

Written Testimony for the Oversight Hearing on
"Piracy of Intellectual Property on Peer-to-Peer Networks"

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I want to make clear at the outset that I have read the legislation and I am not a lawyer. I do not pretend to completely understand Congressman Berman's proposed peer-to-peer ("P2P") bill nor the current law it is affecting. I am coming here as a technologist and the primary provider of the anti-piracy technologies this bill is directed toward. MediaDefender has a suite of technologies that are clearly legal and are widely deployed for anti-piracy protection on peer-to-peer networks. MediaDefender also has a group of technologies that could be very effective in combating piracy on peer-to-peer networks but are not widely used because some customers have told us that they feel uncomfortable with current ambiguities in computer hacking laws. These computer hacking laws are beyond my means of understanding, but I know that their intention is not to prevent reasonable, non-invasive anti-piracy technology. My aim is to inform you about MediaDefender and its technology. I want the committee to see the non-invasive nature of MediaDefender's technology so that Congress accepts the peer-to-peer bill to allow reasonable self-help technologies on peer-to-peer networks, while still protecting individuals' civil liberties.

MediaDefender has been selling its P2P anti-piracy technologies for over two years and has gone largely unnoticed. MediaDefender's ability to operate "under the radar" is a result of the company's dedication to providing non-invasive technological solutions to the ever growing piracy problem on P2P networks. For the most part, there has been very little opposition to the deployment of our technologies. We have seen very little complaining, and we attribute that to the non-invasiveness of our technology. We all know that there would be a huge outcry if damage was being done to peoples' computers and clearly that is not the case. People might not even know this was going on if MediaDefender never came forward. However, MediaDefender feels it is important to come out and speak on this legislation because of how it could dramatically help solve the piracy dilemma on the public Internet.

Most people agree that advances in technology are beneficial to society as a whole. MediaDefender is not trying to quash the progress in computer science that has been gained through the widespread adoption of P2P networking. MediaDefender's stance is that P2P networking is a huge evolution in the Internet and will have countless applications and advantages. MediaDefender is also a fan of copyright law. We do not feel these two stances are in opposition to each other. It is true that the primary use of P2P networking today is piracy. However, there are many companies trying to advance the technology toward more noble goals.

MediaDefender's technology provides a pleasant medium where copyright law and P2P technology can live together. Technology is fostered by technical solutions to P2P anti-piracy. MediaDefender and

creators of P2P software are constantly pushing each other to advance our technologies. MediaDefender views this game of cat and mouse as a net gain for all parties because, at the end of the day, we are all left with stronger, more sophisticated technology than when we started. The most analogous situation is the virus / anti-virus industry. When people advance virus technology, companies like Symantec have to develop new technology to solve the new problems. Similarly, when P2P piracy advances occur, MediaDefender has to develop new technology to solve the new problems. Thus, P2P technology is allowed to advance toward the bettering of its legitimate uses, and copyright owners can feel that they are not being driven out of business.

MediaDefender's technologies only affect the networks on a macro-scale and not on a micro-scale. MediaDefender only communicates with the P2P networks on a high level and pays no attention to the individual users. We do not identify, nor target individuals. We do not collect information about individuals. All we see or care about are the numbers. The primary aim of the technology is to prevent the person who is seeking pirated material from finding pirated material. People's computers are not harmed and files are never altered or deleted. There is no excessive drain on bandwidth resources. Legitimate content is still widely available on the networks because its availability is not affected by the technology. Even piracy advocates have no basis for complaint because a wide assortment of pirated material is still available on the P2P networks. Our technology does not affect the scalability or overall integrity of the P2P networks. As stated earlier, MediaDefender has been selling its technology for two years and that clearly has not hindered the growth of P2P networking. There are nearly twice as many users today as there were in Napster's more popular days. The most popular P2P application receives over 2.5 million downloads a week. I would say that our technology has done very little to discourage the use and adoption of P2P networking as a whole. However, the very specific use of the P2P networks for piracy of our clients' copyrighted materials has been sharply affected. The good news is that P2P networking as a technology can live and thrive even in the presence of piracy control. At the end of the day, this is how it has to be. P2P networking is not going anywhere, and copyright law is not going anywhere. So, they have to learn how to coexist without destroying each other.

