CRIME AND SECURITY

CSE 312 – Legal, Social, and Ethical Issues in Information Systems

Stony Brook University

http://www.cs.stonybrook.edu/~cse312

CH 5: CRIME AND SECURITY

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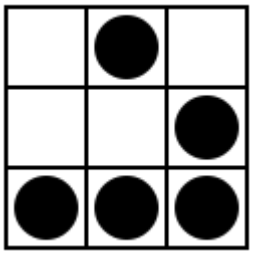

5.1 INTRODUCTION

- Con artists and crooks of many sorts have found ample opportunity to cheat unsuspecting people in cyberspace.
  - Each generation of people, whatever level of technology they use, needs a reminder that if an investment or bargain looks too good to be true, it probably is.
- Example: People set up websites after disasters such as terrorist attacks or hurricanes to fraudulently collect credit card donations from people who think they are contributing to the Red Cross or funds for victims.

INTRODUCTION

- Hacking
  - Intentional, unauthorized access to computer systems – theft, fraud, sabotage
  - Examples:
    - IRS reported thieves stole personal information from more than 300,000 tax returns stored in IRS database.
    - A hacker stole records of more than 100 million LinkedIn members, including IDs, email addresses, and passwords. The records were offered for sale.
    - Hackers stole records of more than 20 million federal employees.

DISCUSSION QUESTIONS

- What can we do, as professionals and as individual users, to reduce hacking risks?
- What penalties are appropriate for hackers?
- How can law enforcement agencies reduce cybercrime?
- How should we evaluate non-malicious hacking?
- Who is ethically responsible for security?

5.2 WHAT IS HACKING?

- Intentional, unauthorized access to computer systems
- The term has changed over time
- **Phase 1: The joy of programming**
  - Early 1960s to 1970s
  - Hacking was a positive term
  - A "hacker" was a creative programmer who wrote elegant or clever code
  - A "hack" was an especially clever piece of code
  - "Hacking" still sometimes has the early meaning of clever programming that reflects a high level of skill and that circumvents limits (*Hackathons*: sprint-like event in which programmers collaborate intensively on software projects)

WHAT IS HACKING?

- **Phase 2: The rise of hacking's dark side** [1970s to mid 1990s]
  - Hacking took on negative connotations
  - Breaking into computers for which the hacker does not have authorized access
    - A Russian man used stolen passwords to steal $400,000 from Citicorp and transferred $11 million to accounts in other countries
      - It took 2 years to extradite him from London to US for trial
  - Still primarily individuals
  - Includes the spreading of computer worms and viruses and '*phone phreaking*' (manipulating the telephone system)
  - Companies began using hackers to analyze and improve security

WHAT IS HACKING?

- **Phase 3: Hacking as a destructive and criminal tool**
- The growth of the Web and mobile devices
  - Beginning in mid 1990s
  - The growth of the Web changed hacking; viruses and worms could be spread rapidly
    - The Melissa virus of 1999 infected approximately a million computers worldwide
    - In 2000, the "Love Bug," or "ILOVEYOU" virus, spread around the world in a few hours and destroyed image and music files, modified a computer's operating system and Internet browser, and collected passwords
  - Political hacking (*Hacktivism*) surfaced
    - They modified the U.S. Department of Justice Web page to read "Department of Injustice" in protest of the Communications Decency Act
  - Denial-of-service (*DoS*) attacks used to shut down Web sites: victims included Yahoo, eBay, Amazon, E*Trade, Buy.com, CNN
  - Large scale theft of personal and financial information

WHAT IS HACKING?

- **Phase 3: Hacking as a destructive and criminal tool**
  - A new type of virus gives the person who distributed it the power to remotely control the infected computers (called *zombies*), that can now send spam, contribute to denial-of-service attacks, participate in various kinds of online advertising fraud
    - A 21-year-old California man pleaded guilty and was sentenced to almost five years in prison (the longest hacking sentence at that time, 2006) – he took over hundreds of thousands of computers (some at military sites)

WHAT IS HACKING?

