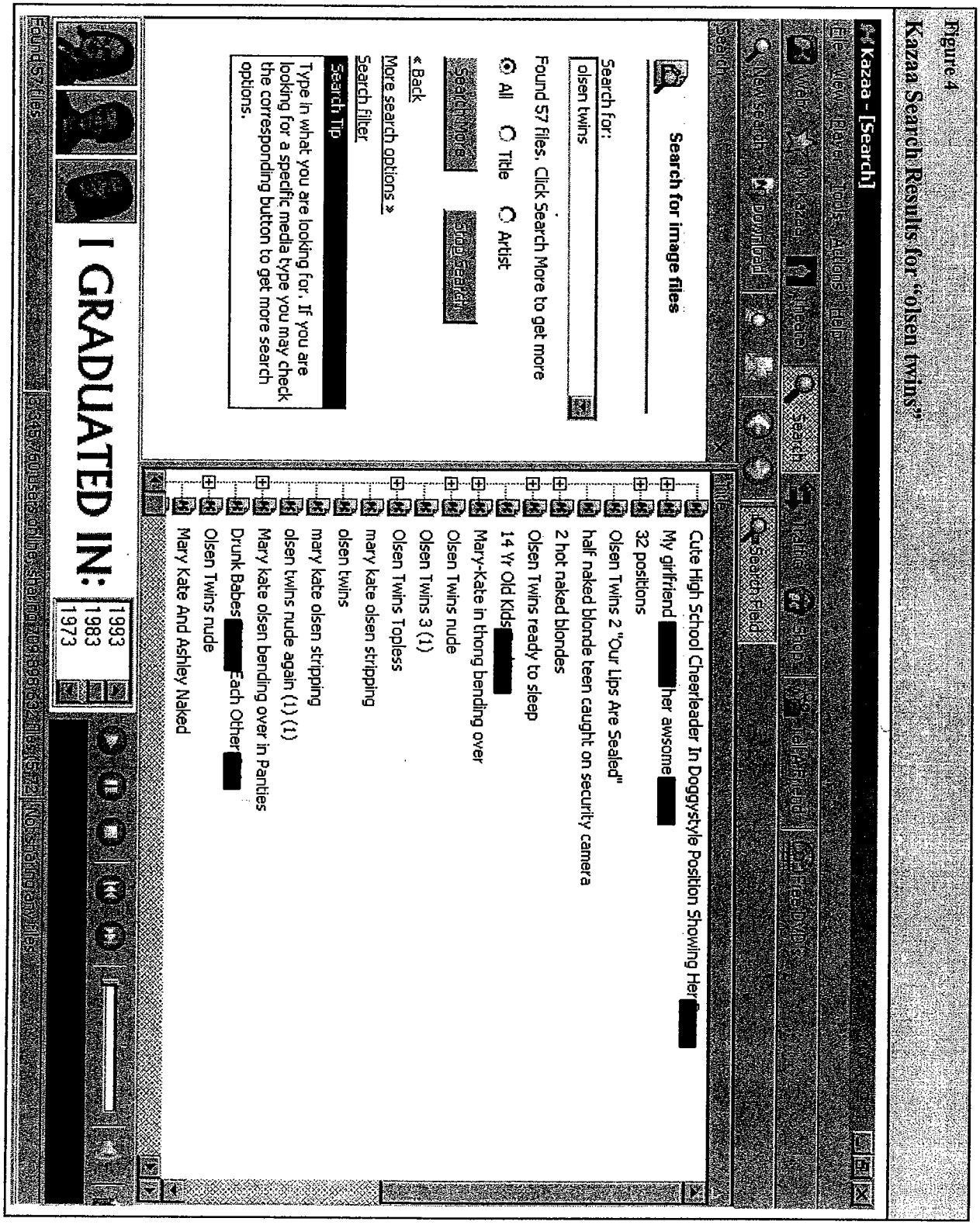


Figure 5

Kazaa Search Results for "Pokemon"

Parental Tools to Limit Children's Exposure and Access to Pornography on Peer-to-Peer Networks Have Limitations

Parents who are concerned about reducing their children's access to pornography online often use parental control software such as Net Nanny, Cyber Patrol, or McAfee Internet Security. But these programs have had limited effectiveness with file-sharing programs. The report released by Reps. Waxman and Largent in July 2001 assessed the ability of these programs to block pornographic content on peer-to-peer networks. That report found: "Popular parental filters do not block access to pornographic files through file-sharing programs."[8]

KEY FINDINGS:

Parental control software has limited ability to filter pornographic content accessed through file-sharing programs.

