Malware

Botnet and DDoS

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Malware

- A set of instructions or a software to enter into a user computer without the users permission.
- Spyware, botnet, DDos, Crimeware, Badware, Trojans, Worms etc.
- It is not a bug or defect of a software program.
- Often comes with adware, freeware or music files , spam.

What it does ?

- Change the system settings.
- Installs unauthorized dialer.
- Installs Keystroke logger.
- Captures personal information.
- Use the computer resources.

Botnet

- A Botnet is a network of trojanized computers,reporting to and commanded via a MasterServer.
- Group of computers compromised without owners permission.
- Controlled and upgraded via IRC or P2P.
- Operated under a single hacker
  - Botmaster

- Used as the platform for various Attacks :

- DdoS (Distributed Denial of Service) attacks,
- Social engineering and related e-mail spamming,
- Remote exploits, or via keyloggers and network traffic sniffers.

Botmaster

- Control botnet in three ways:
  - Centralize:
    - Advantage :
      - -Most popular method.
      - - Support larger number of bots
    - Disadvantage :
      - - Single point of failure

- -Peer to Peer
  - -Dont rely on single server.
  - -Smaller group of bots.
- -Random
  - -Not implemented in real world.

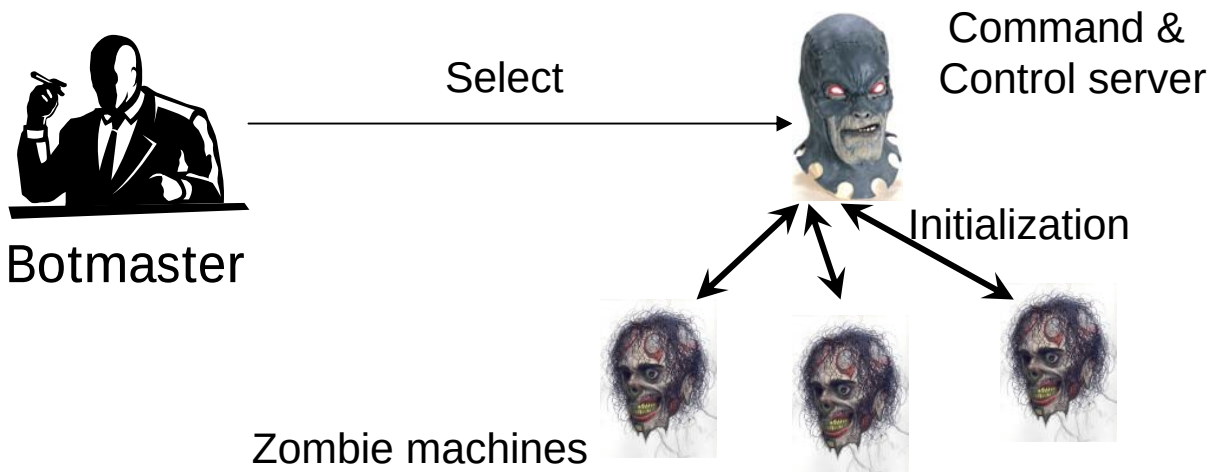
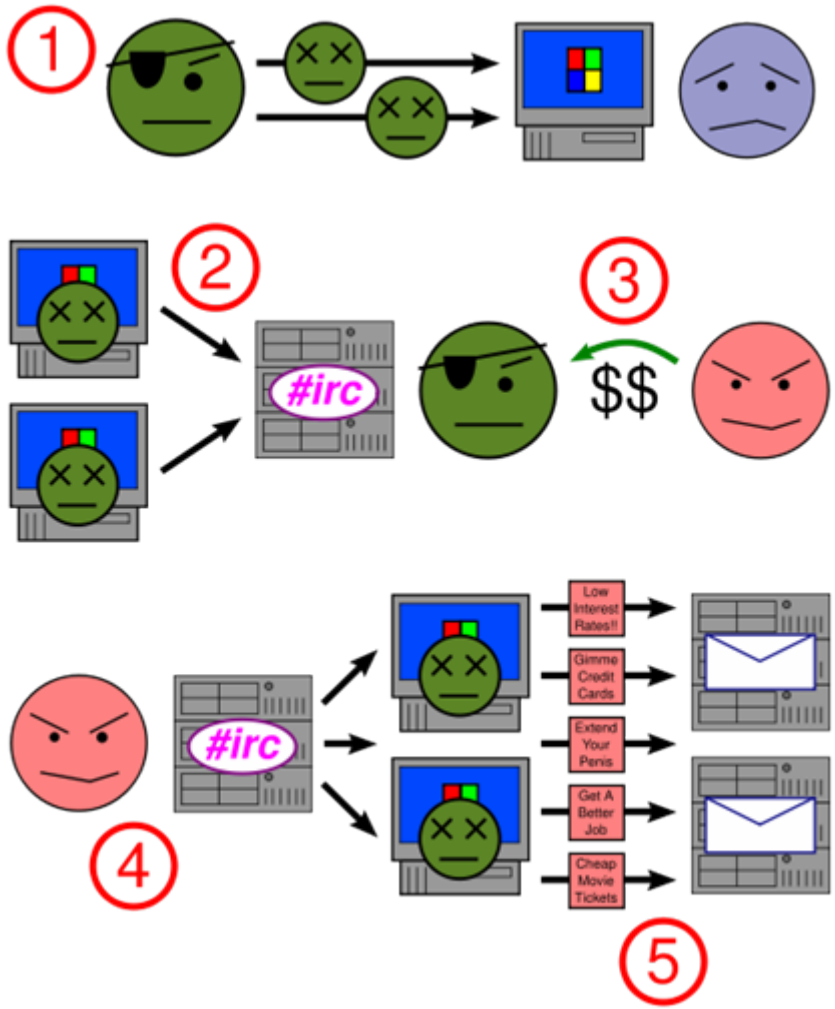


