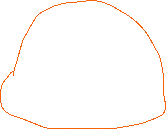
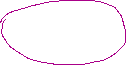
A diagram of a computer network

Description automatically generatedA close up of a number

Description automatically generated



Network: 192.168.128.0/17 🡺 (32-17) = 15 bits for hosts 🡺 2^15 hosts

Mask:255.255.128.0

LAN1:1024 hosts

LAN2: 15 hosts

LAN3:56 hosts

LAN4: 100 hosts

N345: 3 hosts

N46: 2 hosts

N67: 2 hosts

N(hosts/ip addresses) + NA + 1 router + BA

-LAN1: 1024+3 = 1027 < 2048 = 2^11 🡺 11 bits for hosts 🡺 mask = (32-11) = /21

-LAN2: 15+3 = 18 < 32 = 2^5 🡺 5 bits for hosts 🡺 mask = (32-5) = /27

- LAN3: 56+3 = 59 < 64 = 2^6 🡺 6 bits for hosts 🡺 mask = (32-6) = /26

- LAN4: 100+3 = 103 < 128 = 2^7 🡺 7 bits for hosts 🡺 mask = (32-7) = /25

-N345: 3+2 = 5 < 8 = 2^3 🡺 3 bits for hosts 🡺 mask = (32-3) = /29

-N46: 2+2 = 4 < 4 = 2^2 🡺 2 bits for hosts 🡺 mask = (32-2) = /30

-N67: 2+2 = 4 < 4 = 2^2 🡺 2 bits for hosts 🡺 mask = (32-2) = /30

Masks:

/21 = 255.255.248.0

/25 = 255.255.255.128

/26 = 255.255.255.192

/27 = 255.255.255.224

/29 = 255.255.255.248

/30 = 255.255.255.252

Network addresses+ broadcast addresses:

-Lan1 : NA = 192. 192.168.128.0/21

BA = 192.168.128.0 + 2048-1 = 192.168.1000 0000 0000 0000 + 0000 1000 0000 0000 -1 =

=192.168.1000 0000 0000 0000 + 0000 0111 1111 1111 = 192.168.135.255

* Ip range: 192.168.128.0 – 192.168.135.255

-Lan2: NA = 192.168.136.0 /27

BA = 192.168.136.0 + 32-1 = 192.168.136.31

* Ip range: 192.168.136.0 – 192.168.136.31

-LAN3:

NA = 192.168.136.32/26

BA = 192.168.136.32 + 64 -1 = 192.168.136.95

* Ip range: 192.168.136.32 – 192.168.136.95

-LAN4:

NA = 192.168.136.96/25

BA = 192.168.136.96 + 128 -1 = 192.168.136.223

* Ip range: 192.168.136.96 - 192.168.136.223

-N345:

NA = 192.168.136.224/29

BA = 192.168.136.224+8-1 = 192.168.136.231

-N46:

NA = 192.168.136.232/30

BA = 192.168.136.235

-N67:

NA = 192.168.136.236/30

BA = 192.168.136.239