Network Programming
Unit I
Introduction

Pratibha College Of Commerce and Computer Studies Chichwad

Prof.Prasad Sawant
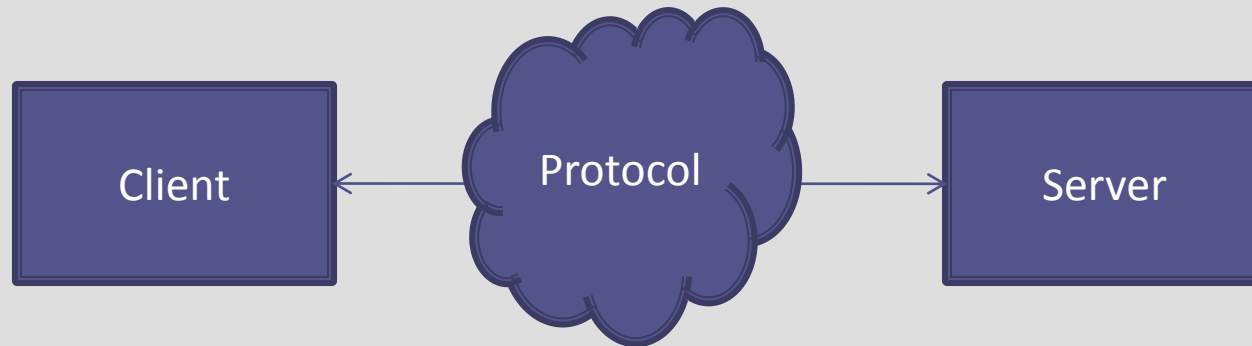
Assistant Professor
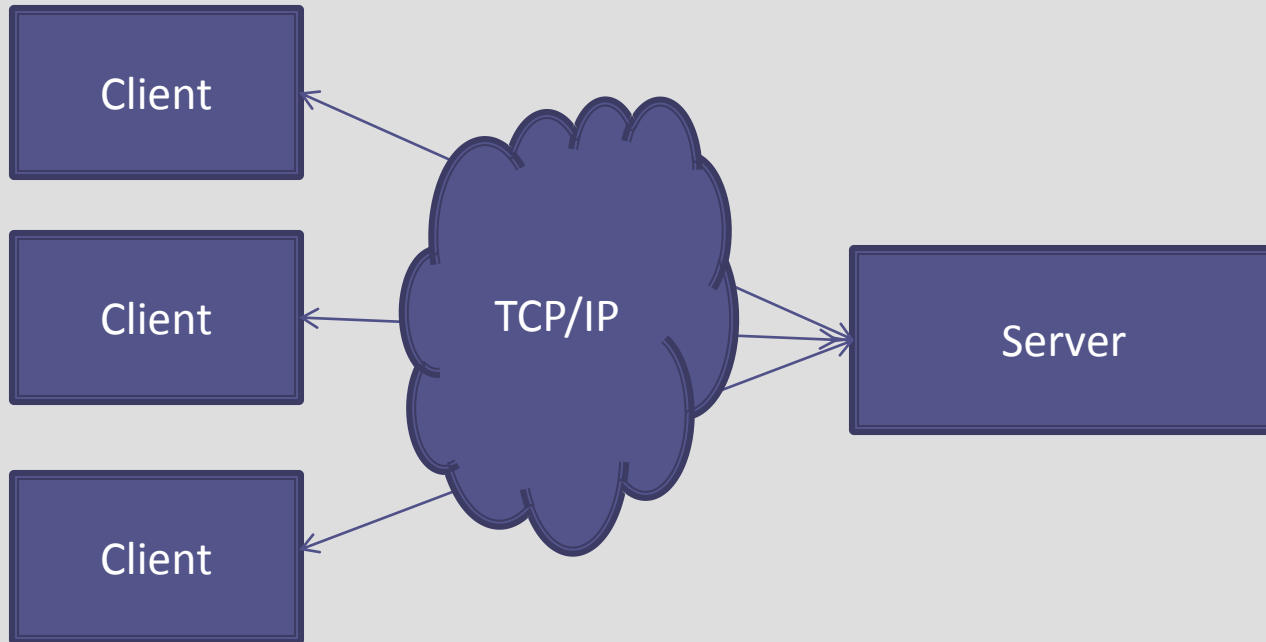
Department Of Computer Science

Network application

- Web browser and Web Server

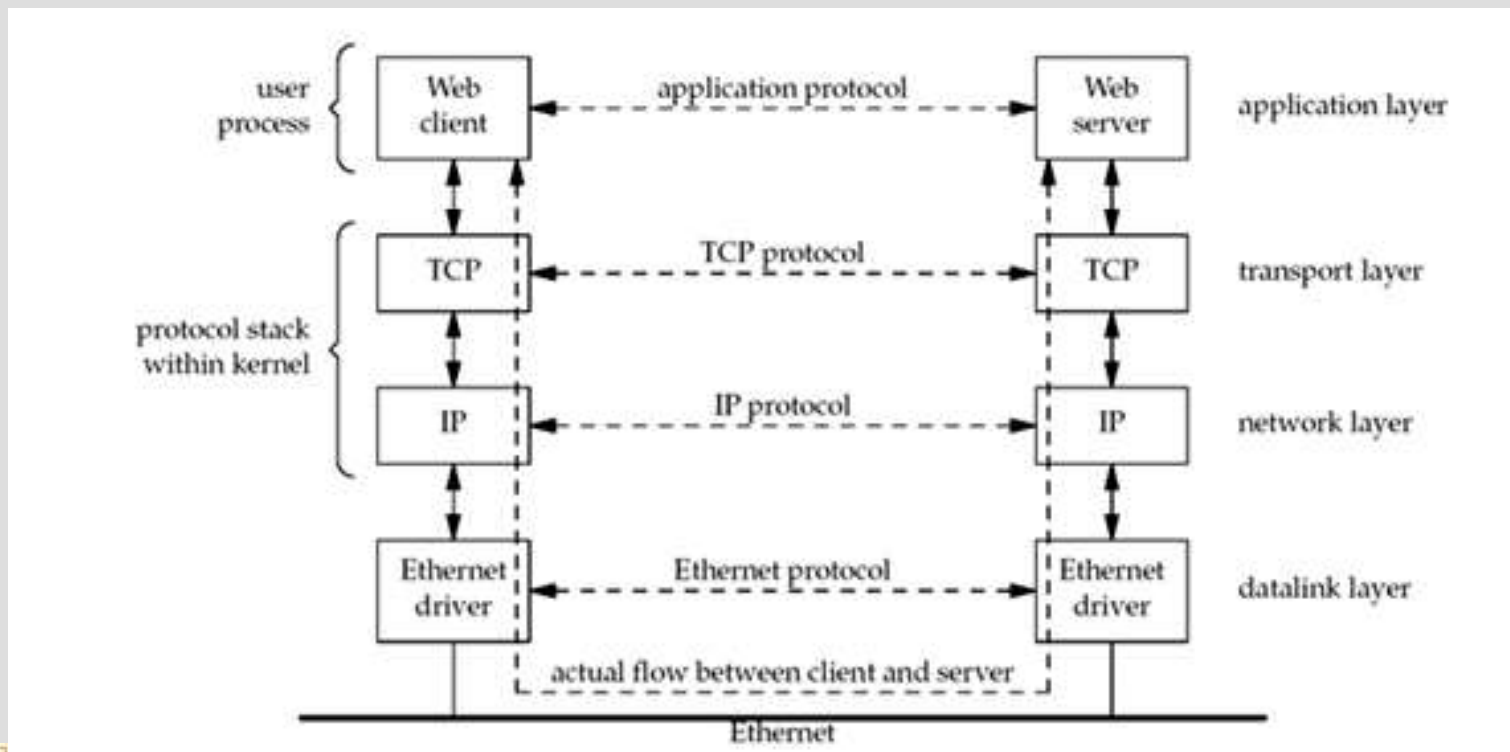```
Client <---- Protocol ----> Server
```

# Network application

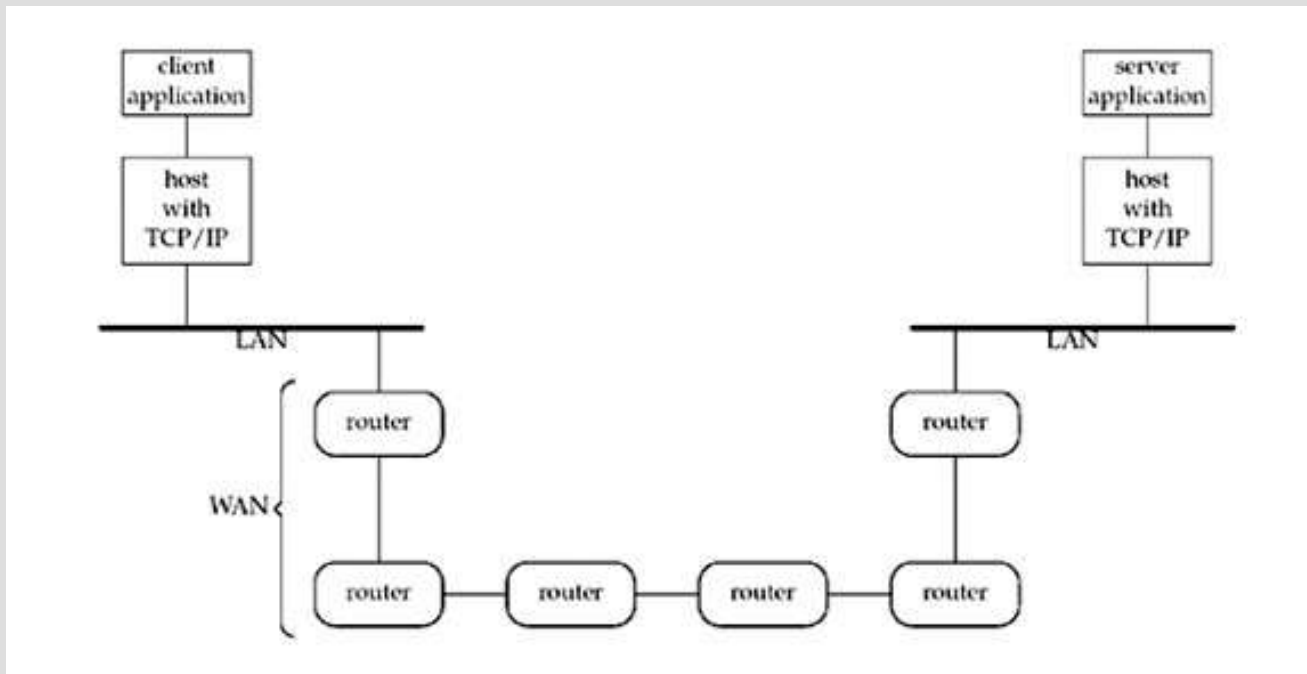- **Server handling multiple clients at the same time**

# Network application

**Client and server on the same Ethernet communicating using TCP**

# Network application

- **Client and server on different LANs Connected through a WAN.**

