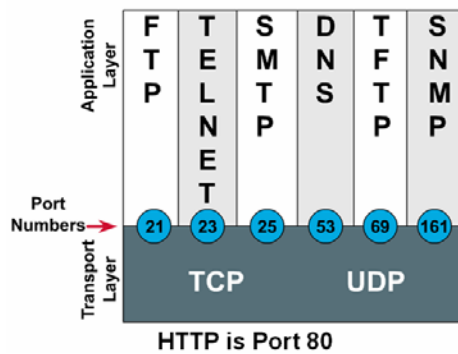
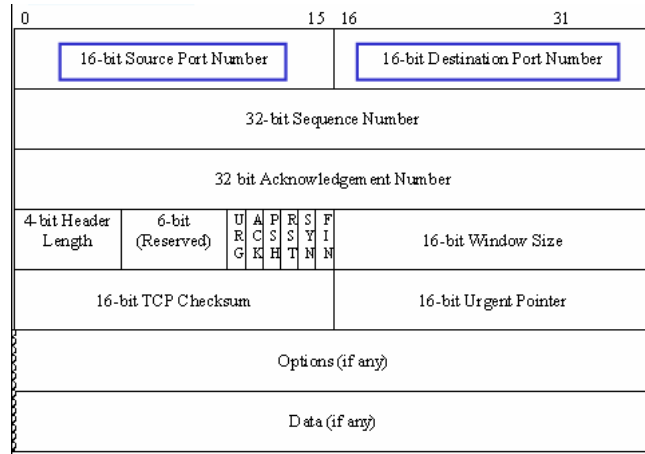


# TCP and UDP Port Numbers in a Nutshell

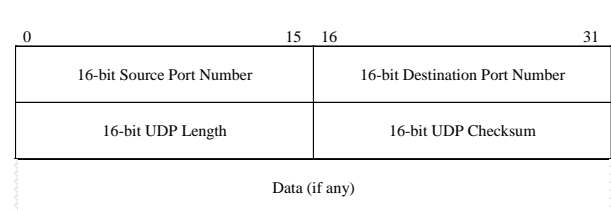
CIS 81, CST 311 Rick Graziani



## TCP



## UDP



**Both TCP and UDP** use ports (or sockets) numbers to pass information to the upper layers.

- Some ports are reserved in both TCP and UDP, although applications might not be written to support them.
- The range for assigned ports managed by the IANA is 0-1023.: <http://www.iana.org/assignments/port-numbers>
  - The **Well Known Ports** are those from **0 through 1023**. (This is updated information as of 11-13-2002. Before then, 0 – 255 were considered well known ports.)
  - The **Registered Ports** are those from **1024 through 49151**
  - The **Dynamic and/or Private Ports** are those from **49152 through 65535**

Notice the difference in how source and destination port numbers are used with clients and servers:

**Client (initiating Telnet service):**

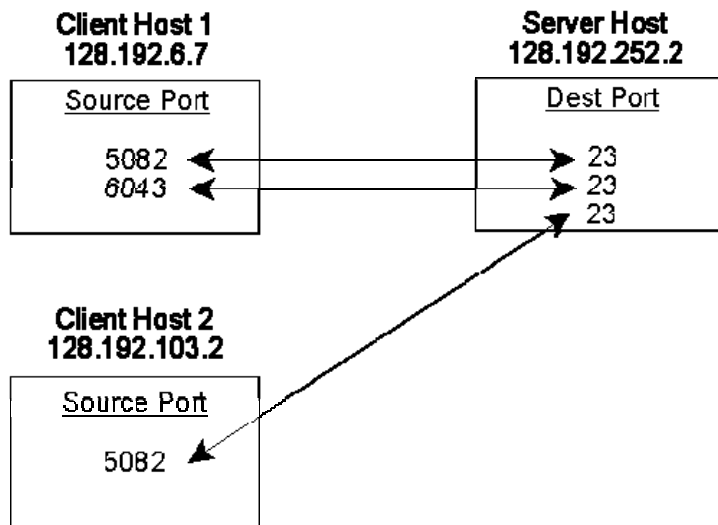
- Destination Port = 23 (telnet)
- Source Port = 1028 (dynamically assigned)

**Server (responding to Telnet service):**

- Destination Port = 1028 (source port of client)
- Source Port = 23 (telnet)

What makes each connection unique?

- Connection defined by the pair of numbers:
  - **Source IP address, Source port**
  - **Destination IP address, Destination port**
- Different connections can use the same destination port on server host as long as the source ports or source IPs are different.



**Google - Microsoft Internet Explorer**

Address: <http://www.google.com/>

**Cisco Systems, Inc - Microsoft Internet Explorer**

Address: <http://www.cisco.com/>

**C:\WINDOWS\system32\cmd.exe**

C:\>netstat -n

Active Connections

Proto	Local Address	Foreign Address	State
TCP	172.17.150.112:1033	172.16.1.44:524	ESTABLISHED
TCP	172.17.150.112:1034	172.16.1.44:524	ESTABLISHED
TCP	172.17.150.112:1042	205.188.9.73:5190	ESTABLISHED
TCP	172.17.150.112:1050	64.12.165.95:5190	ESTABLISHED
TCP	172.17.150.112:1069	207.62.185.140:143	ESTABLISHED
TCP	172.17.150.112:1332	198.133.219.25:80	TIME_WAIT
TCP	172.17.150.112:1333	198.133.219.25:80	ESTABLISHED
TCP	172.17.150.112:1334	198.133.219.25:80	ESTABLISHED
TCP	172.17.150.112:1335	64.154.80.254:80	ESTABLISHED
TCP	172.17.150.112:1336	66.102.7.99:80	ESTABLISHED

C:\>

[www.google.com](http://www.google.com)

[www.cisco.com](http://www.cisco.com)

netstat -n