

Q01

The UDP protocol is connectionless, i.e., the communicating ends do not maintain a permanent connection, so the program must explicitly specify the address and port of the receiving end each time it sends data.

On the other hand, the two sides communicate over a persistent connection in the TCP protocol. Once the connection is established, there is no need to repeatedly specify the accepting address.

Q02

In HTTP1.0, there is only one request and answer for each TCP connection. And in HTTP1.1, it enables connection reuse, which means that many requests and answers can be sent and received for each TCP connection.

The two transport layer concepts of host and port number are shown in HTTP address. These two techniques help HTTP to pass data more accurately between the two processes of the client and the server

Q03

In a situation without slow-start, a client-server application with a small RTT may gain a higher data rate. Also, the application can be designed to use parallel TCP connections to take advantage of other data flow.

Q04

We can use a hardware timer to simulate multiple logical timers.

If we re-start the timer every time a packet is sent, then all logical timers are reset and the previously sent packets will not be accurately calculated for the timeout.

If we re-start the timer when the oldest packet is ACKed, then all packets are sent after this oldest packet and before the ACK will reset their timers.

Q05

Why can some VPN software switch between UDP and TCP modes, and what is the significance of this?