Networking & Content Delivery

Amazon Web Services

Networking & Content Delivery

- Introduction to IP Addressing and On-Premise Networks
- Amazon VPC
- AWS Direct Connect
- AWS CloudFront
- API Gateway
- AWS Cloud Map
- Global Accelerator

IP Addresses and Port Numbers – Part 1

Amazon Web Services

What is an IP Address

- An IP Address stands for Internet Protocol Address.
- A unique string of numbers separated by full stops that identifies each computer using the Internet Protocol to comm

Internet Protocol

192.168.4.2

IPv4 Address

Lets Talk Mobile Phones…

Mobile Network Provider

5G

Register on the mobile network

Phone No: *xxxxxxxxxx*
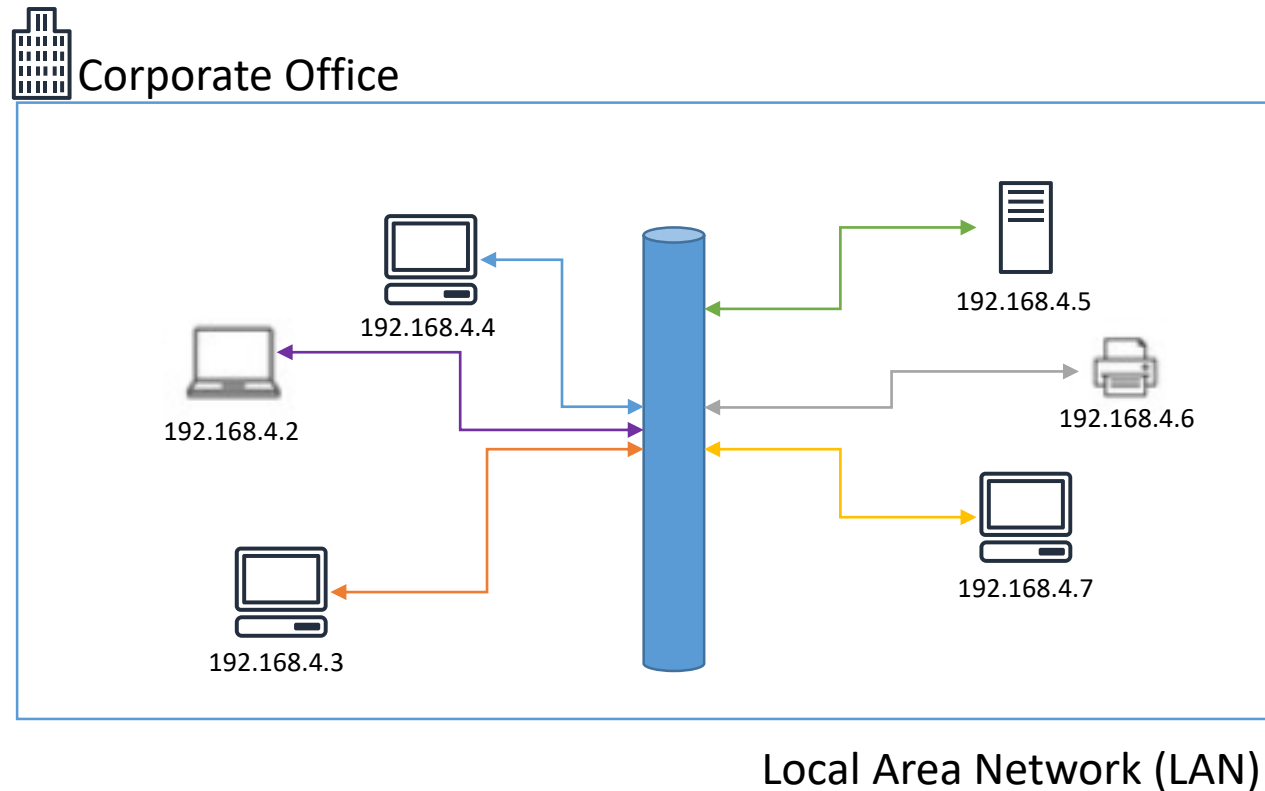
Lets Talk Mobile Phones…