Settings in some file-sharing programs can reduce inadvertent exposure to pornography, but can be circumvented.

Since July 2001, all of the leading parental control software companies have released new versions of their popular titles. This report assesses the ability of these new versions to block pornographic content on peer-to-peer networks. The specific programs investigated are AOL Parental Controls, Cyber Sentinel, Cybersitter, Cyber Snoop, Cyber Patrol, McAfee Internet Security, Net Nanny, Norton Internet Security, and Zone Alarm Pro.

Most of the popular file-sharing programs also contain features designed to enable the user to block pornographic content. This report assesses their effectiveness as well.

Parental Control Software

The makers of parental filtering programs are becoming aware of parents' concerns regarding file-sharing. In an interview, Andrew Tull, an executive with BioNet Systems, makers of Net Nanny, said, "We listen to what our customers are talking about. Parents are just starting to become aware of P2P and what their

---

8 Committee on Government Reform Minority Staff, note 6.

kids are looking at."[9] In general, however, these programs are still not able to filter out pornographic content found through file-sharing programs.

Parental control software was designed for use on the World Wide Web. The programs allow access to the Web, but block children from gaining access to sites offering pornography by restricting access based on both prohibited website addresses and keywords found on the sites.

These approaches do not automatically work with file-sharing programs. While file-sharing is an Internet technology, it is not browser based. Only one of the nine parental control software programs tested — Cyber Sentinel — allows parents to permit their children access to peer-to-peer networks while filtering out pornographic content. Cyber Sentinel is not a true filter, however, in that it responds to pornographic content by closing down the file-sharing program.

Several of the other programs reviewed in this report did offer options to block access completely to file-sharing programs. This is an "all or nothing" approach to access to peer-to-peer networks because it either allows unrestricted access or blocks children from using the programs for any purpose. In general, the programs using this approach required extra steps to configure the program and had functional limitations that might reduce their usefulness as parental tools.

One program — Cyber Patrol — allows parents to select programs that their children may not use. To use this feature, parents must select the blocked programs from those already installed on the computer. This approach requires that the parent monitor whether new programs have been downloaded and installed. Two other programs — Net Nanny and Zone Alarm Pro — can be configured by parents to block the most popular file-sharing programs. For newer and less common file-sharing programs, this approach requires parents to specify which programs to block.

One program — Cybersitter — can be configured to block some file sharing programs. However, Cybersitter can not easily be configured by the user to block the most popular file-sharing program, Kazaa. Committee staff succeeded in blocking Kazaa only after detailed consultation with Cybersitter's technical support.

---

[9] Telephone conversation with Andrew Tull, President of Sales and Marketing for BioNet Systems (Feb. 12, 2003).

Only two programs appeared to allow parents to restrict all access to file-sharing programs. McAfee Internet Security and Norton Internet Security provide the option to limit children's Internet access to specified programs (such as a web browser), making it impossible for them to use any other programs to connect to other users to trade files. A third program, AOL Parental Controls, allows parents to block access to file-sharing programs, but only when the user accesses the Internet connection through AOL.[10] *See* Table 2.

Table 2
Ability of Parental Control Programs to Block Use of File-Sharing Programs

Parental Control Program	Ability to block pornography on P2P networks	Ability to block all file-sharing	Comments
Cyber Sentinel	yes	no	Can filter offensive words from file-sharing results.
McAfee Internet Security	no	yes	Can block all file-sharing programs from accessing Internet connection.
Norton Internet Security	no	yes	Can block all file-sharing programs from accessing Internet connection.
AOL Parental Controls	no	for certain users	Can block all file-sharing programs from accessing Internet connections if user accesses Internet connection through AOL.
Net Nanny	no	partial	Can block specified file-sharing programs from opening.