The most threatening aspect of P2P networking to the copyright holders is the growing trend of decentralization. All of the most popular P2P networking technologies in the world are either completely or partially decentralized. Decentralization means that there is no central entity to sue or regulate using the law. Even if all the courts agreed to shut a decentralized network down, it could not be done because it is simply a free floating technology protocol on the Internet, similar to FTP or HTTP. The original completely decentralized P2P protocol, Gnutella, continues to be the leader in the decentralized P2P world. Thousands of computer scientists have developed hundreds of programs to hook into this ethereal network that floats on the Internet. Any programmer can very simply code a software client to hook into the network. Nobody owns Gnutella and nobody regulates it. However, the clear and primary use of the network is for the downloading of copyrighted material. This intuitive conclusion has been verified by MediaDefender's years of research. Gnutella was born out of a backlash in the online world toward the Napster lawsuit, and it was created to be an unstoppable P2P technology. Any person can see the breadth of pirated material on Gnutella by putting a generic search string, such as a period ("."), into any Gnutella client. When I typed a period (".") and hit search on a Gnutella client this morning, I received over 1000 returns with content ranging from Eminem to Harry Potter. I advise anyone to perform this simple experiment if they still need to convince themselves P2P networks are primarily used for piracy. Copyright law never anticipated a completely decentralized P2P network on the Internet and cannot prevent the piracy. Sometimes you have to use technology to regulate technology because there is no other practical means. Decentralized P2P networking is a case where there is no other solution beyond

MediaDefender's anti-piracy technology. MediaDefender feels that it is important that the current laws do not stand in the way of non-invasive anti-piracy technology on the Internet. The concern is always that hacking and computer use laws not intended to address P2P anti-piracy technologies will be misapplied.

Most current computer law focuses on hacking and does not take into account its implication on P2P anti-piracy technology. The concept of a P2P system like Napster is relatively young and was not around when many computer laws were drafted. Nobody could have anticipated that they would have an impact on legitimate anti-piracy companies. MediaDefender sells a variety of clearly lawful technologies such as Decoying. For the most part this technology is widely understood and accepted. Decoying is accomplished by passively acting as a member of the P2P network on the Internet public space and allowing thousands of files to be downloaded from our computers. The primary purpose of Decoying is to create a needle in a haystack situation which makes the pirated content difficult to find. All P2P networks have two basic functionalities: search and file transfer. Decoying only affects the search functionality of a P2P network and does nothing to the file transfer side. The pirated material is still there on the network, but it is harder to find. Decoying is the most clear and intuitive of MediaDefender's technologies. MediaDefender has several other technologies that, like Decoying, are clearly legal but we cannot go into great public detail on them at this time because there are people whose sole purpose is to overcome our anti-piracy technologies. MediaDefender has another group of equally benign technologies that could be more effective in preventing piracy, but they fall into grey areas of the current computer laws. Therefore, customers will not purchase these technologies. It is not the case that these technologies are particularly invasive, but rather, they just coincidentally fall into grey areas of very complicated hacking laws. We don't want MediaDefender's self help technology to be illegal due to hacking laws which were never meant to address P2P anti-piracy. Obviously, our customers are not going to risk using a technology that falls into a grey area of the law despite how badly they need that technology.

One of technologies that we are told falls into the grey area of the law is Interdiction. I am not going to try to describe how Interdiction falls into the grey area of the law. I have been assured from our customers that this law is unusually complicated, and it is not trivial to try and understand it. I am not a lawyer, I am a technologist. I simply want to describe the technology and why I feel that it is a good example of a non-invasive technology that can provide societal net gain if used. First I want to make it clear that MediaDefender agrees that any anti-piracy solution on a P2P network has to be non-invasive. Peoples' computers and files should never be harmed under any circumstance. However, any P2P anti-piracy technology will inevitably involve communication with individuals' computers located on the P2P network. The P2P networks and their participants exist on the Internet public space. Behind the scenes of a P2P network there is a massive array of communications and data transfers. MediaDefender always participates in P2P networks via their protocols and plays by their rules. What I mean by "plays by their rules" is that MediaDefender does not develop technologies to stop the P2P networks outside the scope of what the P2P networks allow. P2P networks allow file uploading, and that is simply what we are doing with Decoying. P2P networks allow file downloading, and that is simply what we are doing with Interdiction.