What is an IP Address

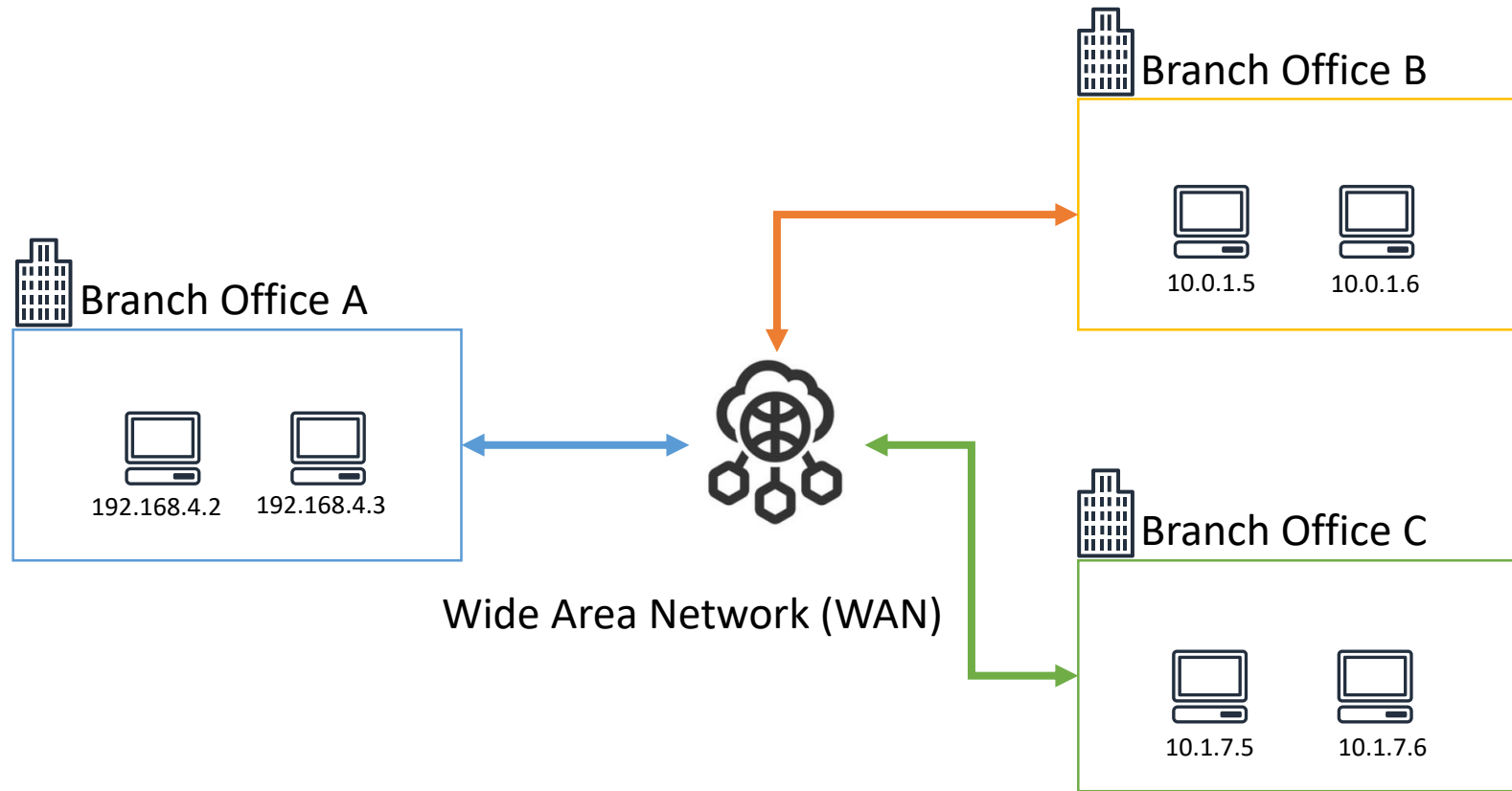Computers use IP Addresses to communicate with each other...

