

ECSE-6961:Internet Protocols

Quiz 1

Time: 60 min (strictly enforced)

Points: 50

YOUR NAME:

Be brief, but DO NOT omit necessary detail

True or False? [2*15 = 30]

T or F [0.5 points]. If false, state the correct explanation/reason. [1.5 pts]. It is a good idea to justify anyway - right ideas earn partial credit.

In a layered model, the interfaces between layers change more often than the technologies used between interfaces

A point-to-point link always needs two addresses - one for each endpoint.

A multi-homed node always needs a table to figure out which output port to send a given packet.

T F

- Connection-oriented means a path is reserved across the network to the destination.**

- As a packet goes through the Internet, some IP header fields are never modified.**

- ARP is used because static table-based address translation involves high administrative cost.**

- Transport layer protocols are required minimally because network layer protocols don't provide connection-oriented transmission.**

- ❑ ❑ A collision domain boundaries define the boundaries of an Ethernet LAN**
- ❑ ❑ An address hierarchy which does not match the routing hierarchy is not aggregatable.**
- ❑ ❑ The end-to-end principle is being complemented by the edge-to-edge principle because some functions (like billing) cannot be trusted to end systems.**
- ❑ ❑ A subnet mask tells us which bits of the IP address form the network address.**

- ❑ ❑ The reason header length, fragment offset and datagram length fields in the IP headers use different units is because the designers could not agree on a common units.**

- ❑ ❑ SLIP supports dynamic IP address assignment**

- ❑ ❑ When a header checksum error is detected, IP drops the packet and reports the error to the source**

- ❑ ❑ Batching is used to tradeoff throughput when response time is critical.**

1. [3 pts] Consider the non-meshed, but fully reachable network below. Because of forwarding, the network seems to be like a virtual meshed network where each host has a virtual link to every other host. Where is the multiplexing and indirection done to provide this virtualization?



3. [7 pts] Discuss how the issues of address resolution, address space aggregation/subnet masking and fragmentation relate to the IP approach of solving the internetworking problems of heterogeneity and scale.

2) a) (10 pts) An IP *datagram* of length (incl header) 1800 bytes needs to cross an Ethernet (MTU = 1500B) followed by a WAN (MTU = 576B). How many fragments reach the destination ? What are the values of the More bit, Offset, and Length fields in each fragment ?

Gimme the Solutions!!!