- Shades of Hackers
  - The "white hat hackers" and "black hat hackers" are often applied to the cowboys of the computer frontiers, like in old cowboy movies.
- Black hat hackers
  - Their activities are destructive, unethical, and usually illegal – we will refer to them as hackers while going forward
- White hat hackers
  - Use their skills to demonstrate system vulnerabilities and improve security – this include cyber security experts who strives to protect systems and provide early warning of potential threats
    - We will refer to them as cyber security experts to differentiate them from hackers

WHAT IS HACKING?

- "White hat hackers" use their skills to demonstrate system vulnerabilities and improve security
  - In old cowboy movies, the good guys wore white hats
- Those who use methods of questionable legality or publicize vulnerabilities before informing the system owners are sometimes called "gray hats"
  - A group called Goatse Security collected the email addresses of more than 100,000 iPad owners from an AT&T website. They notified the media about the security flaw after AT&T fixed it.
  - A security researcher discovered a major flaw in the Internet's domain name server system. He kept the problem secret while working with several companies to develop a patch. He released the patch and "encouraged" companies to install it within 30 days by giving them a timeline of 30 days before releasing the details of hacking.

WHAT IS HACKING?

- Hackers as Security Researchers
  - hackers probe computer systems, most often without permission, to find security flaws as an intellectual exercise
  - They sometimes call themselves "security researchers" to avoid the now negative connotation of the term hacker

WHAT IS HACKING?

- Is "harmless hacking" harmless?
  - The excitement and challenge of breaking in motivates young hackers.
  - Some claim that such hacking is harmless. Is it?
- Responding to non-malicious or prank hacking uses resources
  - After a hacker accessed a Boeing Corporation computer, Boeing spent a large sum to verify that the intruder changed no files
- Hackers could accidentally do significant damage
  - A group of young Danes broke into National Weather Service computers, but their activities caused the Weather Service computers to slow down.
    - Serious conditions, such as tornadoes, could have gone undetected and unreported
- Almost all hacking is a form of trespass.

HACKER TOOLS

- Virus – software that attaches itself to other software. Spreads when someone runs an infected program.
- Worm – similar to virus but does not require to attach itself to other program to function. Example: Conficker worm (2008)
- Trojan horse – malware that appears to be benign but carries malicious component.
- Social engineering– manipulating people to release information or to perform a task which violates security protocol.
- Phishing – fraudulent calls or emails to gather information of someone to impersonate him/her and steal money or goods.
- Pharming – Luring people to fake websites where thieves collect personal data. Pharming involves planting false address in the DNS.
- Ransomware – malware that encrypts some or all files on a device and displays a message demanding money (often in bitcoin). 4000 attacks per day in 2016.

HACKER TOOLS

- Spyware – malware that can monitor and record user activities on a computer or a mobile. This includes logging keystrokes on the keyboard to capture username, password, account number and other information.
- Botnet – a group of computers or other devices on the internet that have a virus or malware that communicates with a central host or server controlled by a hacker – "A botnet is a coordinated army of compromised devices" – by Journalist Sean Gallagher.
- DoS or DDoS attack – an attack in which a botnet overwhelms websites, mail servers, or other internet locations with so many requests for service that normal users cannot access the sites or services. Attack might crash the site. Example: a DDoS attack in 2016 called Mirai interrupt access to Paypal, Twitter, Netflix, GitHub, Airbnb and many more.
- Backdoor – software that allows access to a computer system or device at a future time by bypassing the normal layers of security checks.