ACADEMY

What is an IP Address
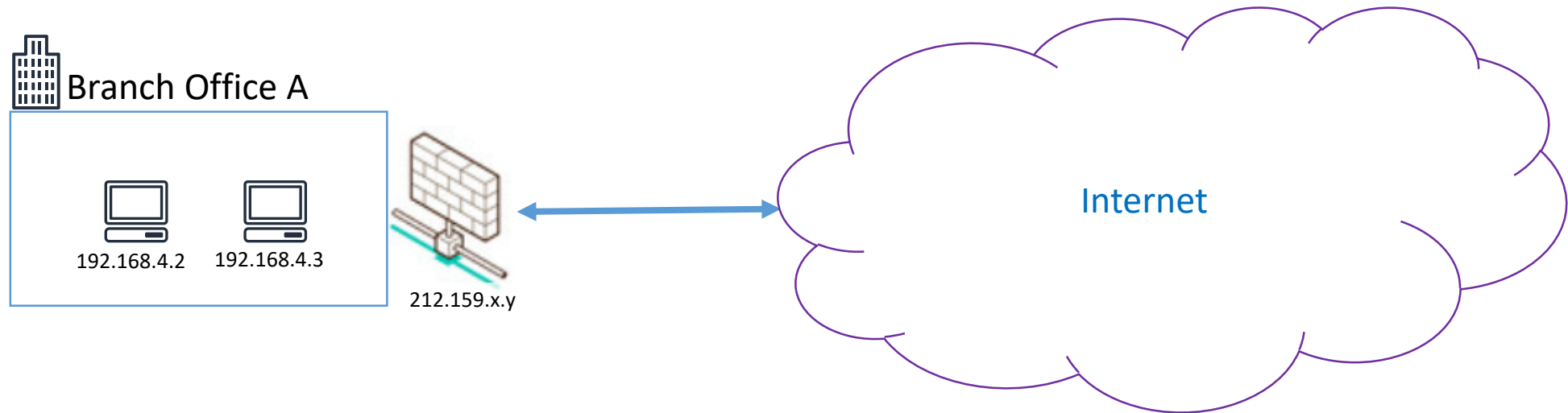
... and to participate in a network.

Corporate Office

192.168.4.4

192.168.4.5

192.168.4.2

192.168.4.6

192.168.4.3

192.168.4.7

Local Area Network (LAN)

What is an IP Address

... and to participate in a network.

Branch Office B

10.0.1.5   10.0.1.6

Branch Office A

192.168.4.2   192.168.4.3

Wide Area Network (WAN)

