

L11-Introduction to Computer Networking

Homework 12

Due Date: Feb.10, 2017 by 23:59PM on Google Drive

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Problem 1 (50 pts, 10 pts for each correct answer):

Circle the correct answer, "T" for True and "F" for False

1. (T / ☒) One can access directly to the Internet using an address as 192.168.11.2.
2. (☒ / F) Both source and destination addresses in a packet sent from a host behind NAT to a web server in the Internet are changed when the packet goes through the NAT
3. (☒ / F) NAT traversal problem is the one that happens when a client behind NAT tries to access to a server in the Internet
4. (☒ / F) ICMP is a protocol of network layer for error reporting and control messages
5. (☒ / F) When a router receives a IP packet with TTL = 0, it discards the packet and sends an ICMP message to the previous router with type = 11 and code = 0
6. (T / ☒) When you enter the command ping 163.143.91.101, an ICMP message with type = 0, code = 0 will be sent to the host/server whose IP = 163.143.91.101.
7. (T / ☒) In the traceroute program, when the ICMP message reaches the destination, the destination returns an ICMP "TTL expire" packet.
8. (☒ / F) The IP v6 packet has a fixed header length and the header of the packet is unchanged from the source to the destination.
9. (☒ / F) IPv4 routers take longer time to process an IP packet than that of IPv6 routers as they also perform error detection using the checksum.

10. (T / F) ICMP is a transport layer protocol as its message is carried in an IP datagram

Problem2 (50pts):

Assume that you need to set up a lab LAN using router with NAT function; your lab has only one global IP (163.143.91.101) and the lab network has 20 PCs and all of them want to have connection to the Internet.

1.(10 pts) Give a range of IP addresses that can be assigned to 20 PCs: starting address and ending

Answer: 192.168.0.1 ~ 192.168.255.254

2.(10 pts) What is the subnet mask for that range of IP.

Answer: 255.255.0.0

3.(10 pts) Assign an IP address that will be used as gateway address for the LAN

Answer: 163.143.91.101

4.(20pts) Draw a figure that illustrate how are you going to install that network with one router

Answer:

