

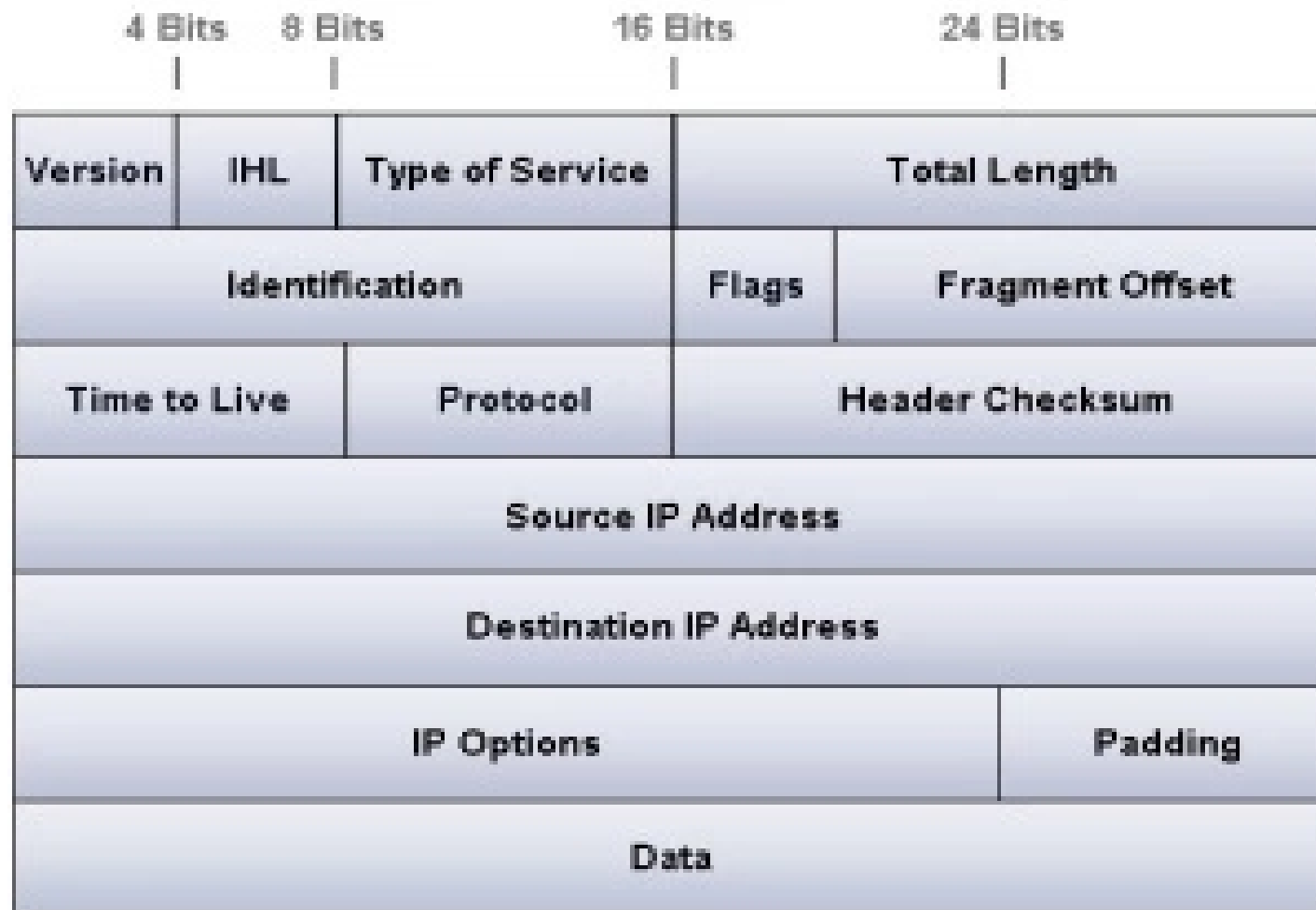
***Introduction to:  
Internet Protocol Packets  
Transmission Control Packets  
Network Address Translation***