Branch Office C

10.1.7.5   10.1.7.6

What is an IP Address

... and to communicated on the Internet

Branch Office A

192.168.4.2   192.168.4.3

212.159.x.y

Internet

How are IP Addresses assigned?
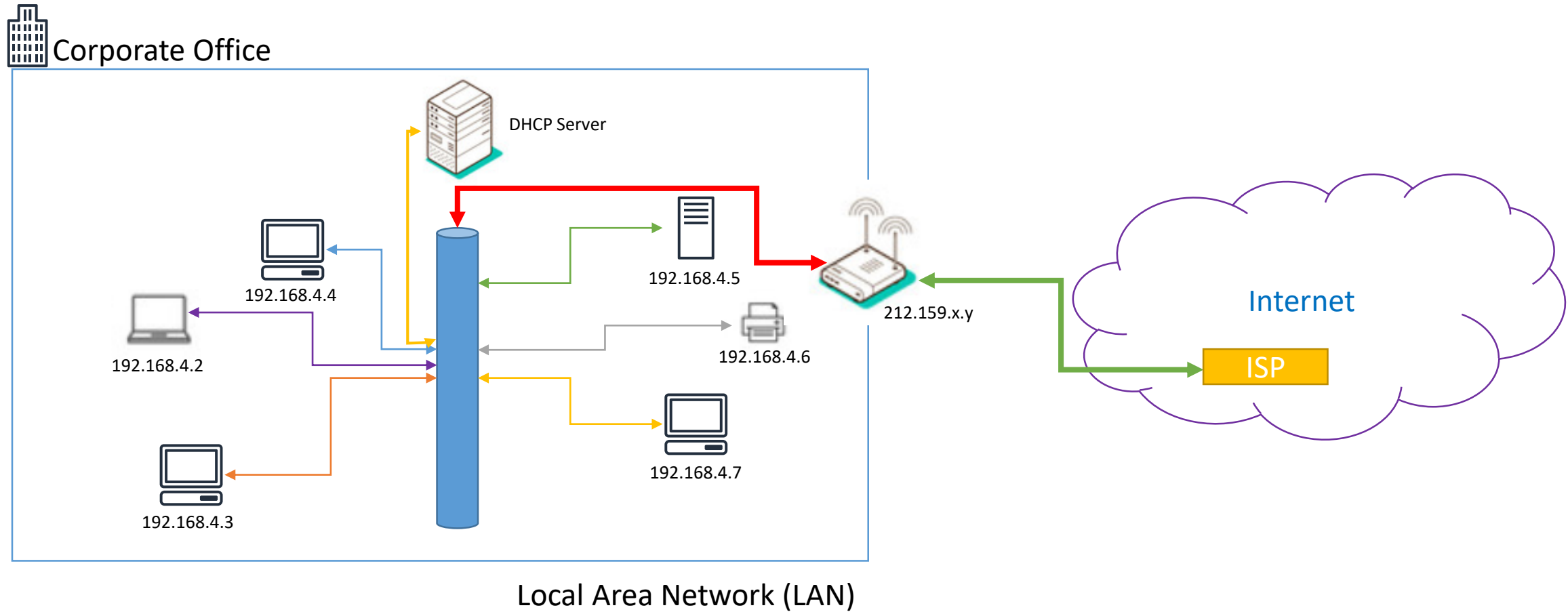
Versions of IP Addresses

