

Network assignment 3

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P5

Network layer is between two hosts and may involve intervening routers in case of VCs. So it uses the term connection service.

Transport layer is between two processes and only involves end systems. So it uses the term connection-oriented service.

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a. Forwarding Table:

Prefix Match	Interface
11100000 00000000	0
11100000 00000001	1
11100000	2
11100001	3
otherwise	4

- b. 1. Interface 4
2. Interface 2
3. Interface 3

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220.2.240/20: 11011100 00000010 11110000 00000000

Subnet 1: 11011100 00000010 11110000 00000000 220.2.240.0/21

Subnet 2: 11011100 00000010 11111000 00000000 220.2.248.0/22

Subnet 3: 11011100 00000010 11111100 00000000 220.2.252.0/22

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Any IP in 101.101.101.65 — 101.101.101.127 can be assigned.

Subnets:

01100101 01100101 10000000 00000000 101.101.128.0/19

01100101 01100101 10100000 00000000 101.101.160.0/19

01100101 01100101 11000000 00000000 101.101.192.0/19

01100101 01100101 11100000 00000000 101.101.224.0/19

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It is impossible. In order to establish a direct TCP connection between Arnold and Bernard, either Arnold or Bob must initiate a connection to the other. But the NAT router cannot forward the SYN packet since each of Arnold and Bernard only know the IP address of the other's NAT router. Thus neither Arnold nor Bob can initiate a TCP connection to the other if they are both behind NATs.