UIC UNIVERSITY OF ILLINOIS AT CHICAGO Department of Computer Science COLLEGE OF ENGINEERING

CS450 – Introduction to Networking

Lecture 40 – iClicker questions review

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April 27, 2015

iClicker questions review

- 30 questions from lectures
- (Free discussions with any partner)
- Individual vote
- Time limit 1:10’
- Answers are shown in 5 seconds after each vote
- Moderated by the TA

Select a correct statement

A. UDP is connection-oriented

B. TCP is connectionless

C. Datagram network is connectionless

D. Virtual circuit network is connection-oriented

E. C and D

Switching via interconnection network

A. Can handle multiple packets at the same time

B. Faster than switching via memory or a bus

C. Has no collision

D. A and B

E. A, B and C

What fields are not in an IP datagram header?

A. Port number

B. Fragment offset

C. Header checksum

D. A and B

E. A, B and C

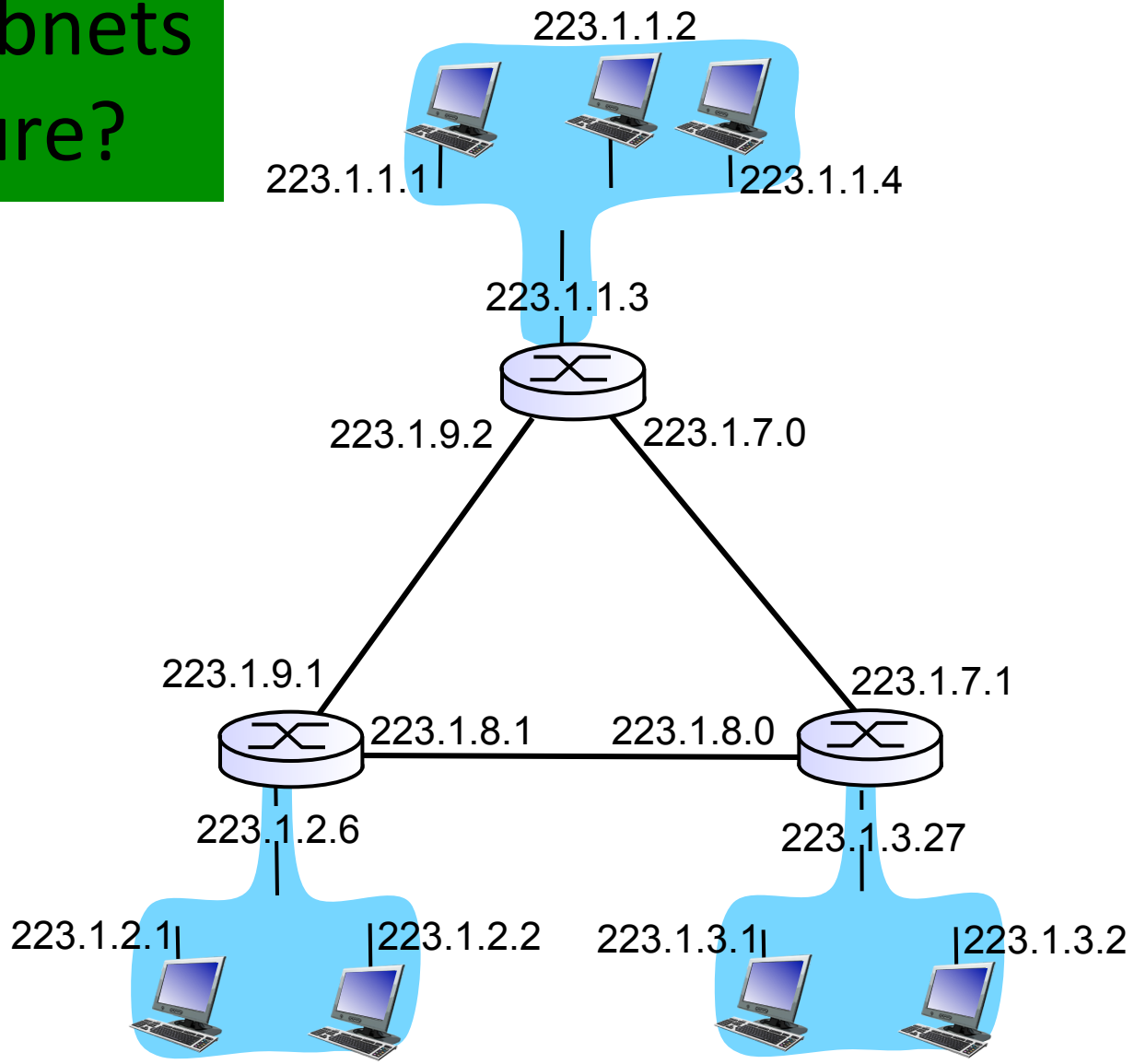
How many subnets in this figure?

