Computer Piracy: A Global Issue

Group #6

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MIS 304
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Fall 2009
The dictionary defines piracy as, “the unauthorized use or appropriation of patented or copyrighted material, ideas, etc.” Whether it is computer chips, video games, computer applications, operating systems, music, movies, websites or otherwise; piracy affects everyone! Most people think piracy is not a big issue. Fact is: Piracy is stealing! Billions in additional revenue are lost to legitimate businesses every year due to piracy. The money translates into thousands of possible jobs that could put a major dent into the current unemployment problem not just here in the United States, but everywhere throughout the world. Instead, people buy at a discount or steal a cheap, usually inferior copy that carries very little intrinsic value to the new owner due to the way it was obtained. The types of piracy focused on are:

- Hardware Piracy
- Software Piracy
- Entertainment Piracy
- Global Piracy

Piracy is an important issue! The need to understand what piracy is and what is being done to prevent it is paramount now, more than ever!
Hardware Piracy

Hardware Piracy takes place mainly in China and many third world countries like India. This type of piracy is often referred to as ‘cloning’ because manufacturers are physically mimicking hardware. This was not always a problem, and it began when major electronic producing companies began to outsource their labor. The blueprints for their devices can end up being stolen, whether for microchips or cell phones, and people begin to make and sell copies that cost next to nothing. The quality is usually very poor, because it is pieced together with homemade components.

When you are buying a computer, or other electronics, in these countries you have to be very careful to choose a reputable vendor. New PC’s can claim Pentium IV, but actually contain an over clocked Pentium III. This leads not only to a shorter lifespan for the computer, but power fluctuations can now easily fry your entire system. The CRT monitor you buy with it might be made with old tubes thrown away by first world countries such as the US. This means much of the lifespan has already been used up, and you might have to replace it very soon. Many of these systems also include pirated software, with a license label that looks nearly perfect to the real thing. These systems carry a very high risk of failure, owing to imitation chips and components that might not last long or are fully compatible to the system they are in. If the input power fluctuates at all, there is a good chance that your computer will be destroyed, permanently.

Another example of cloning deals with companies that have been trying hard to create an iPhone clone. There are dozens of cheaply made imitations available online, made by various companies and countries. It seems that none of the clones have had very much success though,
and Apple has not lost much of their business because everyone still wants the real thing. The problem lies mainly in that the clones cannot compete on the software side. They do not have good applications, or interfaces, and people still buy the iPhone. This is a good strategy to use in preventing hardware piracy – make sure that the software is a perfect compliment that cannot be easily substituted.

Mod chips are another example of hardware piracy. Mod chips can be soldered into gaming consoles and it then allows them to play games from burned CDs. This means that the users can now download games off of the Internet, burn them to a disk, and put them straight into the gaming system, possibly within the time it would take him to run to the store and actually buy the game itself. Developers believe that people with these chips will probably never buy a game again and that they will cost these companies millions of dollars. Mod chips are not just for malicious purposes though. These chips allow gamers to play games from different regions, and to install software that cannot otherwise be installed, neither of which are necessarily an illegal activity, many people preorder games from Asia and need the chip to run them. If the companies opened the operating system just a little to allow for more customization, and the regional game unlock, it might help more than they think.

China has been one of the worst culprits of hardware piracy, because instead of making new, better technology, they would rather try to perfectly imitate existing products. The piracy rate in China (which includes software) is an amazing 98%. The United States is only 25%. Copyright and Patent laws are not rigorously enforced in China, except when a company files legal action and forces them to move. Sometimes companies will steal the names and products of other companies in Europe and the United States to make it seem like they are a legitimate business. They wrap their products with the company’s logo, and sell it unashamed. Lawsuits
against these mimic companies can take three years just to go to court. Registering your company name and design in China can bypass a large headache, and avoid some monster legal battles that could be long and costly. The market in China is tempting to every corporation, but it is hard to say if the legal costs will destroy the profit in the end.

