OSI Model – Open System Interconnection reference model

All People Seem To Need Data Processing

Application layer – HTTPS, FTP, DNS, POP3

Presentation layer – SSL/TLS

Session layer – Control protocols

Transport layer – TCP segment/ UDP datagram

Network layer – IP address, router, packet

Data link layer – Mac address, DLC (data link control) protocols

Physical layer – Cables, fiber, and signal

TCP header contains TCP flags which control payload.

IP headers must deal with fragmentation sometimes because of network architecture large data can’t be sent. MTU (maximum transmission unit) comes in this case. Missing a fragmentation loses an entire packet. MTU designs networks for packets to transmit without fragmentation. Fragmentation slows down the flow of traffic. There are several hops with different MTU settings throughout the network. There is an automated process to determine MTU settings. We can’t use automated process of MTU when ICMP is filtered. The only way is to use it manually.

The maximum size of IP packet is 1500 bytes.

Troubleshooting

8 bytes for ICMP + 20 bytes for IP address = 28 bytes, 1500 – 28 = 1472 bytes

f and D stand for “don’t fragment”, l and s stands for " length of data” and 8.8.8.8 is IP address of Google’s DNS server.

For windows, ping -f -l 1472 8.8.8.8

For Linux and MacOS, ping -D -s 1472 8.8.8.8

If the length of data is 1472 bytes or less than 1472 bytes, information is received. If larger, it will reply “packets needed to be fragmented but DF set.”