# IPv4 Header
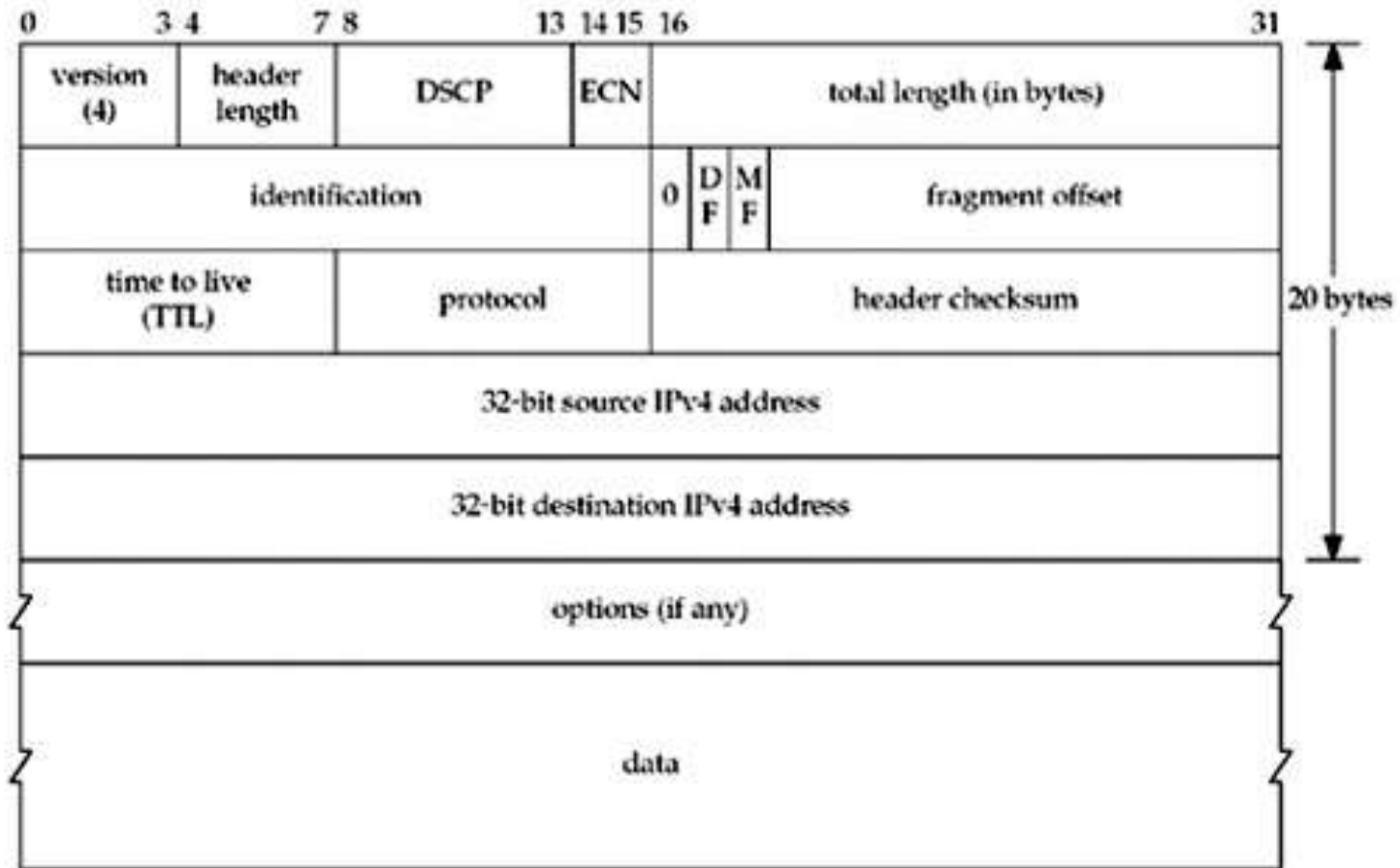
# IPv4 Address

**Ranges for the five different classes of IPv4 addresses.**

| Usage | Class | Range |
|-------|-------|-------|
| Unicast | A, B, C | 0.0.0.0 to 223.255.255.255 |
| Multicast | D | 224.0.0.0 to 239.255.255.255 |
| Experimental | E | 240.0.0.0 to 255.255.255.255 |

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# Special-use addresses

| Range | Description |
|---|---|
| 0.0.0.0/8 | Current network (only valid as source address) |
| 10.0.0.0/8 | Private network |
| 100.64.0.0/10 | Shared Address Space |
| 127.0.0.0/8 | Loopback |
| 169.254.0.0/16 | Link-local |
| 172.16.0.0/12 | Private network |
| 192.0.0.0/24 | IETF Protocol Assignments |