Preventing Hardware Piracy is difficult, because many people are smart enough to be able to manipulate both physical components and software side of it. For chip manufacturing though, there is a new idea that might overcome this. EPIC, or Ending Piracy of Integrated Circuits, has created extra switches on their chips that act like a 64bit combination lock. The buyer of the chip brings it home and installs it, and the first time he starts up the computer the chips are verified through the Internet and unlocked for use. This could put some barriers up against counterfeit electronics and even if someone finds a way for it to work, the time involved to unlock them may make counterfeiting unprofitable. As to other types of piracy, if the products were made in the United States under stricter rules and regulations, it would be much harder for pirate plants to appear because they would not have easy access to product blueprints anymore. The problem is that the cost to make it here would probably make the company’s prices too high to compete.

Getting rid of clones and fake hardware should be a simple, collaborative effort by all countries, but the problem is that some countries do not really care. They do not produce the technology, and therefore they do not feel the need to protect it. China is not losing money by piracy, and because it is so rampant they decide to turn a blind eye rather than enforce laws and spend money to stop it. Therefore, they let it slide, prosecuting only when forced. It has been getting a little better, but not anywhere near what it should be. However, if a company wades through the wait for a court ruling, it is very possible that the offender will be fined and shut
down, with all of their goods confiscated and destroyed. However, China is not the only problem; Germany is letting a few things slide as well. There is a company based in Germany called HyperMegaNet UG selling PC’s with Mac OS X installed, calling them PearC. Apple has had many problems in Europe, and this time will not be different. HyperMegaNet UG has presumably found a loophole in Germany’s legal structure that will make it very hard to prosecute.

Corporations like HyperMegaNet UG might be shut down and fined, but it is very doubtful that the owners will face any jail time. International laws have helped them out, to the point that they will be able to continue, or most likely be shut down without penalty. Within the time for the legal proceedings, they will probably have made a ton of money, making the venture worth it in the end no matter the outcome. Individuals though, who are helping to create clones and other pirated hardware outside of corporations, can face large fines and jail time. They are infringing on patents and copyrights, both of which can have major repercussions. Copying the design of major company’s logos that are registered can also land you with fines.

Overall, it seems that companies that make clones and sell pirated hardware can be prosecuted, but not the end users. People that want to buy these things for their own use are untouched. Once you distribute hardware, or help it reach others you are beginning to be liable, but if you keep to yourself you will most likely be left alone. Lawmakers are trying to change this, especially in concern to mod chips that can be bought straight off of the Internet, but so far there has been no action to punish the consumer.

Hardware piracy is really a tradeoff between distribution and innovation. In order for us to create new inventions and technology we need to be recompensed to make it worthwhile,
starting off with a high price and working towards wide scale cheaper distribution as new technology surpasses it. Piracy undercuts the system, going straight to wide scale distribution and making it less worthwhile to create new and better technologies.
Software Piracy

Software piracy has been a growing epidemic ever since the birth of software. The definition of software piracy is, “The copyright infringement of software (often referred to as software piracy) refers to several practices which involve the unauthorized copying”. Persons, from all walks of life, commit software piracy every day! In the digital world that we are living in today, it is very difficult to not commit these software piracy crimes when it is so accessible. There are many different forms of software piracy which include uploading and downloading, softlifting, software counterfeiting, OEM bundling, and hard disk loading.

Uploading and downloading is the most common type of software piracy. There are many free programs available that connect to thousands of people over the internet where copyrighted software can be downloaded and uploaded. This software is usually music and videos, but can also be very expensive programs such as operating systems. These programs are called P2P networks. P2P is defined as peer-to-peer or sometimes referred to as computer-to-computer. Some of the most popular programs include limewire, frostwire, and bitTorrent. If convicted of uploading and downloading piracy, the person might be fined and even spend some time in prison. It is not a laughing matter; the severity of this piracy can and is extensive!

