

[Q1] Answer the following questions on UDP protocol

- [5 pts] Which layer does UDP belong to, application layer or transport layer?

Transport layer.

- [5 pts] What services does UDP provide?

UDP is a non-connect oriented protocol, it is broadcasting messages. Not so reliable, because it does not dealing with packet loss and packets arrives with no order.

[Q2] Answer the following questions on TCP protocol

- [5 pts] Which layer does TCP belong to, application layer or transport layer?

Transport layer.

- [15 pts] What services does TCP provide?

TCP is a connect oriented protocol, before communicating, server and client will establish connection through three way handshake. Thus, it is more reliable compared to UDP, because it is dealing with packet loss by resending the packets, and the packets are assigned with an id for ordering and reconstructing in the client side. The packet volume could also be controlled.

[Q3] Answer the following questions on HTTP protocol

- [5 pts] Which layer does HTTP belong to, application layer or transport layer?

Application layer

- [10 pts] What's the difference between

persistent HTTP and non-persistent HTTP? For non-persistent HTTP, such as HTTP/1.0, the server deals with a single request at a time, then it will close the connection. However, persistent HTTP, like HTTP/1.1, it could deal with several requests one after another, since it does not close the connection after a single request.

- [10 pts] What's the difference between HTTP GET and POST methods?

GET method is used to visit the content of a url in the server side and no data or content will be sent to the server together with the GET request. However, POST method is used to provide some content or data to the server. Therefore, for the GET request usurally there will be no Content-Length header fields, while vice versa for POST request.

- [10 pts] What's the benefit of using web proxy?

it could help caching the content and speed up client's visiting.

[Q4] Answer the following questions on DNS protocol

- [5 pts] Which layer does DNS belong to, application layer or transport layer?

Application layer

- [5 pts] What's the responsibility for root name servers?

There are limit number of root servers, it help us find out the top level servers to ask next.

- [5 pts] What's the responsibility for top level name servers?

Top level name servers are servers like .com, .org and .edu. It kind of specifies the servers working domain.

- [10 pts] What does local DNS server do?

Local DNS server are caching some visited domain names, thus when we revisit these domains name, there will no need for it to reaching outside, so to speed up the visiting process.

- [5 pts] What is A record in DNS protocol?

It is one of the basic records type in dns protocol and it is a key value pair.

- [5 pts] What is NS record in DNS protocol?

'NS' is short for name server.