| 192.0.2.0/24 | TEST-NET-1, documentation and examples |
| 192.88.99.0/24 | IPv6 to IPv4 relay |
| 192.168.0.0/16 | Private network |
| 198.18.0.0/15 | Network benchmark tests |
| 198.51.100.0/24 | TEST-NET-2, documentation and examples |
| 203.0.113.0/24 | TEST-NET-3, documentation and examples |
| 224.0.0.0/4 | IP multicast (former Class D network) |
| 240.0.0.0/4 | Reserved (former Class E network) |
| 255.255.255.255 | Broadcast |

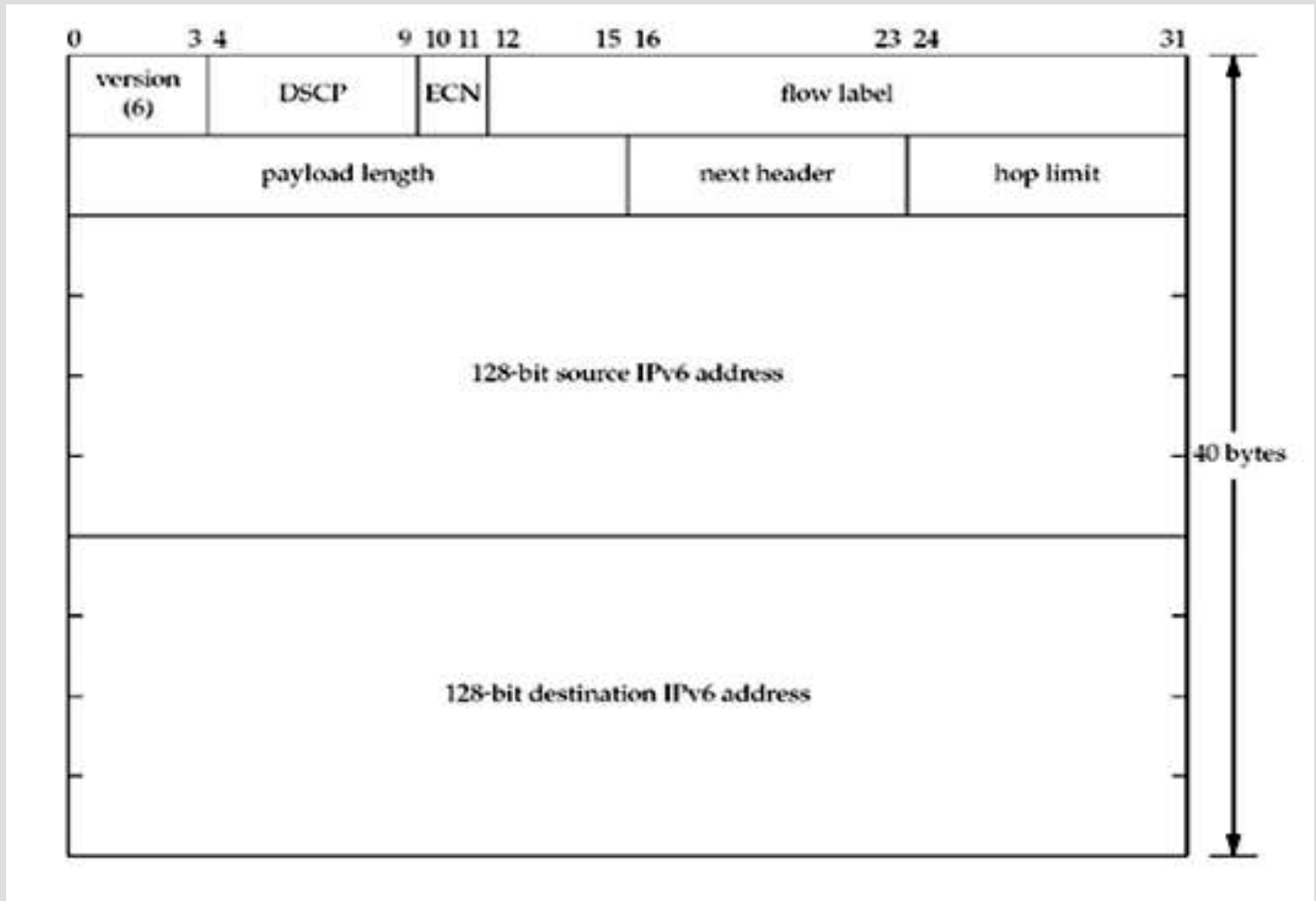Prof.Prasad Sawant Assit. Prof Dept Of Computer Science PCCCS

# Home Assignment #1

- List the application of TCP/IP ?
- What is difference between OSI and TCP/IP
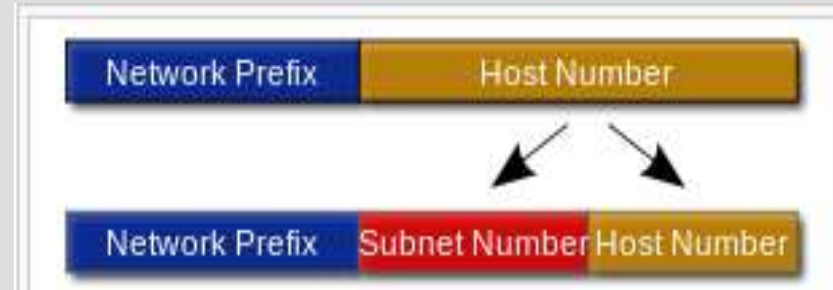- List along with function of TCP/IP Protocol