Softlifting is one of the most common types of software piracy. Softlifting is when someone makes an illegal copy of purchased software. These can include all types of software including music, games, operating systems, and so on. For example: You purchase the new version of Windows 7 for your computer. You install this operating system on your computer and now you have the installation DVD with no more use to you. Then you decide to give the
DVD to your friend because he does not have the new operating system yet and he does not have the money to buy it right now. Once he installs that software onto his computer, he is committing a software piracy crime known as softlifting. And you are also committing a crime by supplying your friend with the DVD. The reason this is one of the most common types of software piracy is due to its ease. Unfortunately, due to lack of knowledge of piracy laws, most persons do not understand that this is piracy.

Software counterfeiting is the duplication of the actual software with the intent to distribute the pirated software for profit or personal gain. The process in software counterfeiting is that someone has the actual software and they make an exact copy of the software on another disc. Then they usually print the exact picture on the disc that it originally came with so it looks like the original. It is very difficult or even impossible to tell the difference between counterfeit software and the original.

OEM bundling can be a little more complex type of software piracy. This type of piracy is when a software company produces software that is intended to be bundled together and someone separates the software and sells the certain piece of the bundled software separately. An example of OEM bundling piracy would be: A person who buys Microsoft’s Office which includes many software programs including Excel, PowerPoint, Word, and Outlook. Then removing one of these programs and putting that software on a disc and then selling the disc. By doing so, you have just committed OEM bundling piracy.

Hard disk loading is another common type of software piracy. The definition of hard disk loading is “installing unauthorized copies of software onto the hard disks of personal computers, often as an incentive for the end user to buy the hardware from that particular
hardware dealer”. People who are in the hardware dealing business can illegally install software onto the computer that they are trying to sell in order to get more money for their product. For example: Would you want a computer that has nothing on it or would you want a computer that has a hundred of the newest movies on it for only a little more money? Some examples of where you would find hard disk loading can be found on e-commerce websites such as EBay and Craigslist; where people are selling “complete” computer systems.

The Business Software Alliance (BSA) is the main fighter in the ongoing threat of software piracy. They work with partner companies such as Apple, Dell, HP, IBM, and Microsoft to name a few. The BSA gets thousands and thousands of reports on software piracy from their partner companies. With these reports, the BSA determines if they are important enough to pursue. If they decide to pursue these cases, they have the ability to create civil law suits against the software pirates. The possible fines that can come from these litigations can be on the upwards amount of $250,000 and five years in prison. This is nothing, the software companies are losing billions and billions of dollars every year to the lost sales from software piracy.

Some of the ways that software companies are trying to stop software piracy include product keys and on-line activations. A product key is a 25 number/text that is included in your purchase of the software. During the installation of the software, you will be prompted with the entering of your product key. If you do not enter your product key, you will not be able to finish the installation of the software. On-line activations are a fairly new tool in the fight against software piracy. After installing your software on your computer, some software will prompt you with a window that makes you activate your software via on-line within a certain amount of days or you will lose all function of the software. The activation process is used in order to make
sure your copy of the software is genuine and not a counterfeit. As what was discussed in previous paragraphs, counterfeit software will not pass the on-line activation process. That is one way to tell if your software is counterfeited.
Entertainment Piracy

When talking about the issue of piracy, the type of piracy that probably gets the most publicity is entertainment piracy. According to the Motion Picture Association of America and the Recording Industry Association of America, entertainment piracy is the unauthorized duplication, distribution, rental, or digital transmission of copyrighted creative media. The three major types of creative media that is being discussed here is music, television, and movies.

So why is entertainment piracy such an important issue? Well, it is because it has such an enormous impact on the industry. An independent study was done by the Institute for Policy Innovation, and they found that the music industry alone loses 12.5 billion dollars each year because of global music piracy. The study also found that over 70,000 jobs are lost in the music industry because of music piracy (RIAA). In the film industry, the impact is even larger. In fact, over 18.2 billion dollars was lost globally in the film industry for the year 2005 (MPAA).