***or about half the Internet***

# *Long-term Goal*

- ◆ help you understand the Internet

# *IP (Internet Protocol) Packet*

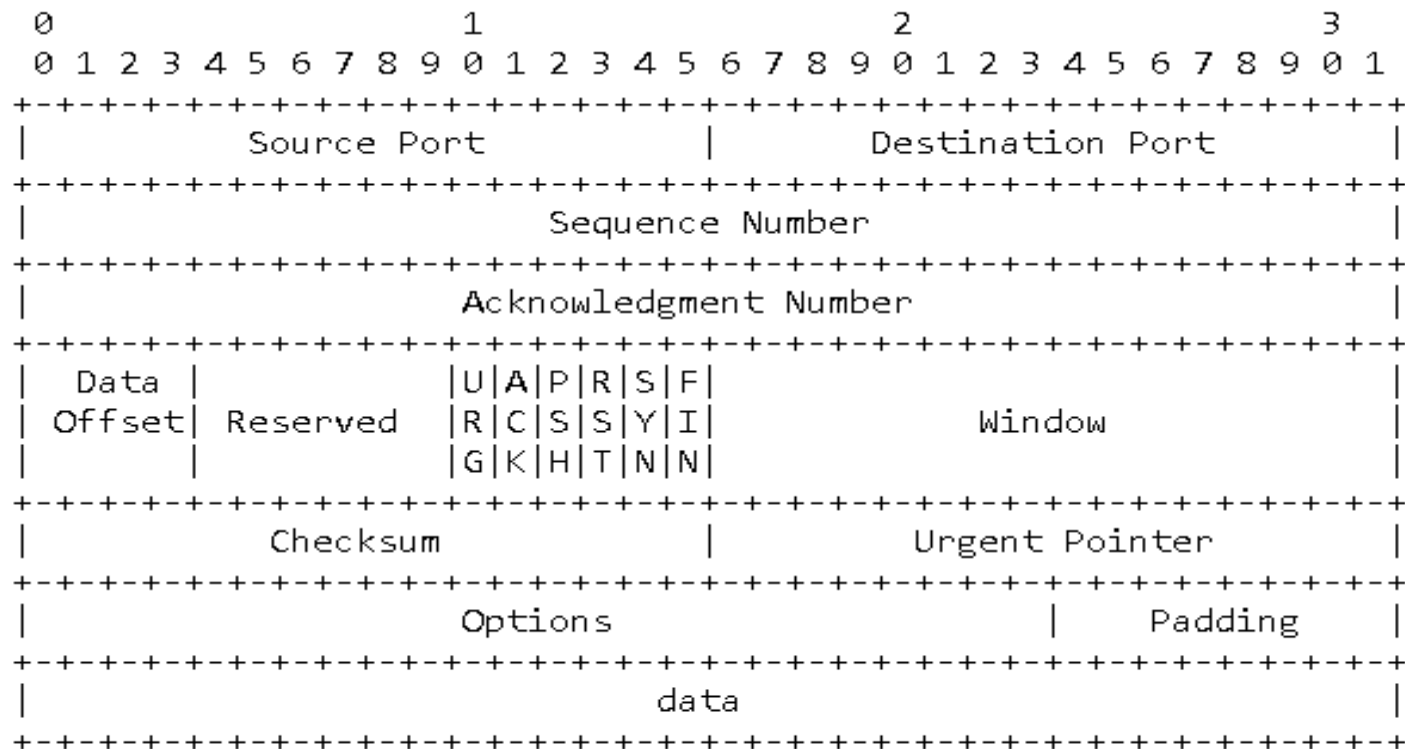


<https://josephmlod.wordpress.com/networking/>

# The TCP Packet (inside IP)

TCP header follows the internet header, supplying information specific to the TCP protocol.

## TCP Header Format



<http://www.freesoft.org/CIE/Course/Section4/8.htm>

Note that one tick mark represents one bit position.

# *Web Server*

- ◆ Software that can answer a request for information.
- ◆ Receives requests on the IP number of the computer its running on
- ◆ Normally listens to Port 80, so it only responds to requests that come to Port 80 of that Computer's IP address
- ◆ Sometimes people up 8080 instead.

# *Apache Web Server*

- ◆ Has a subdirectory (e.g. `/var/www/html`) where it looks for files to use to respond to requests
- ◆ Subdirectories of that subdirectory allow structure, eg.
- ◆ `http://www.qsl.net/nf4rc/EOC`

# *Network Address Translation*

- ◆ Limited number of “real” IP-version 4 addresses....
- ◆ Likely your Internet Service Provider assigns one of these scarce numbers to your cable modem (e.g. 100.100.100.50)....but not to every computer in your house.
- ◆ Your router “creates” a 192.168.1.X net out of thin air and handles requests and responses from the REAL internet number.

## *Example*

- ◆ Your computer on 192.168.1.10, using port 2000, issues a request for a web page from cnn.com, port 80.
- ◆ Router repackages that request, makes it appear that it “came” from its number (100.100.100.50) and port (for example) 3762
- ◆ cnn.com responds with a string of information directed back to 100.100.100.50, port 3762
- ◆ Your router repackages the information and forwards it back to your computer on 192.168.1.10, port 2000.