10 According to AOL, this can be accomplished by choosing parental controls options for kids only, young teen, or mature teen on an AOL dialup or AOL broadband connection.

Zone Alarm Pro	no	partial	Can block specified file-sharing programs from opening.
Cyber Patrol	no	partial	Can block user-specified programs from opening.
Cybersitter	no	partial	Requires extra configuration to block the most popular file-sharing program.
Cyber Snoop	no	no	Can not block file-sharing programs or their content.

Parental Controls in File-Sharing Programs

Another option available to parents is to activate parental control features within the file-sharing programs themselves. All of the popular file-sharing programs examined in this report offer these features. The options are promoted as ways to:

- Block files tagged with keywords either built into the program or entered by the user.
- Filter out adult content.
- Block all visual content, including photos, movies, and other image files.

Tests of these options found significant limitations, however. Five of the programs — Grokster, iMesh, Kazaa, LimeWire, and Morpheus — have keyword blocking, but this option is of limited usefulness in blocking pornography. This option requires parents to identify and manually enter terms that might be associated with pornography.

Four of the programs — BearShare, Grokster, Kazaa, and LimeWire — also have options to filter inappropriate content. These filters likewise work by blocking access to files based on a list of prohibited keywords. According to the makers of Kazaa:

> "The original lists of keywords used . . . were generated and are updated using research gathered from the Internet and external research. The list of keywords resides in the application . . . . This list is not available to the public; otherwise its efficacy would be compromised."[11]

This approach has its limitations. A comprehensive list of terms that would eliminate pornographic titles has yet to be developed. Moreover, pornographic images and videos can be posted without suspect words in their file data, evading detection by any list of keywords. Nevertheless, these options do help to reduce pornographic content measurably when activated. For example, Kazaa has an "adult content" filter which, in Committee staff testing, reduced the number of pornographic files retrieved during searches for "Britney," "Olsen twins," and "Pokemon" to less than 15%.

Another approach offered by some of the programs is to block certain kinds of files. For example, four of the programs — BearShare, Grokster, iMesh, and Kazaa — offer the option to block all visual content, including images and videos. These options successfully block all pornographic visual content by restricting file -sharing to music and text files.

Even these options are not foolproof, however. In the case of Grokster, LimeWire, and Morpheus, there is no password protection. Thus, even if parents activate the blocking features, these features can be deselected by their children. In the case of BearShare, iMesh, and Kazaa, the blocking features are password protected, which is a significant improvement. Even so, any filters and passwords established by parents would be erased by the uninstallation of the program and the reinstallation of another free copy of the software, providing a means to circumvent the controls.

Table 3 summarizes these results.

---

[11] E-mail communications with technical staff at Sharman Networks, makers of Kazaa. Transmitted by Philip Corwin of Butera & Andrews, counsel for Sharman Networks (Feb. 28, 2003).

Table 3

Parental Options within Popular File-Sharing Programs

P2P Application	Has option to block keywords	Has option to filter inappropriate content	Has option to block all visual content	Options can be password-protected	Options remain after reinstallation
Kazaa	●	●	●	●	○
BearShare	○	●	●	●	○
iMesh	●	○	●	●	○
Grokster	●	●	●	○	○
LimeWire	●	●	○	○	○
Morpheus	●	○	○	○	○

● = Yes ○ = No

CONCLUSION

File-sharing programs are popular Internet applications that pose new challenges for parents. In a recent survey, nearly six million pornographic files were available for downloading by children using these programs. Even children who are not searching for pornography are likely to encounter pornographic files when searching for popular entertainers. The parental control programs designed to block children's access to pornography on the Web are generally ineffective when applied to file-sharing programs. A few programs allow parents to block all access to file-sharing programs. Parental control settings found within file-sharing programs can reduce inadvertent exposure to pornography, but these can be circumvented.