When looking at these numbers, one may think that it’s only the creators of film, television, and music that are getting hurt, but in reality, the consumer is losing out too. Since jobs are being lost and because there is not as much revenue to be made, the overall quality and quantity of the media that is distributed is suffering. Content providers may shy away from releasing certain media, or they may limit the number of outlets that they distribute to. This ultimately affects the end user as well.

There are two forms of entertainment piracy. The first form is physical. This occurs when the pirate makes illegal copies of a DVD or CD. An important point to note is that even if you do not intend to make a profit off the illegal copies, it is still illegal to distribute those
copies. For example, entertainment piracy is not limited to the guy selling bootleg copies of DVD’s on the Las Vegas street corner. It also includes the person who buys a music CD for himself and rips a copy that he later gives to a friend for free.

The second and most performed form of entertainment piracy is digital. Digital entertainment piracy is basically the uploading and downloading of copyrighted creative media to your computer from the internet. This can be done in a variety of ways. As previously mentioned, most piracy is committed through using peer-to-peer (P2P) downloading programs. However, it is not limited to P2P programs. For example: You legally purchase a song off of Apple’s popular music store iTunes™. Although you purchased it legally, if you email it to a friend as an attachment or send it to them via an instant message program, you are illegally sharing the file and can face penalties. The penalties for sharing music can be up to 150,000 per track, and for movies you can be a fined 250,000 dollars and be given up to 5 years of prison time.

With the advent of streaming media over the internet in the past few years, the entertainment industry has opened up another opportunity for pirates to steal their creative media. The stealing of streaming media over the internet is a relatively new form of digital entertainment piracy that is becoming more rampant every day. With websites like YouTube, Blockbuster Online, and Hulu legally streaming copyrighted media over the internet, pirates now have more outlets to steal from. Unfortunately, entertainment pirates have already figured out ways to do it. What they do is illegally capture this media to their computer or portable media players so that they can replay, distribute, or modify the media illegally however they want. In the case of YouTube, all it takes to rip a streaming video off their website is a simple browser
add-on for Mozilla Firefox. This add-on can be found on Mozilla’s add-on page and it’s consistently one to the top downloaded Firefox add-ons every week!

Streaming media websites have also made it incredibly easy and fast for a pirate to distribute copyrighted media. Pirates obtain or make digital copies of a copyrighted media, then use a streaming video website to host the illegal content. Millions of users can then get access to that content in real time. This eliminates the need for P2P software, which is making this type of piracy more and more widespread as the days go by.

What can be done to stop entertainment piracy? Well, content providers know that piracy is impossible to completely stop. They do believe they can limit and control it though. They employ several methods to do so. The first method they employ is lawsuits. The film and television industries are represented by the MPAA. The music industry is represented by the RIAA. Both the RIAA and the MPAA work closely with the government in the fight against piracy. For example, according to an article on The Huffington Post’s website, back in June of 2009, the RIAA sued a young student named Joel Tenenbaum for illegally downloading and distributing 30 songs over Boston University’s network. The court ruled in favor of the RIAA and Joel must now pay 675,000 dollars to several record companies. Joel’s ruling was fairly light considering he could have been fined up to 150,000 per track.

The RIAA and MPAA also employs a second anti-piracy measure, which is Internet Service Provider, or ISP, monitoring. If the RIAA or MPAA sees that a person has illegally downloaded or uploaded copyrighted media, they will send warning letters to that person’s ISP. If the person keeps pirating, lawsuits may follow, or the ISP may discontinue their service.
A third method that is used in the fight against piracy is Digital Rights Management or DRM for short. According to the Wikipedia page for Digital Rights Management, DRM are technologies that content providers use to limit what devices can play a certain media. DRM also adds an encryption to a DVD or CD so that they are more difficult to copy. With the widespread selling, ripping, and uploading of CD’s and DVD’s, it’s obvious that DRM technologies aren’t working very well. Entertainment pirates continually find new way to circumvent the DRM technologies.

The fourth and most important anti-piracy measure is the promotion of legal alternatives. Instead of focusing their efforts on lawsuits, the RIAA and MPAA know that the best way to limit piracy is by promoting the legal alternatives to piracy. There are now hundreds of licensed digital media providers available, ranging from on-demand movies and television, internet radio, legal P2P, subscription based services, music stores offering fair prices, and more (RIAA & MPAA).

