The preparation for A Cyber-Attack

The Cyber World

- Areas of concern
  - Cyber Espionage
  - Cyber Warfare
  - Cyber Crime
  - Cyber Terrorism

Targets and Motives

- Corporate
  - Types - DOS – SYN – ICMP – Port – DNS –
    - Trojans #1 attack and access method – over 79%
  - Thief –
    - Personnel info
    - Corporate info
  - Defacement
  - Takeover/control
  - Financial (directly)
  - Extortion
  - Revenge
  - Corporate or personnel image and reputation
- Individual/Personal – Yours and Family - entire Life
  - ……
- Governmental/Military
  - Secrets
  - Weapon Control
- Political, Religious……

Goals of Cyber - attacks

- Money
- Power
- Control
- Publicity
- Revenge
- Crackers
- Learning
- Future protection/Penetration testing
- Or Just to do it!

Data and data sources

- Intelligence
- Intelligence is lots of data –small pieces add up
  - Male/female
  - Initials to real name
  - Address
  - Residence
  - Work history
  - Type of system used
  - Weaknesses
- Where do you get data
  - Social networks
  - Stolen items –RFID's, laptops, wallets, papers(trash)
  - Shoulder surfing – looking over someone's back
  - Phishing
  - Personally from employee or target person, internal mole

What is needed for a cyber attack

- Goal – Reason for attack – end desire
- Intelligence
  - Lots of data
  - Information
- Five steps in an attack
  - Reconnaissance
  - Probing
  - Actual attack
  - Maintaining presence
    - To continue original attack desired effect
    - To allow for future attacks
      - continued surveillance
      - Light footing
  - Covering attack track
    - How it was done
    - Access point
    - Residual for future or continued access

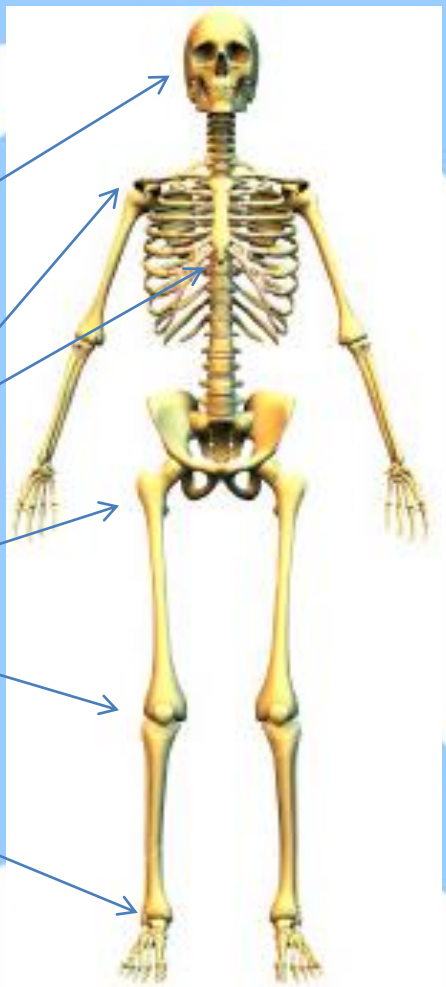
Information – many sources

OLX

facebook

Hooking the bones together!
Small easily found data!

- Small things hook big part together
  - Ligaments for human bones
  - Data for the cyber anatomy of the target
- Little items lead to big information
  - A family member
  - A phone number
  - A license plate
  - House street, number
  - Travel info
  - Pet info, friends info….etc
  - More small pieces of info – best place to



Data for Personal attack

- The Eight piece puzzle for personal ID thief (Impersonation)
  - Full Name
    - Including Spouse full info
  - Address
    - Current
    - Last known
  - Dependents and ages
    - Birth dates
  - Phone Numbers
  - Education
    - High School
    - College
    - Trade
  - E-mail – already hacked
  - Current employee
- Any of theses –
  - Social security – Drivers license – DOB and place – Hobbies – Family info

