

SNS COLLEGE OF TECHNOLOGY



Coimbatore-35 An Autonomous Institution

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECE308- WIRELESS TECHNOLOGIES FOR IOT

UNIT 2 - ARCHITECTURE AND DESIGN PRINCIPLES FOR IOT

TOPIC 5 - IP ADDRESSING IN THE IOT

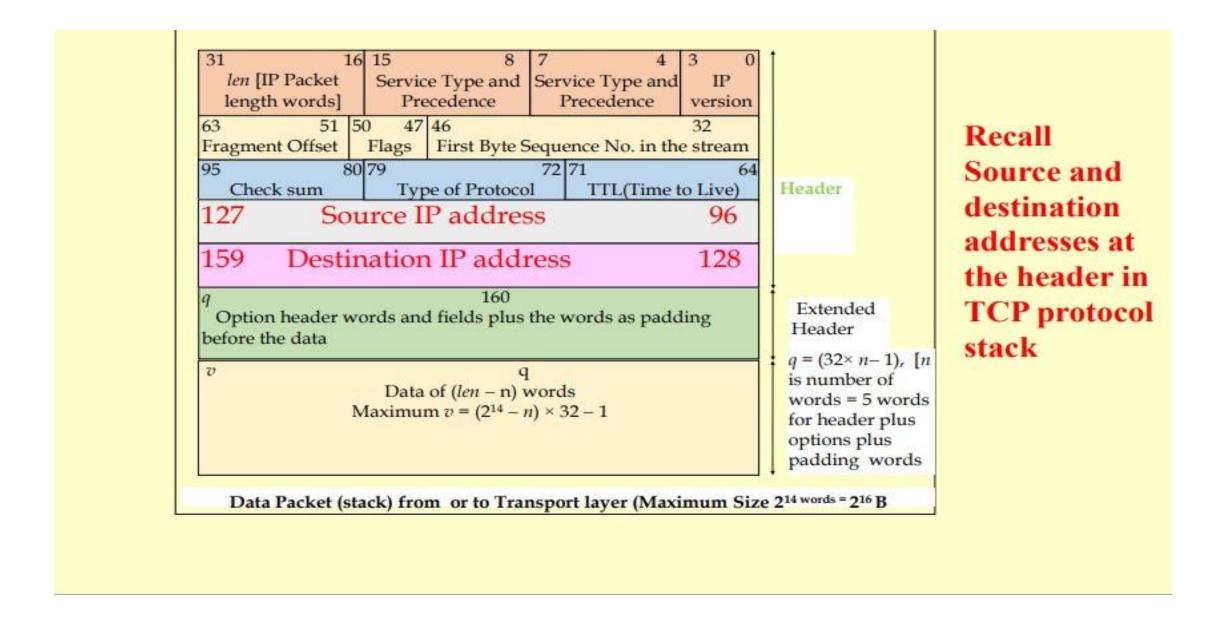


32-bit IP version 4 address



- •An IP address identifies every device connected to the internet. This enables computers and other internet-connected devices, such as mobile phones and Internet-of-Things (IoT) devices, to communicate over the internet and on local-area networks (LANs).
- •Four decimal numbers separated by dots, for example, 198.136.56.2

for 32 bits 11000110 10001000 00111000 00000010.





4-decimal Numbers IP version 4 address



- •IP addresses can be between 0.0.0.0 to 255.255.255.255, total 232 addresses due to 32-bit address.
- •Three separate fields with a decimal number each for each set of 8 bits are easier to use.



Subnet address



- Internet address visible to outside world for the routers on the Internet
- Subnet address for use within the group internally, and is invisible to outside world.
- A subnet is a sub-network consisting of number of hosts or nodes or devices or machines.



Class A, B and C Networks



- Three x.x.x specifies a network group of 224 22 hosts
- Two x.x specifies a network group of (216 22) hosts,
- One .x specifies a smaller group of (28 22) hosts



Class A network group address



- Address n.x.x.x, where x is between 0 to 255 and n is between 1 and 126 for the addresses between 1.0.0.0 and 126.x.x.x.
- This is because the IP address 32-bit has msb bit 31 = 0.



Class B Network



- Class B network group address means address n.m.x.x, where x is between 0 to 255 and n.m is between 128.1 to 191.254 for the addresses between 128.1.0.0 and 191.254.x.x.
- This is because the IP address 32-bit has two msb bits 31-30 = 10



Class C Network



- •Class C network group address means address n.m.k.x, where x is between 0 to 255 and n.m.k is between 192.0.1 and 223.255.254 for the addresses between 192.0.1.0 and 223.255.254.x.
- •This is because the IP address 32-bit has three msb bits 31-30-29 = 11



Dynamic IP Address



- •A number of computers, laptops, mobiles and devices may need connection in an organisation to an IP router
- •Once a device connects to Internet, it needs to be allotted individual IP address, called dynamic IP address
- •When the device connects to a router, the router and device use DHCP (Dynamic Host Control Protocol)
- •DHCP actions assign an IP address at an instance to the device.



Domain Names System (DNS)



- An Application which provides the IP address for the corresponding service from the named domain service
- For example, an IP address, 198.136.56.2 (11000110 10001000 00111000 00000010) registered domain name rajkamal.org for the IP address



128-bit address IPv6 address



- •A hexadecimal digit represents 4-bit, 0 hex = 0000 binary to f hex = 1111.
- •128-bit address: 32 hexadecimal digits
- •Eight sets of 4 hex-digits each separate by a colon or dot in an IPv6 address.
- •Example is 16-hexadecimal digits, 40a0: 0acb:8a00:b372:0000: 0000:0000:0000.





Thank You