Overall, it is evident that entertainment piracy is an enormous issue for the television, music, and film industry. They lose jobs as well as billions of dollars every year because of piracy. The RIAA, MPAA, and content providers employ various methods to fight piracy, unfortunately entertainment pirates still figure out way to get around them. Because of this, it appears this issue will not go away any time soon.
Global Piracy

The global dimension is integral to data piracy. Without a global stage in which to operate, the volume of instances would decrease significantly. There are many factors at work, most of which are dependent upon each other. One factor that is inherent to the issue is the relative ease of access to information around the globe, especially considering the technical aspect and the enormous scale of the network in which people share pirated information. Peer to peer networks, programs, file sharing protocols, direct connect hubs, and public file transfer protocols are operating in thousands of locations around the world, many in countries where the government is indifferent. In more extreme cases, street vendors openly sell counterfeit copies of various media for less than 1% of the M.S.R.P. While international copyright laws do exist, foreign authorities do not necessarily enforce them upon their own citizens. This lack of control over the situation makes it possible for any user around the world to download from any hub, or even operate a proxy server to host their own. The direct connect network and the license statistics for the first month of Microsoft’s Windows Vista release illustrate not only the ease in which users can locate and pirate information, but the issues that regulators face in trying to control the illegal transfer of information.

There are many vehicles for users to connect to one another. Napster was innovative in that people who were mostly PC illiterate could connect to one another and share information. Up until that point mIRC was the most efficient way, and common users were unable to understand the interface. Since then, networks have been largely de-centralized. The Kazaa program, which utilizes the FastTrack protocol, is a popular choice. Alternatively, Limewire uses the Gnutella network with the BitTorrent protocol. The direct connect peer to peer file
sharing protocol, however, really shows how important the international aspect is to information piracy. Direct connect clients connect to a central hub and can download files directly from one another. Direct connect hubs are central servers to which the client connects. Hubs provide information about the clients, as well as file-searching and “chat” capabilities. File transfers are done directly between clients. There are various programs to browse registered direct connect servers. One popular choice is DC++. Users control a visual interface and can search hubs using a variety of categories including country, name, and amount of users connected. The following table shows a cross section of the hubs with the highest total information shared:

<table>
<thead>
<tr>
<th>Address</th>
<th>Users</th>
<th>Country</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>dchub://king.newiss-trynitynetwork.net:411</td>
<td>555</td>
<td>United Kingdom</td>
<td>800.42 TiB</td>
</tr>
<tr>
<td>dchub://dc15.abc-network.nu:4111</td>
<td>6009</td>
<td>Germany</td>
<td>731.70 TiB</td>
</tr>
<tr>
<td>dchub://dc6.abc-network.nu:4111</td>
<td>4301</td>
<td>Sweden</td>
<td>661.89 TiB</td>
</tr>
<tr>
<td>dchub://one-love.freeway-fun.net:4111</td>
<td>6850</td>
<td>United Kingdom</td>
<td>351.95 TiB</td>
</tr>
<tr>
<td>dchub://mafiahub.net:4500</td>
<td>2815</td>
<td>United States</td>
<td>305.56 TiB</td>
</tr>
<tr>
<td>dchub://enigma.evolvea.ro:411</td>
<td>6913</td>
<td>Romania</td>
<td>290.48 TiB</td>
</tr>
</tbody>
</table>