- **<u>the average CV/resume contains all of these</u>**
- **<u>Note: CVs can be easily obtained through fake recruitments</u>**

Data and info source tools

- Why not attack the server and clients
- Tools for Inside and outside exploits/data
  - Nmap – Top line scanner and exploit viewer
  - Nessus – Access Scanner
  - Nikto 2 – Web Scanner
    - Scripts as well as most applications
  - Armitage – Metasploit tool – good and bad
  - Hashcat – Password digger
  - WiFite – Wireless configuration tester
  - Wireshark – packet capture and analyzer
    - T-Shark – automated
      - With SNORT
  - SET – Social Engineering Toolset
    - Easy to use Human attack tool kit
  - MANY MORE – focused to general
    - OWASP, pMap, WIFI password dump, iSafe **Keylogger**, AFF…etc
    - Estimate over 1000 different tools for any OS
    - More to exploit Internet places – Facebook, Linkedin…..etc

Attack data and access sources

- Old Media attacks
  - Café wifi
  - School networks
  - Guest networks at corporations
  - Airplane and airport wifi
- New targets
  - 3 and 4 G networks
  - Public WLANs
  - Corporate tunnels
  - The cloud
  - WiFi everywhere
  - Cell phone and tablet platforms
  - WLAN's
  - Physical attacks - Botting – Keyloggers(very common among financial institutions) - BIOS - Firmware
- DO NOT RULE OUT – PHYSICAL ACCESS

Problems-the why

- Four Top Trends in cyber world
  - Increase in Business Networks complexity
    - Bigger networks
    - Lack of visualization to recognize attacks and ploys
    - Less trained network employees
  - Increasing criminal Motivation
    - More money on the net
  - Increasing commoditization of weapon focused software
    - Hack for pay
    - Tools to hack for pay
    - Including specialized attack methods and support
  - Lack of user knowledge
    - More users
    - More access methods
    - No training
  - IPv6 or more accurately the push to transition from IP Before

Cyber Warfare – Enemies and targets

- Top enemies – Espionage – Attacks - Communications
  - China, Iran, North Korea
    - country sponsored and organized terrorism
  - Islamic terrorists and others
    - Recruitment
    - Training
    - Coordination of attacks
  - Thrill seekers and for hire threats
  - Political sympathizers for radical causes
    - Recruitment
    - Training
    - Message marketing
- Targets
  - Nuclear plants
    - Any automated production including Gas, oil…etc
    - SCADA is a hot target – Low tech and isolation has been its best protection
  - Military
  - Monetary system
  - Citizen communications platform
    - Internet
    - Cell
    - Emergency services

Types of Cyber - attacks

- Types of Warfare attacks
  - Combination of any and all
    - Cyber and Physical
  - Nuclear
  - Military Command and control
    - Turn our weapons on us
  - Confusion
  - Social attacks
  - Monetary
    - Stock markets
    - Brokers
    - Federal Reserve
    - Banks
  - Probe attacks for potential all out warfare
    - One day they shut down everything
    - No money, no food production, no oil, no natural gas, no power
    - NO COMMUNICATIONS – TV, Radio, phones, cell, satellite
      - We have no back up communications
      - No POTS – Ham radio MAY be the only long range communications platform

Review

- The Anatomy of an attack
  - Rational and reason for an attack
    - Just $
    - Revenge…etc
  - Lots of data gathering leads to information leads to Intelligence about target or targets
    - To gain focus
  - Small probing attacks
    - Vulnerability check
      - Network, Servers, Applications, Users
  - Final Plan
    - Target
    - Method
    - Outside influences
  - The Attack
    - Small nibble
    - Persistent threat
    - All out Cyber Attack
    - Cyber and Physical
  - The retreat plan
    - All out with no trail or diversion trail
    - Back door or other malware let behind
    - Knowledge of weaknesses
  - The future attack plan or drain of information, money or access to a deeper attack

End

The reality is that we will be attacked – Not IF but When!

There is no real end in sight, as long as there are cyber criminals, warriors and attacks!
The future will be 100% CYBER WARFARE in all of its forms!