Figure :Centralize Method

Creation of Botnet and send spam Mail



Modern Bots

- Modern bots: Agobot (PhatBot, SDBot), GTBot.
- Agobots :
  - -20,000 lines of C/C++ code
  - -IRC-based command and control
  - -Capable of many DoS flooding types

How to Prevent

- Two Fold Protection

  - From the “inside” to be immune to:
    – Data exfiltration

  - From the “outside” to be immune to:
    – Intrusion
    – DoS attacks

Protecting from bots inside the corporate network

- Firewall rules should be appropriate.
  - Break **communication** to the **master server**
  - **Default rule** for both inbound and outbound connections: **Deny**
  - Allow important **services** for outbound connections (e.g.:HTTP, SMTP, SSH)
  - **Enforce** the use a **HTTP proxy**, so that port 80 is closed for users.
  - e.g. W32/Dumador.DH is a “full HTTP” bot

Protecting from bots inside the corporate network (Cont'd)

- Sniffing outbound traffic on the gateway for **keywords** used in Bot/Master communications:
  - .login
  - .scan
  - .status
  - .sysinfo
- Set up a **DNS redirection** to an in-house **honeypot** for blacklisted bot master servers => unveil the infected hosts

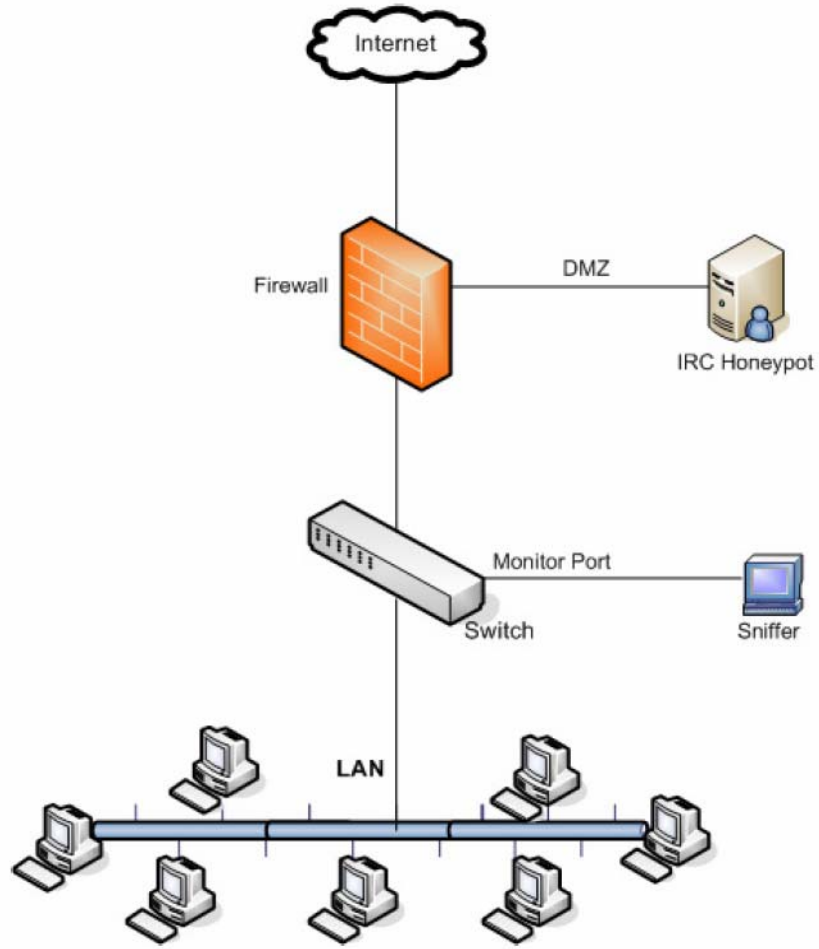
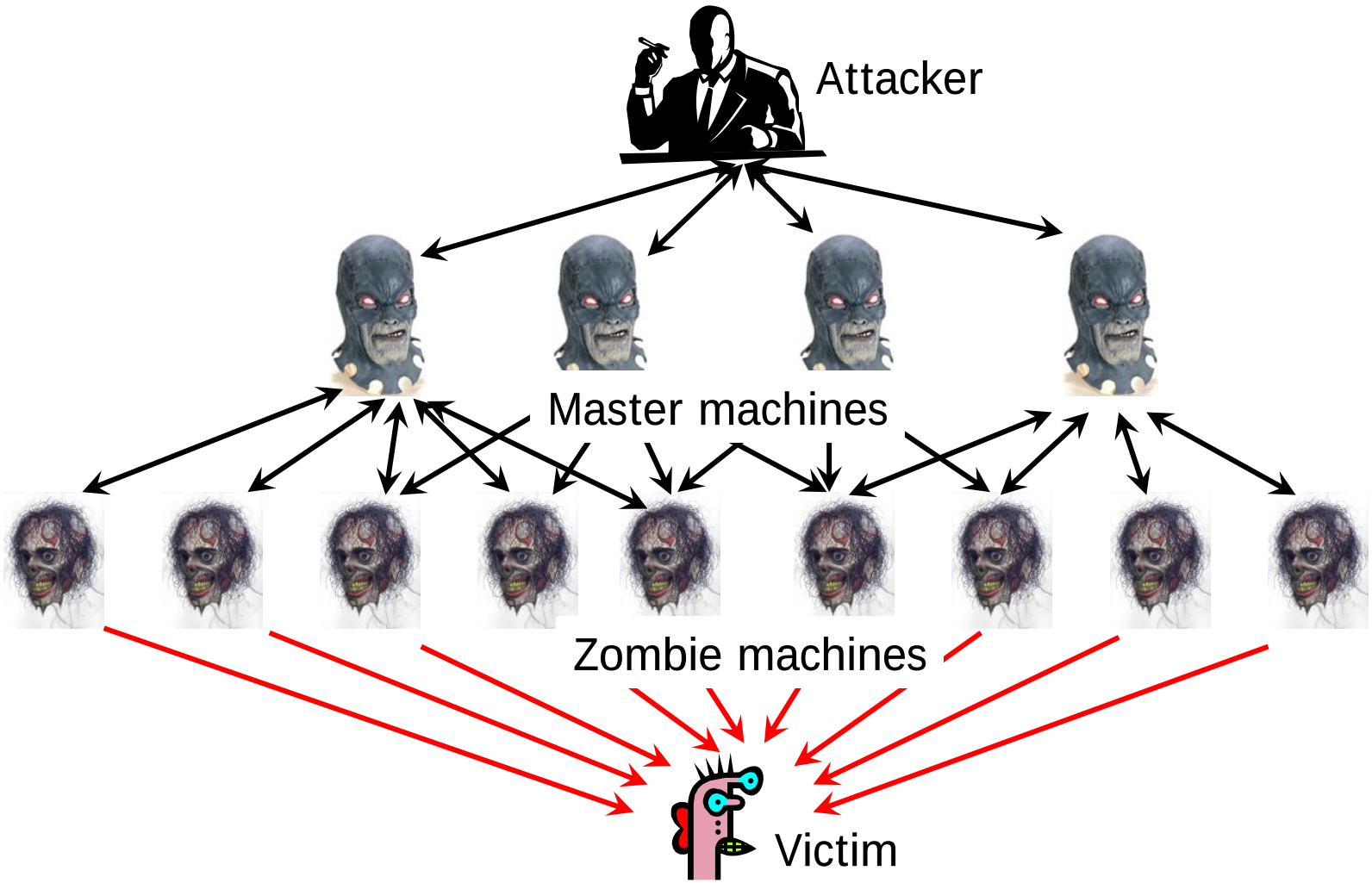


Figure 5: Network topology placing the IRC honeypot in the DMZ

Distributed Denial of Service (DDoS)

- Build a botnet of zombies
  - Multi-layer architecture: use some of the zombies as “masters” to control.
- Command zombies to stage a coordinated attack on the victim.
- Overwhelm victim with traffic arriving from thousands of different sources

DDoS Architecture



Some Advices

- Do not click on pop-up advertisements.
- Do not open e-mails from unfamiliar or questionable sources.
- Do not propagate personal information, such as Social Security number, passwords, usernames
- Download software programs that come from reputable sources.
- Install a good anti-virus product, with lates updates.

Discussion and Question !!