Direct connect users are not limited to one hub. On the contrary, direct connect client programs allow the user to connect to as many hubs as the user’s computer can handle. A fairly powerful computer could ideally connect to 100 hubs. When the user searches, the amount of information at that user’s disposal is approximately 10000 terabytes, or 9.766 petabytes. Using DC++ as a client program and connecting to 25 worldwide servers, a broad search for the program AutoCAD 2008, created by Autodesk U.S.A., returned 430 results. The program retails for $4500 per license. None of the hubs which have users who are sharing AutoCAD are located in the United States.
When Windows Vista was first released, it sold 20 million legal licenses worldwide in its first month. Of those, 244 were registered in China, or .0000112%. Since more than 244 of the 130 million PCs in China were upgraded with Microsoft’s then-new release, unauthorized copies must have been produced. The source of the illegitimate installations is both the computer networks in which the software was transmitted, and the easy to find $1 (U.S.D.) counterfeit copies available many places on the streets. Compared to the $199 introductory price, the counterfeit version is an easy choice, especially when the fear of authorities is not present. Microsoft President, Bill Gates, may see opportunity for more sales with the prior statistics, however most software manufacturers hemorrhage at the wallet. America accounts for the largest share of software manufacturers and has the largest entertainment industry out of any country in the world. However, the rate of piracy is the lowest out of any country. The reason for this is America has the resources to control the transfer of information within its borders. The same is true for Western Europe, which ranks second to bottom statistically as far as information piracy rate. Countries where the piracy rate is very high, 70% and above, enjoy free media at the expense of everyone from record companies to software giants. The trickle-down effect leads to a bottom line of a lower national GDP and many job opportunities lost. The effect is universal for all countries with a strong software industry, the worst victim being the United States.

Between employees, officers, stock holders, and government officials, there is a lot of interest in the success of the software and entertainment industry in the United States. Groups such as the Business Software Alliance and the Congressional International Anti-Piracy Caucus were formed to regulate the flow of pirated information and urge other countries to take action to do the same. One of the issues they’re facing is that the piracy problem quickly spiraled out of
control. Jerry Brady, CTO of Guardent, says, “Software piracy used to be done within an elite
community of users and was not damaging enough to sales to devalue the product. Now it is a
vastly different world. Piracy is very easy to do without access to user groups. At one time,
software piracy was mostly a user network of floppy disk traders. Now the average person has
the capability to download large programs over high-speed Internet connections.” One BSA
study states in 2004 alone, piracy cost the software industry $1.9 billion and an estimated
105,000 jobs!

Research shows that there are many of different countries which are either indifferent or
have very limited resources dedicated to regulating and enforcing foreign license and copyright
laws. According to the Congressional Anti-Piracy Caucus, Canada, Spain, China, Mexico, and
Russia have the biggest impact on the United States. These countries stand out because of the
scope and depth of their piracy problems, which cost the U.S. copyright industries and the
millions of Americans who work in these companies billions of dollars, and because piracy in
these countries is largely the result of a lack of political will to confront the problem.

Furthermore, Senator Sheldon Whitehouse says, “That in tough economic times, it is crucial for
the United States to safeguard intellectual property”. He goes on to cite the millions of jobs and
billions of dollars in revenues lost every year to piracy. Senator Whitehouse is referring to all
intellectual property, including books, music, software, and any digital media produced in the
United States. The numbers continue to increase. Some analysts say that the retail cost has no
correlation to piracy. It is widely accepted very easy to do. Regardless of all efforts to stop the
illegal trade of information, the fact still remains that if it is available online, it is accessible
worldwide …for free!
Conclusion

Piracy can be redefined as an epidemic! A virus similar to H1N1, slowly sucking out the creative energy from business’s from wanting or being able to innovate and do better. People are missing out on jobs that could be had if piracy did not exist! All over the globe:

- Hardware is being cloned
- Software is being copied and distributed illegally for profit
- Entertainment piracy is as easy as pushing the rip button
- Global piracy is like a retail store, just pick a server to shop (lift) from

The business industry currently is doing its best to combat piracy. As hardware technology gets older, it allows for the price to go down and become more affordable. The software companies are offering “free trials” for people to test out the software before purchase. The music industry is offering free MP3 downloads and creative file sharing through YouTube. The website, Hulu, now offers free viewing of popular TV Shows. And, illegal servers are being shut down every day. As such, there are numerous preventative measures in place to help slow down piracy, but it is up to the individual to make the “right choice”!
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