5.3 SOME SPECIFIC APPLICATIONS OF HACKING

Identity Theft

- Stealing Identities (Identity Theft): various crimes in which criminals use the identity of an unknowing, innocent person
  - Use credit/debit card numbers, personal information, and social security numbers
  - 18-29 year-olds are the most common victims because they use the Web most and are unaware of risks
  - E-commerce has made it easier to steal and use card numbers without having the physical card
    - Credit card companies and other businesses bear the direct cost of most credit card fraud, but the losses lead to higher charges to consumers: individual victims might lose a good credit rating, be prevented from borrowing money or cashing checks, be unable to get a job, or be unable to rent an apartment
  - The Federal Trade Commission receives hundreds of thousands of complaints of identity theft each year

IDENTITY THEFT

- Techniques used to steal personal and financial information
  - Requests for personal and financial information disguised as legitimate business communication
    - *Phishing* – e-mail
    - *Smishing* – text messaging
    - *Vishing* – voice phishing
  - *Pharming* – false Web sites that fish for personal and financial information by planting false URLs in Domain Name Servers
    - Online resumés and job hunting sites may reveal SSNs, work history, birth dates and other information that can be used in identity theft
  - Thieves secretly install recording devices (called *skimmers*) inside the card readers

IDENTITY THEFT

- Responses to Identity Theft
  - Authentication of email and Web sites
    - Email programs, Web browsers, search engines, and add-on software (some free) can alert users to likely fraud
      - emails claiming to be from PayPal has come from hotmail.com, yahoo.com
  - Use of encryption to securely store data, so it is useless if stolen
  - In the event information is stolen, a fraud alert can flag your credit report (*fraud alert*); some businesses will cover the cost of a credit report if your information has been stolen
    - calls you for confirmation when anyone tries to open a new credit account (e.g., for a car loan or credit card) in your name
  - Unique IDs used for each transaction
  - Credit card companies run sophisticated artificial intelligence software to detect unusual spending activity

IDENTITY THEFT

- Responses to Identity Theft
  - Authenticating customers and preventing use of stolen numbers
    - Activation for new credit cards
    - Retailers do not print the full card number and expiration date on receipts
    - Software detects unusual spending activities and will prompt retailers to ask for identifying information
    - Services, like PayPal, act as third party allowing a customer to make a purchase without revealing their credit card information to a stranger

IDENTITY THEFT

- *Biometrics*
  - Biological characteristics unique to an individual
    - fingerprints, voice prints, face structure, hand geometry, eye (iris or retina) patterns, and DNA.
  - No external item (card, keys, etc.) to be stolen
  - Used in areas where security needs to be high, such as identifying airport personnel
  - Biometrics can be fooled, but more difficult to do so, especially as more sophisticated systems are developed
  - Even low end biometrics, like photos on credit cards, proved to be helpful

CASE STUDY: THE TARGET BREACH

- During a four-week period in 2013, hackers gained access to personal information including 40 million credit card numbers and approximately 70 million names, mailing addresses, and phone numbers of Target customers in the US.
- How did this happen?
  - We may never know all the details.
  - Cybersecurity investigators have pieced together a likely scenario.

IMPACT OF TARGET BREACH

- Hackers sold Target customers credit card data for an average price of about $27 per card.
- Between 3% to 7% of the card numbers were used for fraud before banks realized the situation and cancelled the remaining cards.
- Estimated take by hackers from this crime was about $53.7 million.
- Target had a 46% drop in profit.
- Banks and credit card unions spent $200 million to reissue credit cards.

Eighteen months later, hackers stole more than 50 million customers information from Home Depot chain.

DISCUSSION QUESTION

What mistakes, if any, did each of the following people make and what was their level of responsibility?

- The Fazio Mechanical employee who received the phishing email
- The system administrator at Fazio Mechanical
- The Fazio Mechanical website developer
- The developer of Target's electronic billing system
- The developer of Target's contact submission system
- Target system and network administrators
- Target cashiers
- Target executives
- Shoppers using credit cards at the Target in 2013.

