

Computer Crime and Intellectual Property Rights - A Review

Jabiulla V¹, Dr. R. Chinnaiyan²

¹PG Scholar, Department of MCA, New Horizon College of Engineering, Bangalore, Karnataka, India

²Professor, Department of MCA, New Horizon College of Engineering, Bangalore, Karnataka, India

ABSTRACT

Computer Crime is a growing threat to society caused by the criminal or irresponsible actions of individuals who are taking advantage of the widespread of computers and the internet and other network. Computer Crime poses a threat to the safety, integrity of E-business systems.

According to Association of IT Professional (AITP), "Computer Crime" includes things like,

- ✓ The unauthorized use, access, modification, and destruction of hardware, software, data, or network resources;
- ✓ The unauthorized release of information;
- ✓ The unauthorized copying of software;
- ✓ An end user can access to his or her own hardware, or software, data network resources of requirements;
- ✓ Use of network resources or computers to illegally obtain information.

Intellectual property Rights includes the results of intellectual activities in the arts, science and industry. Intellectual Property Rights (IPR) defines variety of legal rights in protecting products of intellectual efforts of creativity in the fields of applied arts. Intellectual Property Rights mainly comprise trademarks, patents, copyrights, service marks, designs and confidential information know-how etc. And the right to protection from passing off

Intellectual property laws are to ensure that mental labor is justly rewarded and to encourage innovation. Unfortunately Intellectual property laws are difficult to enforce.

Keywords : Computer Crime, Intellectual Property Rights, AITP, Computer Espionage, Forgery and Piracy, Identity Theft, Firewall, Access Control Software, Encryption

I. INTRODUCTION

Hacking and computer viruses are two major threats to information system security. Both of them loosely referred to as species of computer crime, although in some countries they are not strictly speaking illegal because of lack of specific outlawing hacking and computer viruses.

A recent survey from the UK has identified that, over a three year period ending in 1990, the direct financial loss to industry resulting from hacking

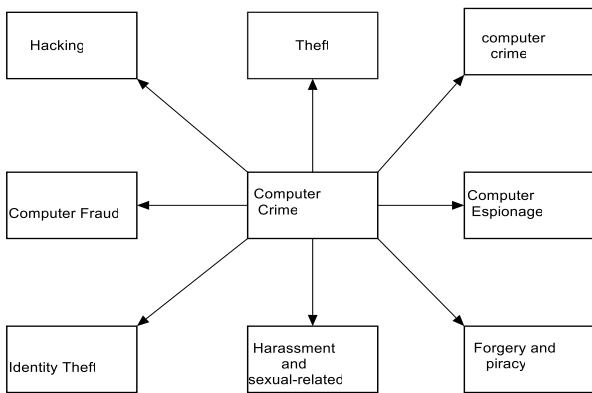
increased 300-fold and cases of reported direct loss due to viruses.

Hacking and computer viruses represents two of the more fashionable activities in the spectrum of computer crimes, which may not be always be criminal in the sense attracting legal sanctions.

II. TYPES OF COMPUTER CRIME

- ✓ Unauthorized Access (Hacking)
- ✓ Theft- Goods, Information, or Money
- ✓ Theft of Computer Crime

- ✓ Computer Fraud
- ✓ Computer Espionage
- ✓ Identity Theft
- ✓ Forgery and Piracy



Example of Computer Crime

Figure 1

Unauthorized Access (Hacking):

- ✓ Hacking is the process of achieving access to computer network without legal authorization.
- ✓ Hacking damage to computer-based property such as files, Web pages or softwares.
- ✓ Computer hacking varies from simple being invasive and annoying to illegal.
- ✓ People who engage in computer hacking activities are often called Hackers.
- ✓ Hacking is breaking into computer systems or modifies existing settings.

Example of common hacking tactics

- ✓ **Trojan horse:** A program that unknown to the user, contains instruction that exploit a known vulnerability in some software.
- ✓ **Sniffers:** A program that search individual packets of data as they pass through Internet, capturing passwords.
- ✓ **Password crackers:** The software which can guess/Identify the password.

Theft: Goods, Information and Money

- ✓ The computer Crime can take form of :

1. Theft of money (Transfer of amount to the unauthorized account)
 2. Theft of information (From database)
 3. Theft of goods (Diversion to the wrong destination)
- ✓ Computer theft is the most common and the most reported of all cyber crimes.
 - ✓ Many computer crime involves the theft of money
 - ✓ New computer-based technology allows criminals to operate in a more efficient and effective manner. No longer are frauds, artist or criminal can be cheat victims in a particular geographic location.