Two Versions of IP Addresses

192.168.4.2   2001:0db8:85a3:0000:0000:8a2e:0370:7334
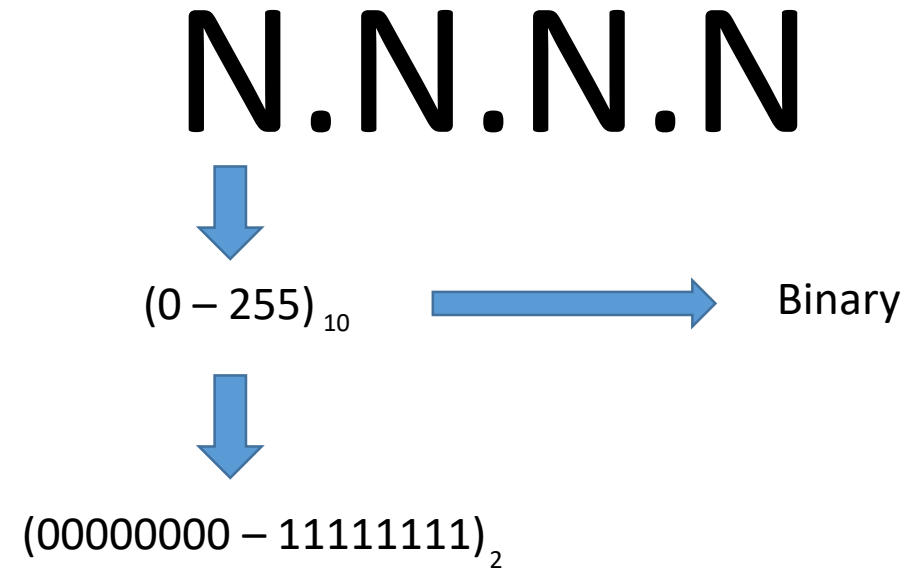IPv4 Address   IPv6 Address
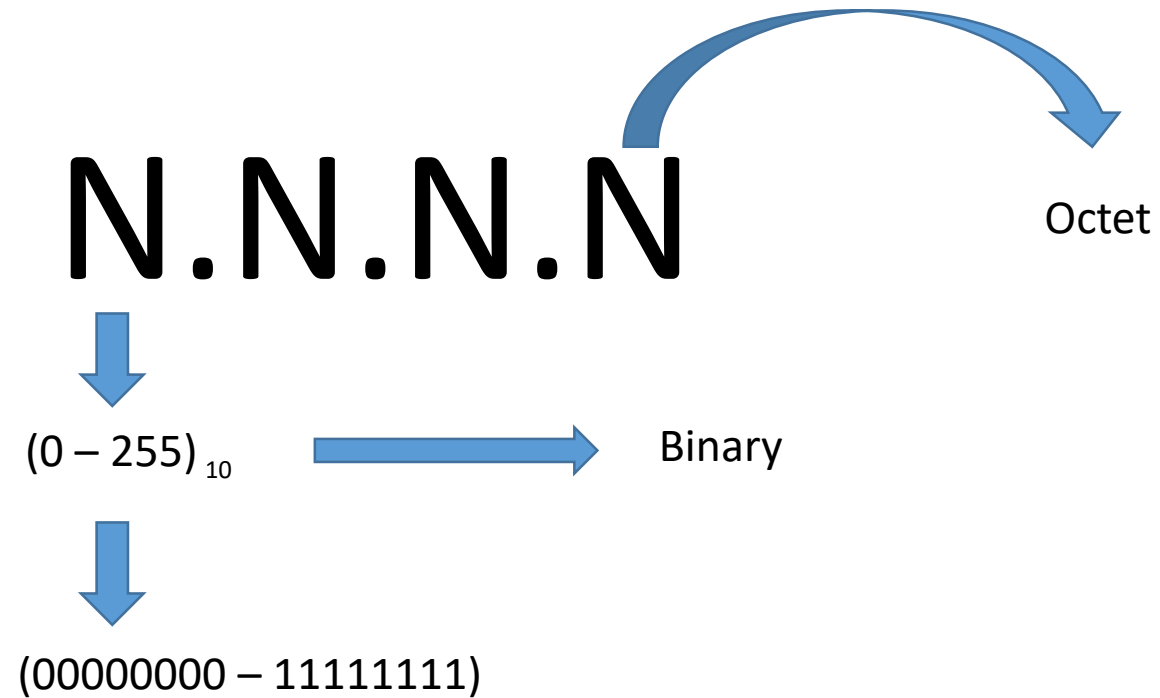
IPv4 Address
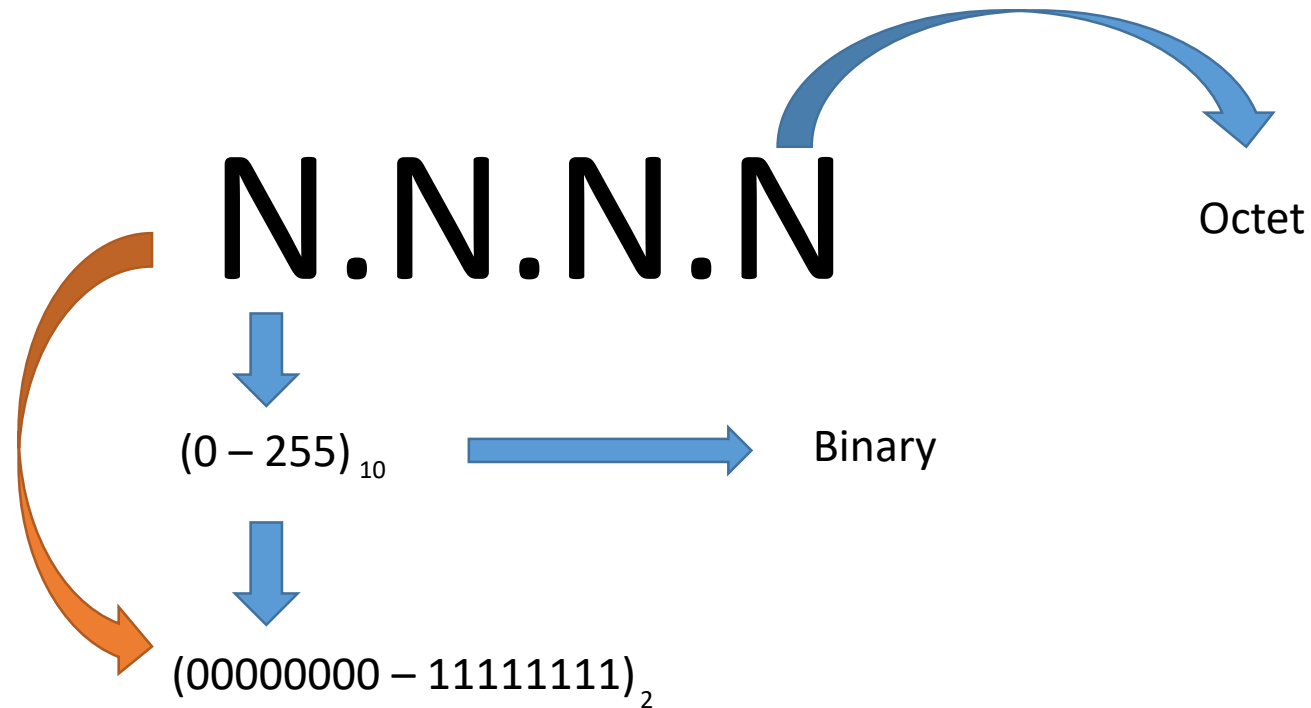
The IP Address Format