A. 3

B. 6

C. 7

D. 10



How many number of hosts for this network a.b.c.d/24?

A. 8

B. 24

C. 254

D. 255

E. 256

The subnet mask of 255.255.255.224 (11111111.11111111.11111111.11100000) correspond to?

A. a.b.c.d/22

B. a.b.c.d/24

C. a.b.c.d/27

D. a.b.c.d/28

E. a.b.c.d/30

Assume a host in a local network with IP address of 10.0.0.5 open a TCP connection on port 1234 to connect to a web server at 131.30.123.5 (port 80), what is a possible row for this connection in the NAT translation table?

A. <131.30.123.5,80> ←→ <10.0.0.5, 1234>

B. <138.125.10.10, 5025> ←→ <10.0.0.5, 1234>

C. <10.0.0.5, 1234> ←→ <131.30.123.5,80>

D. <10.0.0.5, 80> ←→ <131.30.123.5,80>

Can we run a server, e.g. web server within a NAT?

A. Yes

B. Yes, but it can only communicate (send/ receive) with hosts within the private network

C. No

IPv6 vs IPv4

A. IPv6 increases the size of IP address

B. IPv6 removes header checksum in IP header to reduce processing cost at routers

C. IPv6 does not allow package fragmentation/ reassembly to improve speed/forwarding

D. A and B

E. A, B and C

IPv6 in practice

A. IPv6 is implemented in practice, i.e., in the Internet

B. IPv6 is used in mix with IPv4

C. IPv4 has been replaced by IPv6

D. A and B

E. A, B and C

Select a correct statement

A. In a global routing algorithm, all routers have complete topology, link cost info

B. In a decentralized routing algorithm, router knows physical-connected neighbors, link costs to neighbors

C. Link costs might be changed over the time

D. A and B

E. A, B and C

Dijkstra's algorithm: another example

Step	N'	D(v),p(v)	D(w),p(w)	D(x),p(x)	D(y),p(y)	D(z),p(z)
0	u	2,u	5,u	1,u	∞	∞
1	ux	2,u	4,x		2,x	∞
2	uxy	2,u	3,y			4,y
3	uxyv		3,y			4,y
4	uxyvw					4,y
5	uxyvwz					

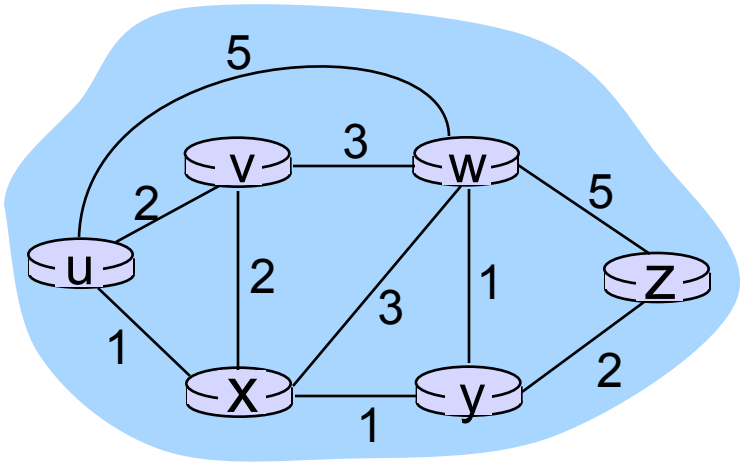
Shortest path from u to w according to above result

A. 5 through v

B. 4 through x

C. 3 through x

D. 3 through y



Select a correct statement

A. A link state routing protocol requires message exchange among all nodes in a network

B. A distance vector routing protocol requires message exchanges between neighbor nodes only

C. In link state, each node computes its own routing table while in distance vector, it's node routing table is used by others

D. A and B

E. A, B and C

Why is hierarchical routing needed?

A. Routers are not identical

B. The real network is too large to run a single routing protocol

C. The Internet is “flat”

D. A and B

E. A, B and C

Select a correct statement

A. The link layer does not provide any error correction mechanism

B. The link layer provides reliable delivery services between adjacent nodes

C. The link layer uses IP addresses to identify destinations

D. A and B

E. A, B and C

Select a correct statement

A. Medium Access Control (MAC) is designed to handle collisions in transferring data in a channel

B. MAC protocols are implemented in Network Interface Card (NIC)

C. MAC addresses are unique and assigned in each NIC

D. A and B

E. A, B and C

Channel partitioning such as TDMA, FDMA

A. Is perfectly fair in the sense that each node has the same opportunities

B. A node is limited to a bandwidth of R/N (R=rate of the channel, N= number of nodes), even when it is the only one to send