Theft of computer time

- ✓ Theft of computer time involves the use of an employer’s computer resources for personal work.
- ✓ Using company computers for financial gain,such as private consulting work.
- ✓ Insider can misuse various forms like:
 - a) Portable storage misuse
 - b) Software downloading
 - c) Remote-Access programs
 - d) Media Downloading
 - e) Personal e-mail accounts

Computer Fraud:

- ✓ Computer fraud includes any technique aimed at manipulating information within a computer system
- ✓ Computer fraud can be divided into following:
 1. Computer -Related Fraud
 2. Computer-Assisted Fraud
- ✓ Computer Fraud techniques:
 1. Salami Technique
 2. Trojan Horse Technique
 3. Data diddling

Computer Espionage

- ✓ Corporate Computer Systems contain a great deal of information of interest to competitors, including product development plans.

- ✓ Corporate Espionage and theft is a rapidly growing area of computer crime, which involves the theft of these corporate assets or trade secrets from competitors.
- ✓ Reasons of Corporate Espionage
 1. Financial gain
 2. Professional hostilities
 3. Challenge and curiosity
 4. Personal relations

Forgery and Piracy

- ✓ Forgery is the art of passing off a copy of something as the real article. Computers can be very useful for passing off documents as real.
- ✓ Computers are particularly forge digital information.
- ✓ **Piracy** is generally used to describe the robbing of copy right on a commercial scale.

Identity Theft

- ✓ A form cyber theft that has become particularly troublesome in recent year is identity theft.
- ✓ Identity Theft is the use of someone else identification to obtain credit or other economic rewards.
- ✓ Thieves would “steal ” calling-card by watching people using public telephones, or they would rifle through garbage to find bank account or credit card numbers

Harassment and Sexually-Related Material

- ✓ Harassment has become possible using a computer , and is a crime known as ‘Cyber stalking’
- ✓ Cyber stalking is a crime by using electric communication like E-mail, Instant Messaging or message posted to a website.
- ✓ Cyber stalking is dangerous because computers protect harassers.
- ✓ Sexually-Related internet crime is on the increase and some of the perpetrators may be

addicted to the criminal activity in question and develop obsessions about their internet victims.

- ✓ Sexually-Related internet crime can be divided into two categories:
 1. Display, downloading or the distribution of illegal sexually-related material and
 2. Use of the internet to sexually procure and intimidate an individual in some way
Like Online sexual harassment, Cyber stalking.

III. COMPUTER SECURITY MEASURES

Various measures that may take in order to enhance computer security are shown in figure:

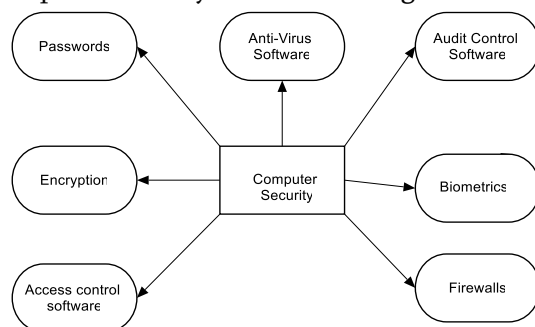


Figure 2. Various Security Measures

1. Password

- Passwords are the one way of keeping information safe. Passwords are often compared with the username and passwords, which should be entered correctly, then the computer recognize you as an authentic user.
- In computer security , a password is a string of letters or a combination of letters and numbers and often 4 to 10 characters long. Some times you can use also uppercase letters.
- Passwords have been used since ancient times to control access to resources.
- A password need not to be a word or phrase at all. It may be a mixture of letters , string of numbers, special characters, such as @ # \$ %.
- The complex passwords may be difficult to guess, because they may be difficult to remember (e.g., @, \$, !).

2. Encryption

Encryption is the process of transforming information which cannot be read by unauthorized users, it can be read only by authorized user.

Different types of encryption are:

- symmetric encryption
- Asymmetric encryption

Symmetric encryption: In symmetric encryption the encryption key and decryption key are the same. These also called as single key algorithm or secret key algorithm.

Asymmetric encryption: In this each person gets a pair of keys, as public key and other is private key.

3. Access Control Software

- It is the restriction of unauthorized user access to a portion of a computer system or to the entire system.
- It is the major defense line against unauthorized insiders as well as outsiders.
- Access to computer system it contains three steps:
 - ✓ Physical access to a terminal.
 - ✓ Access to the system
 - ✓ Access to the specific commands, transactions, privileges, programs, and data within the system.

4. Antivirus Softwares

- Anti-virus software is the solution to many problems created by viruses, there are kinds and brands of anti-virus software.
- It is a type of utility software that looks for viruses.
- It is available for all type of computers and data storage, including handheld personal computer.

Steps of using antivirus

- Install Antivirus Software and Run it often.
- Update Antivirus Software Often

- Scan all Removable Media, including CDs, before Copying or Running programs from them.
 - Install software from a sealed package or secure website
 - Follow careful downloading practices
- If you detect a virus, take immediate action

5. Firewall

A firewall is a software or hardware that allows only those external users with specific characteristics to access a protected network.

