UD11. Internet

Layer TC02

Desarrollo de Aplicaciones Web

1er Curso

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Internet layer

1. IP Address v4

2. Network Mask

3. Classes of IP address

4. Public and private addresses
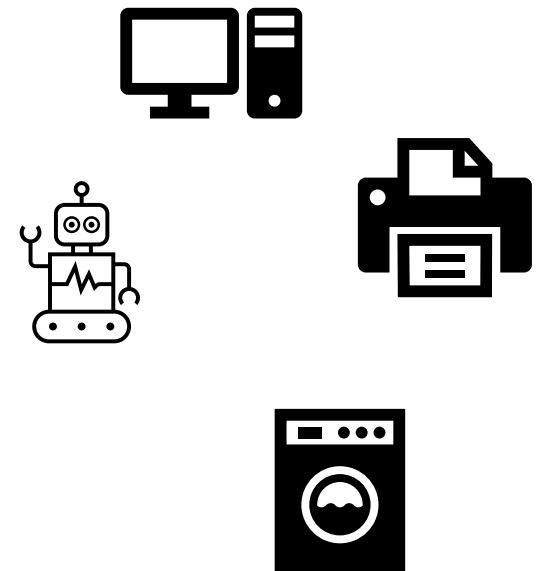
5. Subnetting

IP Address v4

4 parts (octets).

1 byte each octet.

Total=32 bits

129.170.1.56

10000001.10101010.0000001.00111000

Network Mask

Used to divide an IP address into two parts:

- the host (computer, printer, etc)

- the network to which it belongs

192.168.23.45 AND **255.255.255.0** (bit per

bit) = 192.168.23.0

Therefore, **192.168.23**.**45**

network id   **host id**

Network Mask: CIDR notation

Number of ones, from MSB to LSB

- **/24** → 255.255.255.0

- **/11** → 11111111.11100000.00000000.00000000 →

  255.224.0.0

- **/25** → 255.255.255.10000000 → 255.255.255.128

Network Mask. Perform the and operation.