N N N N

The IP Address Format

N.N.N.N

$(0 - 255)_{10}$ → Binary

$(00000000 - 11111111)_2$

IPv4 Address

The IP Address Format

N.N.N.N

Octet

(0 – 255)$_{10}$ → Binary

(00000000 – 11111111)

The IP Address Format

N.N.N.N

Octet

$(0 - 255)_{10}$ → Binary

$(00000000 - 11111111)_{2}$

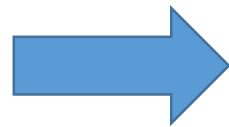ACADEMY

IPv4 Address

The IP Address Format

N.N.N.N ➡ xxxxxxxx.xxxxxxxx.xxxxxxxx.xxxxxxxx

Where X is '1' or '0'

IPv4 is a 32 Bit Address

Client

2^{32} = 4,294,967,296 Devices on the Internet

IPv4 Address

The Problem with IPv4 32Bit Address

Only 4,294,967,296 Devices on the Internet

IPv6 Address

The IPv6 Address Format is a 128 Bit Address

An IPv6 address   (in hexadecimal)

2001:0DB8:AC10:FE01:0000:0000:0000:0000

2001:0DB8:AC10:FE01::   Zeroes can be omitted

0010000000000001:0000110110111000:1010110000010000:1111111000000001:

0000000000000000:0000000000000000:0000000000000000:0000000000000000

IPv6 = 128 '1' and '0'

2^{128} (exactly
340,282,366,920,938,463,463,374,607,431,768,211,456)

Next Video

IP Addresses and Port Numbers – Part 2