HACKTIVISM, OR POLITICAL HACKING

- Hacktivism, or Political Hacking
  - Use of hacking to promote a political cause
- Disagreement about whether it is a form of civil disobedience and how (whether) it should be punished
  - Is there ethical justification for such hacking?
  - Should penalties for hacktivists differ from penalties for other hackers?
- Some use the appearance of hacktivism to hide other criminal activities
- How do you determine whether something is hacktivism or simple vandalism?
  - A hacker group hacked into the Bay Area Rapid Transit (BART) system and released emails, passwords, and personal information about a few thousand BART customers to protest BART's controversial shutdown of wireless communication in several BART stations to thwart a planned protest demonstration

HACKTIVISM, OR POLITICAL HACKING

- Hacktivism, or Political Hacking
  - Are hacktivists merely exercising their freedom of speech?
  - Freedom of speech does not include the right to hang a political sign in a neighbor's window or paint one's slogans on someone else's fence
- Civil disobedience has a respected, nonviolent tradition
  - Henry David Thoreau, Mahatma Gandhi, and Martin Luther King Jr. refused to cooperate with rules they saw as unjust
  - Peaceful protestors have marched, rallied, and boycotted to promote their goals
  - Hacking is not civil disobedience

HACKING BY GOVERNMENT

- Hacking as a Foreign Policy
  - Hacking by governments has increased

In the 21st century, bits and bytes can be as threatening as bullets and bombs.

—William J. Lynn III, Deputy Defense Secretary

  - The first cyber attack apparently coordinated with a military attack occurred in 2008 when the Russian military moved into Georgia
    - Georgian government websites were attacked and some disabled
      - It is very likely that the Russian government was responsible
  - A Chinese government-owned company sent false messages to the Internet routing system to reroute a large amount of Internet traffic from U.S. military agencies and Congress through servers in China

HACKING BY GOVERNMENT

- Hackers from computers originated in China stole several terabytes of information about the design of one of the Pentagon's new and extremely expensive fighter jets
  - Announced by the deputy defense secretary in 2011
  - The *New York Times* described a theft of 24,000 Defense Department documents as "one of its worst digital attacks in history"
- Computers from a Chinese city where a major Chinese national security division is located performed a 2011 attack on the Gmail accounts of White House staffers
- Russian and Chinese hackers broke into computer networks that control the U.S. electric power grid, U.S. satellites, oil and gas companies worldwide
- Pentagon has announced it would consider and treat some cyber attacks as acts of war, and the U.S. might respond with military force.

HACKING BY GOVERNMENT

- Stuxnet
  - An extremely sophisticated worm
  - Targets a particular type of control system
  - Beginning in 2008, damaged equipment in a uranium enrichment plant in Iran
  - The focus on Iran's nuclear program and the sophistication of Stuxnet led to speculation that the Israeli and/or U.S. government created it.
  - Siemens Simatic S7-300 PLC

  - In 2012, journalist David Sanger published extensive research indicating that the two governments did indeed produce Stuxnet

CYBER WARFARE

- The Pentagon announced that the United States will treat some cyberattack a as acts of war and respond with military force.
  - Countries targeted with cyberattacks must determine whether a foreign government, a terrorist organization, or a teenager organized the attack.
- There are many challenging questions about the use of cyberattack against another country and how to respond to one.

DISCUSSION QUESTION

- When is a cyber attack justified?
  - Was the Stuxnet cyber sabotage against Iran justified?
  - Would it have been better to directly attack the facilities with drones or planes to delay Iran's nuclear plan?
- When is a cyberattack an act of war? Is an attack that does significant economic damage an act of war?
- What level of certainty about the source of an attack should there be before a counterattack?
- How can we make critical systems safer from attacks?

5.4 WHY IS THE DIGITAL WORLD SO VULNERABLE?

- Hacking is a problem, but so is poor security.

  The fact that I could get into the system amazed me.