123.199.23.1

255.255.224.0

80.90.100.110

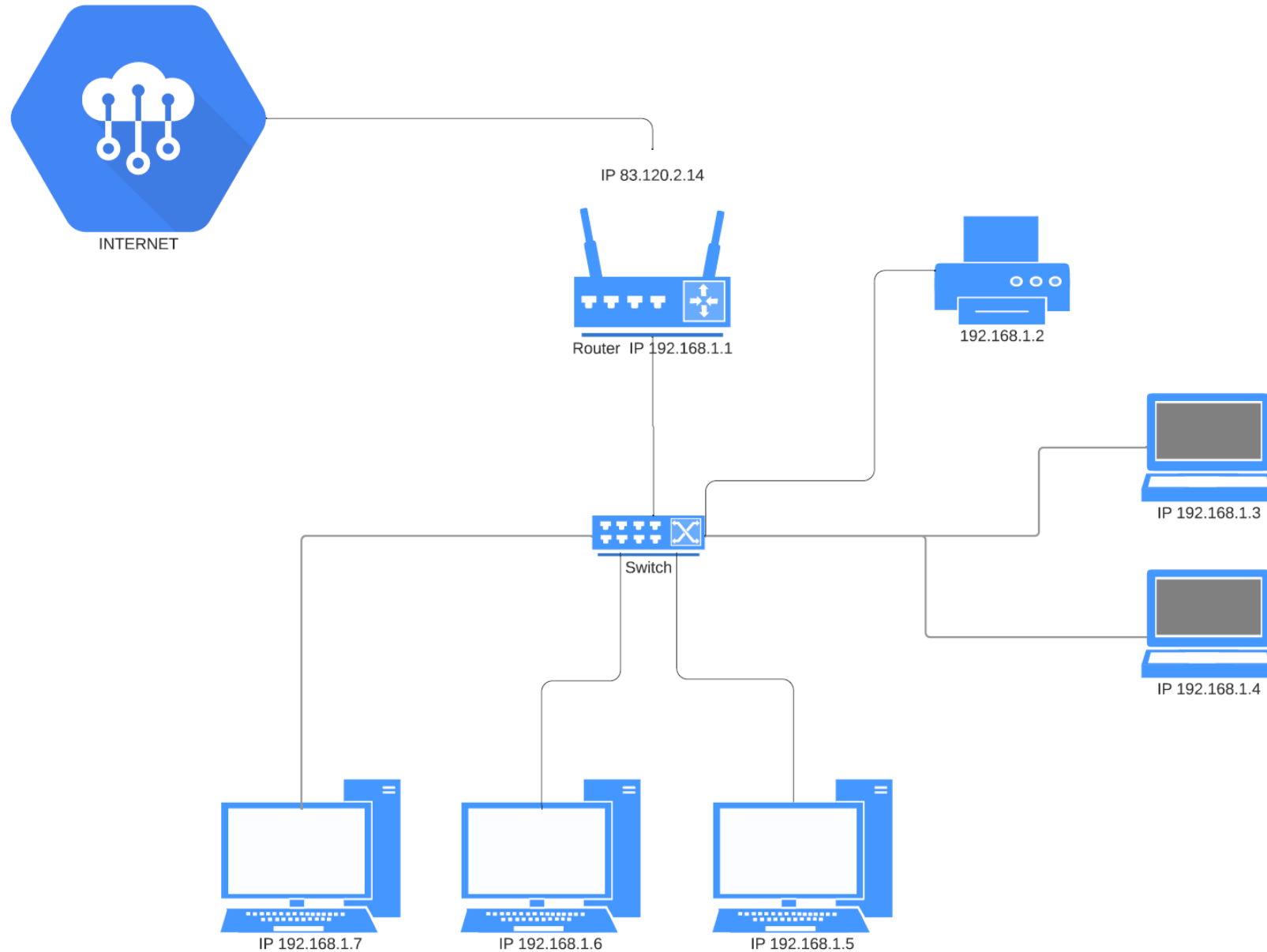255.128.0.0

200.64.32.8

255.255.255.128

Classes of IP

Class A networks, default subnet mask of 255.0.0.0 (/8), and have 0-127 as their first octet

Class B networks, default subnet mask of 255.255.0.0 (/16), and have 128-191 as their first octet.

Class C networks, default subnet mask of 255.255.255.0 (/24), and have 192-223 as their first octet.
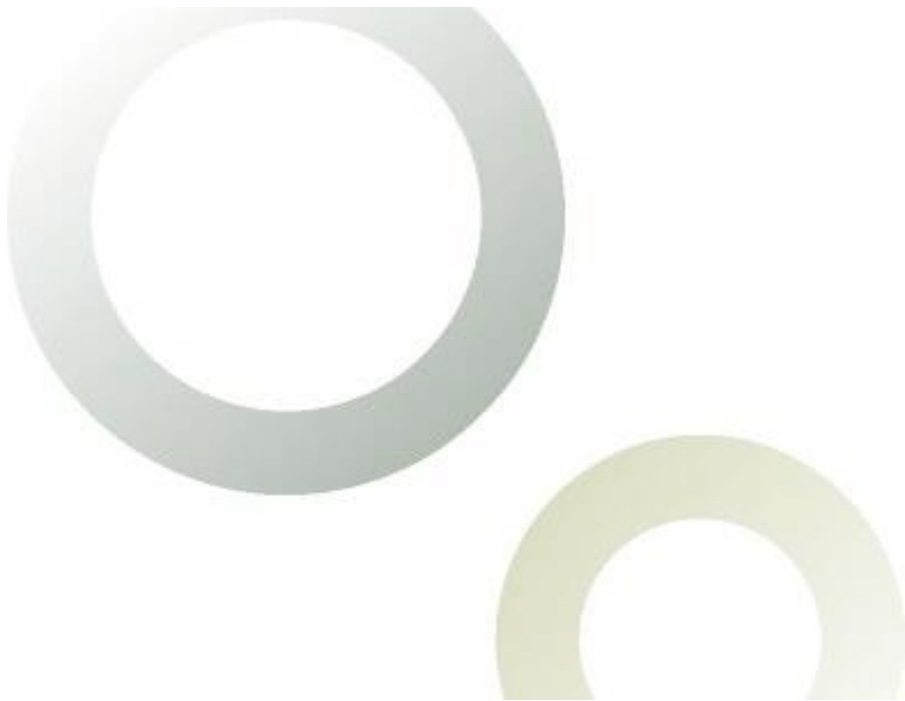
Private and public IP addresses

INTERNET

IP 83.120.2.14

Router IP 192.168.1.1

192.168.1.2

IP 192.168.1.3

IP 192.168.1.4

Switch

IP 192.168.1.7

IP 192.168.1.6

IP 192.168.1.5

Subnetting

- ISP provider assigns the network address

  192.168.32.0.

- We need to divide it into 2 subnets.

Subnetting

Examples

Examples