

**Copyright Licence:** is where the creator is allowed to get money for his work.

**Copyleft Licence:** is a group of licences that allow copy and redistribution of work but under same copyright terms as original work. Eg: so if original open source then the derivative must be open sourced

- **GPL:** which linux is under and the characteristic are EG: *Linux*
  - Freedom to run any programs
  - Study how prog works and adapt to your need
  - Can redistribute the software
  - Improve program and release to public with same GPL licence applied
- **Creative Commons:** Non software licence EG: Wikipedia
  - Improve program and release to public with same Creative commons licence applied
  - Variations- Non-commercial, no derivate cost etc..
  - Improve program and release to public with same GPL licence applied

**Permissive Software License:**

- **BSD:** Anyone take code or software and they can make money eg apple ios taken from past EG: *IOS*
  - Must Include BSD banner + can't use original creator bsd product to endorse your derivate version
- **Apache:** same as BSD can take and adapt code and sell but this has more terms and conditions and must include banner
- **MIT:** Do whatever you like as long as you display MIT logo

**Public Domain:**

- After certain number of years become public when copyright expires. (books)

DNS: Domain Name System

- The IP addresses identifies devices on network. Addresses change when you change geographic location
- IP addresses are given one or more **DNS is a system that convert domain names to IP addresses.**

Structure of Internet Domain Name System:

- Root: harded coded so it knows. Manages request for top level domains

- Top level Domains (.com .eu)
- Second level Domains (Microsoft, google): contains a list of ip addresses and matching url/
- Third level Domains: Sub domains
- DNS of name of computer

DNS look up Steps:

- When host types in URL computer sends domain name to local DNS and it expects IP addresses of domain. (if its not already known). **It doesn't know**
- Local server asked **root server** where url is (hard coded so it knows). It doesn't know but it knows .com name server sends
- Local server ask **Top level domains** for .org .com it doesn't know it sends
- Local server ask **second level domain**, which gives IP addresses.
- Local dns passes Ip addresses back to host.
- HTTP packet can be made by host and send request

**Denial of Service Attacks:**

- Use a software to identify computer with open ports so that can be compromised
- Install malware or virus on the compromised computers that can be used to remotely use computers -BOTNET
- Someone will use the botnet set up and they will pay them to use botnet. (send spam + DDOS + DNS amplification)

**DDOS:** use computers to request resources from paypal and the hope is that there is so many request that legit users will not be responded to. Because request overloaded.

**DNS amplification:**

- Use open dns resolvers they respond to any dns request. ISP of compromised computers don't check ip addressed being sourced.
- Spoof IP address of paypal and send request to open DNS server of paypal. Pick request that have response are very large. Responses go back to paypal not the spoofed paypal.

Prevent from using spoofed up addresses isp to prevent

Placing scripts in usr/bin/ allows scripts to be executed from any directory

**Active directory:**

Active directory is a software created by Microsoft that deals with security and permissions of users on a network. The software allows for the delegation of permissions for users. The software makes the process of delegating certain permissions for users easier. Active directory also is a database that stores users accounts and passwords and permissions associated with them. It is useful for large businesses because you can create security

groups, add policies, and add a group of users to the groups instead of adding different permissions to accounts one by one

### **Risc (ARM) vs CISC (x86):**

The x86 and Arm are different types of cpu standards.

- For Arm it is a Risc (reduced instruction set computing) meaning that the architecture is not for performance compared to x86.
- But the ARM tends to be more power efficient compared to x86 because with ARM it executes simple instructions and the hardware is optimised for them.
- For x86 generally executes more complex instructions, which takes more power.
- Another difference is to do with the philosophy. The Risc (ARM) goal is to reduce the amount of transistors needed for operations.

Different methods of providing server/Different types of servers:

- **Bare Metal:** (Physical Server):
- **Local Virtualisation:** (Eg Virtual Box, VMWare):
- **Cloud Based Services:** (Eg Amazon EC2):