  —Frank Darden, a member of the Legion of Doom, which hacked the BellSouth telephone system

- Variety of factors contribute to security weaknesses:
  - History of the Internet and the Web
  - Inherent complexity of computer systems
  - The software and communication systems that runs phones , web, and many interconnected devices
  - Speed at which new applications develop
  - Economic, business and political factors
  - Human nature

Vulnerabilities of Operating Systems and the Internet

- Operating systems
  - Most important part of the computer is the OS.
    - It controls access to the hardware and makes applications and files available to the users.
  - All operating systems try to balance:
    - Giving many features
    - Ability to control as many features
    - Convenience and ease of use
    - Providing a stable, crash-free system, and
    - Providing a secure system
  - The system is very complex and it is not unusual to have flaws/bugs in the system.

VULNERABILITIES OF OPERATING SYSTEMS AND THE INTERNET

Vulnerabilities of the Internet

- Internet started with open access as a means of sharing and communicating information for research
  - The Internet was not designed for security against malicious intruders, teenage explorers, or organized criminals
  - Attitudes about security were slow to catch up with the risks.
    - Internet security expert Dan Farmer ran a program to probe the websites of banks, newspapers, government agencies for software loopholes that made it easy for hackers to invade and disable or damage the sites:
      - two-thirds had security weaknesses
      - only four sites apparently noticed that someone was probing their security
  - Firewalls are used to monitor and filter out communication from untrusted sites or that fit a profile of suspicious activity.
  - Security is often playing catch-up to hackers as new vulnerabilities are discovered and exploited.

HUMAN NATURE, MARKETS AND VULNERABILITIES OF THE INTERNET OF THINGS

- Competitive pressure spurs companies to develop products with insufficient thought or budget devoted to analyzing potential security risks and protecting against them
  - Databases included unencrypted credit card numbers and other security numbers read from the magnetic strips on the cards
- Retailer TJX used a vulnerable, out-of-date encryption system to protect data transmitted between cash registers and store computers on its wireless network
- More and more appliances and machinery—from microwave ovens to cars to factory machinery to heart monitors—are going online
  - An app allows a car owner to open his car from his phone
    - He sold the car, unregistered the car, but he discovered three years later he still had access to the car systems.

5.5 SECURITY

- Tools to help protect the digital world
  - Evolution of credit card fraud and protection
    - Simple low-tech crime – individual on a shopping spree with a stolen credit card
    - A group of airline employees stole new cards from mails transported on the airplanes
  - Credit card issuers instituted procedural change – require the customer to call to activate the card (SSN, mother's maiden name)
  - E-commerce – easier to steal and use credit card numbers to purchase without the physical cards
    - Thieves intercept the CC numbers in transmission from personal computer to websites.
    - Solution: Encryption and secure servers

SECURITY

- Credit Card Fraud
  - Thieves install recording devices (skimmers) inside card readers to collect card numbers, PINS of credit and debit cards.
    - They make counterfeit cards and raid people's bank accounts.
  - Fake ATM machines
    - Record card information
  - Solutions:
    - Companies run sophisticated AI software to detect unusual spending activity.
  - Credit card issuers and merchants make trade-offs between security and customer convenience.

SECURITY

- Credit Card Fraud
  - In recent years, companies care more about security. Responding to the high rate of fraud – they develop a smart card technology – EVM
    - Now most of the cards come with smart card chips – it is hard to fake the chip information than the magnetic stipe data
  - Apple Pay, Android Pay, and Samsung Pay use a near-field communication (NFC) technology that allows customer to simple pass a phone near the payment terminal.
    - The transaction is totally encrypted

SECURITY

- Encryption
  - The core internet communication protocol TCP/IP, does not encrypt data because it requires large computing power which was expensive when it was developed.
    - So government and business often do not use encryption sufficiently or appropriately
      - Unencrypted video feeds of US predator drones in Iraq
  - If you connect to free Wi-Fi without a password the connection and your are vulnerable.

