CST4500 Seminar 1 Questions

Q1. Why are network layers so important?

Q2 Distinguish between perer to peer and the client server models.

Q3 What is meant by client server application. Discuss.

Q4. Describe seven layers in the OSI network and what they do.

Q5. Describe the five layers in the internet network model and what they do.

Q6. Explain how. A message is transmitted from one computer to another using layers.

Q7. What access network technologies would be most suitable for providing internet access to rural areas?

Q8. What advantage does a circuit switched network have over a packet switched network? What advantages does TDM have over FDM in a circuit switched network?

Q9. Supposed end system A wants to send a large file to end system B, At a very high level, describe how end system A creates packets from the file. When one of these packets arrives to a router, what information in the packet does the router use to determine the link onto which the packet is forwarded? Why is packet switching in the internet analogous to driving from one city to another and asking directions along the way?

Answers

Q1.

For troubleshooting – if we can find out which layer has error, easier to troubleshoot and fix (start with each layer and see if there’s anything broken)

They help in development of standards; each layer is responsible for certain tasks as part of the comms process. Once tasks are defined nicely, standards can be made for each task eg wired connection – ethernet, wireless networks – WIFI. Standards help define each layer even better, without impacting other layers.

Q2.

P2P, devices are equivalent, in client server, the client is the “master”.   
In terms of cost of setup, client servers cost more, P2P is cheaper.

In terms of scalability, Client server is better, just build bigger server.

Client is centralized, easier to manage.

Security wise, client server is easy to implement, easier to implement policies.

Q3.

Eg. Email(outlook)

The web, browser

Oracle Databases

Q4.

All People Seem To Need Data Processing

Transport layer plays key role in sending data to right location on the device

Network Layer performs routing, to the right device

Data Link Layer, moves data one point to another, in between routers (one step at a time, MAC addresses)

Physical Layer, converts data to electrical signal/microwave/light signals

Q5.

Explained in class

Q6.

Just go through the model, how the message is augmented at each step

Q7.

Cellular maybe, better than laying down cable, maybe there’s already telephone services set up in the area so you can use that to spread wireless network technologies. DEPENDS ON THE INFRASTRUCTURE.

Satellite also works.

Q8.

Circuit-switching is faster, there’s a direct connection with dedicated resources

But limited by number of users

TDM is when you’re given a slot to transfer, when it’s your time to send a packet, you send the full packet together.

FDM, there’s no slot but split frequency per user,

Q9. The size of the packet is what determines how to split the message.

Router looks at destination IP address to figure out.

Packet switching, there’s no set path. At each step it figures out the best path to send the packet forward.