- A firewall works by establishing a barrier between the corporate network and the external internet. For example, a vendor could permit entry to its website on the firewall only to those users with specific domain names belonging to companies that are in long-term contracts to buy its products.

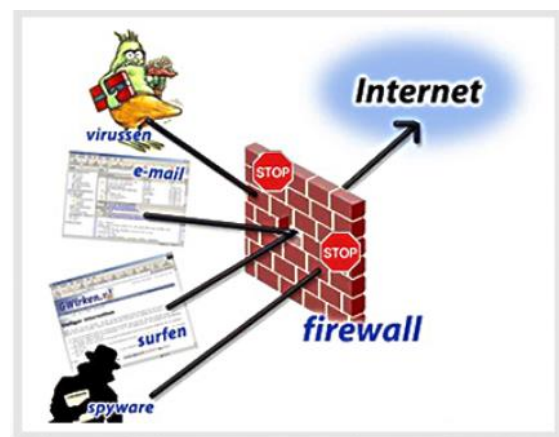


Figure 3

6. Biometrics

A biometric is an automated method of verifying the identity of a person. The most common biometrics is the following:

Photo of face: The computer takes a picture of your face and matches it with a pre-sorted picture.

Fingerprints: Finger scan is matched against a template containing the authorized person's fingerprint to identify.

Iris Scan: This technology uses the colored portion of the eye to identify individuals.

Retina-Scan: It scans the portion between the pattern of the blood vessels in the back-of-the-eye retina that is being scanned and a photo of the eye and analyzed it and is a very accurate method.

Voice-Scan: It matches the user's voice and the voice pattern stored on templates.

7. Audit Control Software:

A software audit is the process of checking each computer in the organization and listing the software packages installed. Software audits minimize the risk of prosecution piracy due to the use of unlicensed software.

IV. INTELLECTUAL PROPERTY RIGHT

Intellectual property takes the form of intellectual objects, such as poems, novels, inventions, and product formulas. Intellectual property Rights includes the results of intellectual activities in the arts, science and industry. Copy right laws have traditionally protected forms of literary expression. Patent law has protected mechanical inventions; and contract law has covered trade secrets. Copy right law protects most commercial software programs, but a few companies have successfully used patent laws to protect software products.

Intellectual Property Rights (IPR) defines variety of legal rights in protecting products of intellectual efforts of creativity in the fields of applied arts. Intellectual Property Rights mainly comprise trademarks, patents, copyrights, service marks, designs and confidential information know-how etc. And the right to protection from passing off, it is legal property rights over creations of the mind, that both artistic and commercial of the corresponding fields of law.

Intellectual property Rights are of great importance for modern industry and commerce and, in many cases, they have a very important effect on the economy and business entity. The value of

Intellectual property cannot be defined in monetary terms; it is intangible asset of any corporate entity.

Intellectual property Legislation

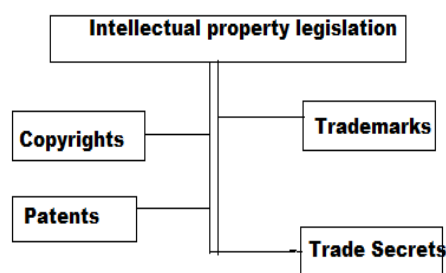


Figure 4

Copyright: Copyright means the right to make and distribute copies to be performed or display the work in public, and to produce derivative works such as translation into other languages.

Following are different from copyright but related and that can be performs in a theatre, dancers, broadcasters, etc.

Copyright protects original expression of ideas, the ways the works are done; the language used, etc.

Patents: A patent is a type of intellectual property right for invention (new process) which is exclusively makes use of and sale an invention, such as machines.

Trade Secrets: A trade secret is also called as software piracy; it protects confidential secrets of some commercial value. It involves the production, transport, and sale of illegal software.

Trade secret can be exist without registration as it is make the information public, For example, the formula of Sprite. Information that is protected in trade secrets can be patentable if they are novel and non-obvious.

Trademarks: A trademark can be a word, name, symbol or device which is capable of distinguishing

the goods or services from one person to other person.

A trademark can be a logo, name, symbol, and signature etc.

A trademark usually identifies the product and helps the consumer to his satisfactory quality of the article company is buying.

Trademark is divided into two types:-

- ✓ Infringement
- ✓ Dilution

Infringement: Infringement occurs when someone unauthorized user uses the trademark in connection with the sale of its goods and services.

Dilution: it is applicable to the famous trademark that is distinctive, of long duration, and usually known to the public.

V. REFERENCES

- [1]. Computer Crime and Hacking-Textbook
- [2]. www.google.com



Figure 5

- Trademark in commerce and registration is not mandatory. The trademark owner carries on his business under his mark in relation to products or services to which the mark is applied.
- To qualify as a trademark, the mark or name must be truly distinctive and should be official trademark symbol, such as Microsoft Windows.