SECURITY

- Anti-malware software and trusted applications
  - To assist nontechnical users to protect their devices
    - Looking for virus signatures
    - Monitor system for virus-like activities
  - Most OS manufacturers require that the software on the devices come from a certified developer.
  - Hacker's actions:
    - Hackers find new ways to circumvent the anti-malware software and the upgrades.
    - Hackers even forge digital certificates.

SECURITY

- Multifactor Authentication
  - Uncertainty in verifying a user only by a password or some biometric scan.
  - Many websites user multi-factor or two-factor authentication.
    1. Something you know – a password, PIN, or secret key phrase
    2. Something you are – a voiceprint, fingerprint, or retinal scan
    3. Something you have – a debit or credit card, smartphone, or fob
  - Multifactor authentication uses at least two items from different categories, e.g., swiping a debit card and entering a PIN, Speaking a unique pass-phrase etc.

SECURITY

- People who can help protect the digital world
  - Cybersecurity professionals – activities they perform:
    - *Protecting* systems and networks
    - *Testing* the security of existing systems and networks
    - *Investigating* security breaches
  - They strive to achieve three goals:
    - **Confidentiality** – ensuring data that should be private remain private
    - **Integrity** – ensuring data are not changed without authorization and are consistent over time and in sync with the real world
    - **Availability** – ensuring the system, services, and data are accessible when needed.

SECURITY

- Cybersecurity professionals – activities they perform:
  - Stay well informed about the technical aspects of hacking and the hacker culture
  - Read hacker newsletters
  - Participate in online discussions of hacking (often undercover)
  - Attend hacker conference
  - Maintain logs of chat channels hackers use
  - Set up *honey pots* – websites and servers that look attractive to hackers – to record or study activities of hackers.
  - Sometimes investigators can identify hackers because they brag about their exploits.

SECURITY

- *Computer forensics* (*digital forensics*) specialists can retrieve evidence from computers, even if the user has deleted files and erased the disks
  - Investigators trace viruses and hacking attacks by using ISP records and router logs
    - David Smith, the man who released the Melissa virus, used someone else's AOL account, but AOL's logs contained enough information to enable authorities to trace the session to Smith's telephone line
    - In 2011-2012, members of Anonymous and LulzSec were arrested in several countries

SECURITY

- Decision makers in businesses, organizations, and government
  - High level managers in business and government have a responsibility for setting policy that places a priority on security.
- Intruders broke into the email accounts of high-ranking government officials – advisor to president and head of CIA
- Published personal information of thousands of FBI agents and Department of Homeland Security officers.
- Hackers reach into NSA: offered NSA's own hacking tool for sale.

SECURITY

- Software designers, programmers, and system administrators
  - Principles and techniques for developing secure devices and software exits – software designers must learn and use them.
  - The Computer Emergency Response Team (CERT) developed coding standards for secure software development.
  - System administrators have professional, ethical, and often legal obligation to take reasonable security precautions to protect systems.

SECURITY

- Users
  - Users bear responsibility for some breaches.
  - Three password practices can help protect our own data and the systems we interact with:
    - Choose strong password
    - Change passwords periodically
    - Do not use the same password for multiple purposes
  - Mark Zuckerberg used the same password for LinkedIn, Twitter, and Pinterest – after the LinkedIn breach, someone took over Zuckerberg's Twitter and Pinterest accounts.
  - Remembering multiple complex password is difficult – another trade-off between convenience and security

SECURITY

- Hacking to improve security
  - Penetration testing
    - Even well designed programs operating safely for a long time have bugs and security flaws.
    - Security professionals run the pen testing assuming the role of a hacker to find vulnerability.
  - Responsible disclosure
    - Grey hat hackers (outsider) find security flaws
    - A responsible practice is to disclose the flaw privately
    - Some organizations such as Google, Facebook, and Microsoft offer rewards or "bounties" to people for privately disclosing vulnerabilities in their systems.

SECURITY

- Backdoors for Law Enforcement
  - Secure smartphones and messaging systems – whose content even their manufacturers cannot access revived an earlier debate.
  - Law enforcement agencies found that the new technologies are making the intercept of communication difficult – old wiretapping did not word anymore
  - FBI and other agencies pushed for backdoors in communications equipment.
  - Congress passed the Communication Assistance for Law Enforcement Act (CALEA) in 1994 for the backdoor.
  - Companies began offering products with strong encryption.

5.6 THE LAW

- The Computer Fraud and Abuse Act
- 1984 Congress passed the Computer Fraud and Abuse Act (CFAA)
  - Covers government computers, financial and medical systems, and activities that involve computers in more than one state, including computers connected to the Internet
  - Under CFAA, it is illegal to access a computer without authorization
- The USA PATRIOT Act expanded the definition of loss to include the cost of responding to an attack, assessing damage and restoring systems
  - It raised the maximum penalty in the CFAA for a first offense to 10 years
  - It increased penalties for hacking computers used by the criminal justice system or the military
  - It allows the government to monitor online activity of suspected hackers without a court order

THE LAW

- Unintended Applications
  - CFAA was intended for malicious and prank hacking – later applications of law illustrates how the impact of law can change with new technology and potentially criminalize common activities.
    - The lack of clear definition of "without authorization"
  - Many legal observers argue that prosecutors and judges apply the term "unauthorized access" in the CFAA too broadly.

THE LAW

- Criminalize Virus Writing and Hacker Tools?
  - Some law enforcement personnel and security professionals have proposed laws that make it a crime to write or post computer viruses and other hacking software.
  - A federal court ruled that software is a form of speech, so a law against hacking software or virus software might conflict with the First Amendment.

THE LAW

- Penalties for young hackers
  - Many young hackers have matured and gone on to productive and responsible careers
    - Steve Wozniak created the Apple computer. But before he was building Apples, Wozniak was building blue boxes, devices that enabled people to make long-distance phone calls without paying for them.
  - Temptation to over or under punish
  - Sentencing depends on intent and damage done
  - Most young hackers receive probation, community service, and/or fines
  - Not until 2000 did a young hacker receive time in juvenile detention
    - A 16-year-old that had broken into NASA and Defense Department computers and was a member of a hacker group that vandalized government websites.

5.7 WHOSE LAWS RULE THE WEB?

- When Digital Actions Cross Borders
  - The ILOVEYOU virus infected tens of millions of computers worldwide in 2000, destroying files, collecting passwords, and snarling computers at major corporations and government agencies
    - The prosecutors dropped charges against the Philippine man believed responsible
    - Should he be arrested if he comes to US?
  - Someone whose actions are legal in their own country may face prosecution in another country where their actions are illegal.
- Laws vary from country to country
  - For example, in the United States, the government may not appeal acquittals
- Corporations that do business in multiple countries must comply with the laws of all the countries involved.

WHOSE LAWS RULE THE WEB?

- Yahoo and French censorship
  - Display and sale of Nazi memorabilia illegal in France and Germany
  - Yahoo was sued in French court (1999) because French citizens could view Nazi memorabilia offered on Yahoo's U.S.-based auction sites
    - Legal issue is whether the French law should apply to Yahoo auction sites on Yahoo's computers located outside of France.
    - Yahoo said the use of filters to screen out Nazi material would not suffice, because they would be less than 50% effective and could not distinguish references to Nazis in hate material from references in The Diary of Anne Frank or Holocaust memorials
    - A few companies were already using software, called *geolocation software*, to figure out where website visitors were located.
      - But people could use anonymizers
  - Acquitted because the court decided that permitting the auctions was not "justifying" the Nazi crimes

WHOSE LAWS RULE THE WEB?

