Homework-Computer Networks-06082140

Q1: Given the IP address 201.14.78.0 and the company needs to create 8 subnets, what is the second subnet address and its broadcast address?

To determine the subnet addresses and broadcast addresses, we need to know the subnet mask or the prefix length (subnet mask expressed in CIDR notation). Without this information, we cannot accurately calculate the subnet addresses.

However, assuming you want to divide the IP address 201.14.78.0 into 8 equal subnets, we can make an educated guess and use a subnet mask with a prefix length of 29 (since 2^3 = 8).

Using a prefix length of 29, the subnet mask would be 255.255.255.248.

To calculate the subnet addresses and broadcast addresses, we can start by finding the range of each subnet.

First Subnet:

Subnet Address: 201.14.78.0

Broadcast Address: 201.14.78.7

Second Subnet:

Subnet Address: 201.14.78.8

Broadcast Address: 201.14.78.15

Note: These addresses are based on the assumption of using a subnet mask with a prefix length of 29. If you have a different subnet mask or prefix length, please provide that information to obtain more accurate subnet addresses and broadcast addresses.

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Q2: Byte-stuff the data in Figure.2.



Fig.2

In the byte-stuffed version, an escape character (ESC) is inserted before each instance of the flag character to distinguish it from the flag used to mark the beginning and end of a frame. The escape character serves as an indicator that the following character should not be interpreted as a flag but as literal data.

Note that the original data had an extra "ESC" after the last flag. In the byte-stuffed version, the escape character is inserted before each flag but not after the last flag since it is not followed by any data that needs to be escaped.

Q3: In Figure.1, assume that the communication is between a process running at computer A with port address i and a process running at computer D with port address j. Show the contents of packets and frames at the network, data link, and transport layer for each hop.

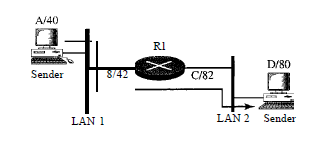


Fig.1

Hop 1: Sender (A) to LAN1

Network Layer (IP Packet): Source IP: A Destination IP: D Source Port: i Destination Port: j Payload: Application data

Data Link Layer (Ethernet Frame): Source MAC: MAC of A Destination MAC: MAC of LAN1 Ethernet Payload: IP Packet from the network layer

Hop 2: LAN1 to LAN2

Network Layer (IP Packet): Source IP: A Destination IP: D Source Port: i Destination Port: j Payload: Application data

Data Link Layer (Ethernet Frame): Source MAC: MAC of LAN1 Destination MAC: MAC of LAN2 Ethernet Payload: IP Packet from the network layer

Hop 3: LAN2 to Sender (D)

Network Layer (IP Packet): Source IP: A Destination IP: D Source Port: i Destination Port: j Payload: Application data

Data Link Layer (Ethernet Frame): Source MAC: MAC of LAN2 Destination MAC: MAC of D Ethernet Payload: IP Packet from the network layer