Problem 3: The branch office

- Design IP scheme for new branch

- Parent block :- 172.16.20.0/22

Requirements :-

- Servers 100 IP addresses
- Engineering 250 IP address
- Management 12 IP address
- WAN Link 1 - 1 IP address
- Backup WAN Link 2 - [redacted] 1 IP address

Task :- Create the final IP allocation table.
- Show your work for how you chose the CIDR
- In correct order

- Total of 3 VLANs
  - Servers
  - Engineering
  - Management
- 2 other networks
  - WAN1
  - WAN2

Engineering – 250 IP

So Lets take 256 block

- 172.16.20.0/24
  - Hosts = 256
  - Future growth = 256 X 1.5 = 384

Then lets choose 512 block.

- 172.16.20.0/23
  - Subnets = ?
  - Hosts = 512

Engineering - 172.16.20.0/23.

Servers - 100 IP X 1.5 = 150 IP future

for 150 = 256 block

Servers - 172.16.22.0/24

Management - 172.16.23.0/28

Parent block- 172.16.20.0/22

Subnet mask - 255.255.248.0

No. of subnet - Belongs to class C, so /16 - /22 = /6 = 64

No. of hosts - 2^n, where n = remaining host bits, = 2^{10} = 1024

No. of usable IP - 1024 - 2 = 1022

IP Table

Departments and Links	Network ID	IP Range
Engineering	172.16.20.0/23	172.16.20.0 — 21.255
Servers	172.16.22.0/24	172.16.22.0 - 255
Management	172.16.23.0/28	172.16.23.0 - 15
WAN Link 1	172.16.23.16/30	172.16.23.16 - [redacted] 19
WAN Link 2	172.16.23.20/30	172.16.23.20 - 23