- Applying U.S. copyright law to foreign companies
  - A Russian company, ElcomSoft, sold a computer program that circumvents controls embedded in electronic books to prevent copyright infringement.
    - Program was legal in Russia, but illegal in U.S.
  - The program's author, Dmitry Sklyarov, was arrested when arrived in U.S. to present a talk on the weaknesses in control software used in ebooks
    - He faced a possible 25-year prison term
  - After protests in U.S. and other countries, he was allowed to return to Russia
  - The company stopped distributing the program when Adobe complained.

WHOSE LAWS RULE THE WEB?

- Arresting executives of online gambling and payment companies
  - An executive of a British online gambling site was arrested as he transferred planes in Dallas. (Online sports betting is not illegal in Britain.)
    - Most of the companies' customers were in the United States, where most online gambling is illegal
    - Carruthers, facing a possible 20-year jail sentence, pleaded guilty for a lower sentence.
  - Unlawful Internet Gambling Enforcement Act (2006) prohibits credit card and online-payment companies from processing transactions between bettors and gambling sites.

WHOSE LAWS RULE THE WEB?

- Libel, Speech and Commercial Law
  - Under defamation law, we can sue a person, business, or organization for saying something false and damaging to our reputations in print or in other media such as television or the Web.
  - *Libel* is written defamation; *slander* is verbal.
    - Michael Jackson won a libel suit against a British newspaper for a statement that his plastic surgeries "hideously disfigured" him.
  - In cases of libel, the burden of proof differs in different countries
    - Michael Jackson probably would not have won the suit in the United States because of freedom of speech
    - In England, people often sue newspapers, and it can be risky to publish details about business and political scandals
  - In the United States, the person who is suing has the burden of proving the case

WHOSE LAWS RULE THE WEB?

- Libel law as a threat to free speech
- Libel tourism
  - Traveling to places with strict libel laws in order to sue
  - SPEECH Act of 2010 makes foreign libel judgments unenforceable in the U.S. if they would violate the First Amendment. Foreign governments can still seize assets.
- Where a trial is held is important not just for differences in the law, but also the costs associated with travel between the countries; cases can take some time to come to trial and may require numerous trips.
- Freedom of speech suffers if businesses follow laws of the most restrictive countries.

WHOSE LAWS RULE THE WEB?

Discussion Questions

- *What suggestions do you have for resolving the issues created by differences in laws between different countries?*
- *What do you think would work, and what do you think would not?*

CULTURE, LAW, AND ETHICS

- Respecting cultural differences is not the same as respecting laws
  - Where a large majority of people in a country support prohibitions on certain content, is it ethically proper to abandon the basic human rights of free expression and freedom of religion for minorities?
- Governments often claim to be protecting national culture and values when they impose controls on their citizens to maintain their own power or to benefit special interests within their country.

INTERNATIONAL AGREEMENTS

- Countries of the World Trade Organization (WTO) agree not to prevent their citizens from buying certain services from other countries if those services are legal in their own.
  - The WTO agreement does not help when a product, service, or information is legal in one country and not another.
- Cybercrime Treaty (Budapest Convention on Cybercrime by the Council of Europe 2001)
  - International agreement foster international cooperation among law enforcement agencies of different countries in fighting copyright violations, pornography, fraud, hacking and other online crime
  - Treaty sets common standards or ways to resolve international cases
  - It requires countries to outlaw some formally legal activities
  - The non–Council of Europe states that have ratified the treaty are Australia, Canada, Dominican Republic, Israel, Japan, Mauritius, Panama, Sri Lanka, and the United States.

INTERNATIONAL AGREEMENTS

- Responsibility-to-prevent-access
  - Publishers must prevent material or services from being accessed in countries where they are illegal.
  - They may be sued or jailed in those countries if they do not prevent access.
- Authority-to-prevent entry
  - Government of Country A can act within Country A to try to block the entrance of material that is illegal there, but may not apply its laws to the people who create and publish the material, or provide a service, in Country B if it is legal there.