- Dead Line :29th July 2013

# IPv6 Header

# Subnet Address

- A **subnetwork**, or **subnet**, is a logically visible subdivision of an IP network .

- According to CIDR notation first address of network fallowed by slash(/) char.

- Example 192.168.42.0/24

- Network ID 24bit (Assigned to site )

- Subnet ID 3bit (Chosen By site)

- Host ID 5bit (chosen by site)

| Network Prefix | Host Number |
|---|---|

| Network Prefix | Subnet Number | Host Number |
|---|---|---|

| Network ID | Subnet Id | Host Id |
|---|---|---|

# Loopback Addresses

- By convention, the address 127.0.0.1 is assigned to the loopback interface

- Anything sent to this IP address loops around and becomes IP input without ever leaving the machine.

- Use to test client and server on the same host

- INADDR_LOOPBACK

# Unspecified Address

- The address consisting of 32 zero bits is the IPv4 unspecified address

- In an IPv4 packet, it is only permitted to appear as the source address in packets sent by a node that is bootstrapping before the node learns its IP address .

- In the sockets API, this address is called the wildcard address and is normally known by the name INADDR_ANY

Prof.Prasad Sawant Assit. Prof Dept Of Computer Science PCCCS

# Unit 1 End

Prof .Prasad Sawant

Sawant_cs@yahoo.com

http://prasadsawant.wordpress.com

http://www.facebook.com/dprasadsawant96k

https://twitter.com/mePrasadSawant