Interdiction only targets uploaders of pirated material. The way it targets them is to simply download the pirated file. MediaDefender's computers hook up to the person using the P2P protocol being targeted

and download the pirated file at a throttled down speed. MediaDefender's computers just try to sit on the other computers' uploading connections as long as possible, using as little bandwidth as possible to prevent others from downloading the pirated content. MediaDefender's computers do not scan the other computers' ports or hook into other computers exploiting known security weaknesses. MediaDefender only communicates with the computer over the P2P protocol which the user has opened up to the public Internet. The owner of the computer feels no additional impact on their computer beyond what the P2P network already applies. It should not make a difference to the user who they are uploading a pirated file to. In fact, most people who upload files on these P2P networks are bystanders who do not even realize they are serving pirated content. Most of the P2P networks re-share content when it is downloaded. So, when a P2P user downloads a copy of Madonna's new album, they may un-knowingly become a contributory copyright infringer, uploading that file to thousands of other users.

Interdiction works by getting in front of potential downloaders when someone is serving pirated content using a P2P network. When MediaDefender's computers see someone making a copyrighted file available for upload, our computers simply hook into that computer and download the file. The goal is not to absorb all of that user's bandwidth but block connections to potential downloaders. If the P2P program allows ten connections and MediaDefender fills nine, we are blocking 90% of illegal uploading. The beauty of Interdiction is that it does not affect anything on that computer except the ability to upload pirated files on that particular P2P network. The computer user still has full access to e-mail, web, and other file sharing programs. Interdiction does not even affect a user's ability to download files, even pirated files, on the P2P network while their computer is being Interdicted. An Interdicted computer may still share up illegal files using other file transfer programs other than that particular P2P network being Interdicted. For example, a user may run two different P2P networks, but MediaDefender is only being paid to Interdict one. The second P2P network will not be affected even though the first is being Interdicted. Multiple computers on the same Internet connection will not be affected if one of those computers is being Interdicted. In practice most users of the P2P networks will not even realize their computers are being Interdicted. The purpose of the networks is for transferring files, and that is simply what is happening. The impact to the person's computer is not noticeably different from when the person is running a P2P program not being Interdicted. Legislation like Congressman Berman's peer-to-peer bill helps clarify that non-invasive self-help technologies, such as Interdiction, are a legitimate form of copyright protection.

Technology like MediaDefender's leaves the copyright holder with options. Right now the options copyright holders have are sue the countless number of P2P piracy systems, go after the tens of millions of contributory copyright infringers, or use MediaDefender's technological solutions. Often times MediaDefender's technological solutions are the only way to prevent immediate irreparable economic harm when a highly anticipated piece of copyrighted material is leaked onto the Internet. Nobody really wants to sue individuals or programmers. The financial loss has already occurred by the time the lawsuit is over, and the infringer is rarely able to correct the loss to the copyright holder. With tens of millions of P2P users, most of which are in the United States, many people we know and love are downloading pirated material. While downloading pirated material is not legal, it is a much less damaging crime than making pirated material available for upload. Unfortunately, many of these illegal uploaders are people who are not intending to serve illegal material for download, and do not have the computer savvy to change the settings on the P2P program. Interdiction prevents these people from unintended distribution of copyrighted material. The advocates of MediaDefender's technology do not want to see peoples' computers hurt or privacy invaded. Most want to see technology advance. Elegant solutions to technology problems allow technology to advance without encumbrances of bureaucracy. If legal minds believe the current draft of the legislation leaves too much room for abuse, it should be redrafted. However, the concept should not be abandoned because one thing is certain: P2P technology will

continue to improve and illegal downloading of copyrighted material will only get easier.