C. Can avoid collisions

D. A and B

E. A, B and C

Select a correct statement

A. Channel partitioning can avoid collisions but is inefficient at low load

B. Random access protocols allow a single node can fully utilize channel but have to deal with collisions

C. “Taking turns” protocols cannot avoid collisions

D. A and B

E. A, B and C

ARP table

A. Is formed and updated automatically by the ARP protocol

B. Is used for same LAN

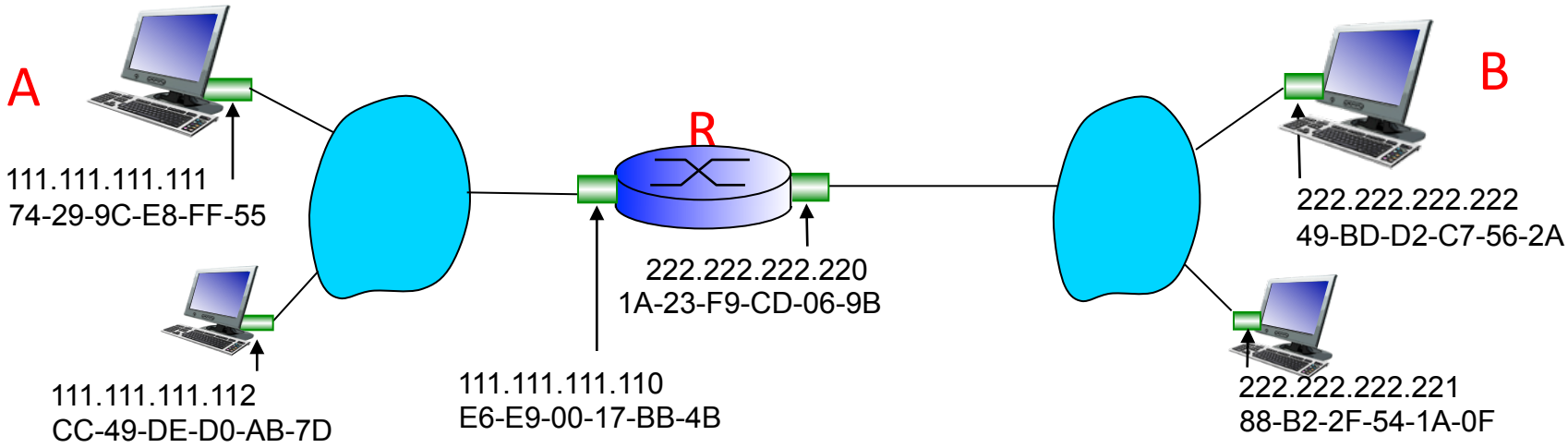
C. Can be changed manually

D. A and B

E. A, B and C

How A knows IP address of R, MAC address of R

A. DNS, DHCP
B. IP, ARP
C. DHCP, ARP
D. DNS, IP



Preamble is used in Ethernet

A. To synchronize receiver, sender clock rates

B. To “wake up” the receiving adapter, i.e. to announce there will be frame coming

C. To identify which protocol is used

D. A and B

E. A, B and C

Switches vs. routers

A. Both are store-and-forward: switches are at link-layer, routers are at network-layer

B. Both have forwarding tables: switches use MAC addresses, routers use IP addresses to forward date

C. Both are “plug-and-play”, i.e. no configuration

D. A and B

E. A, B and C

VLANs

A. Is used to isolate traffics within a switch

B. Routing is used among VLANs even within a physical switch

C. VLANs can only formed within a physical switch

D. A and B

E. A, B and C

When student attaches laptop to campus network, requests/receives www.google.com, how many servers the laptop will send application level requests?

A. 1

B. 2

C. 3

D. 4

E. All above are possible

When student attaches laptop to campus network, requests/receives www.google.com, what separate protocols the laptop might use?

A. DNS, HTTP

B. UDP, DNS, TCP, HTTP

C. DHCP, ARP, DNS, HTTP

D. DHCP, ARP, DNS, TCP, HTTP

E. UDP, DHCP, ARP, DNS, TCP, HTTP

Select a correct statement

A. An AP can only have one SSID

B. An AP and a router might be in one physical device

C. We cannot have the same SSID for one local network

D. A and B

E. A, B and C

Select a correct statement

A. A mobile device has a permanent address even it moves to another network

B. A mobile device has a foreign address when it moves to another network

C. An active connection between a correspondent and a mobile device is discontinued when the mobile device moves to another network

D. A and B

E. A, B and C

Digital signatures

A. Are used to verify the sender

B. Require the receiver knows public key of the sender to verify

C. Can be used to ensure the integrity of sent data

D. A and B

E. A, B and C

In HTTPS

A. Both public key infrastructure and symmetric key mechanism are used

B. Both HTTP header fields and data are encrypted

C. Secret keys to encrypt data are exchanged between client and server

D. A and B

E. A, B and C