

Ccna chapter 5 – ip addressing



**ASSIGN
BUSTER**

Which of the following are functions of OSI Layer 3 protocols?

- a. Logical addressing
- b. Physical addressing
- c. Path selection
- d. Arbitration

e. Error recovery

A and C. The network layer defines logical addressing, in contrast to physical addressing. The logical address structure allows for easy grouping of addresses, which makes routing more efficient. Path selection refers to the process of choosing the best routes to use in the network.

Physical addressing and arbitration typically are data link layer functions, and error recovery typically is a transport layer function. Imagine that PC1 needs to send some data to PC2, and PC1 and PC2 are separated by several routers. What are the largest entities that make it from PC1 to PC2?

- a. Frame
- b. Segment
- c. Packet
- d. L5 PDU
- e. L3 PDU

f. L1 PDUC and E ONCCNA CHAPTER 5 - IP ADDRESSING SPECIFICALLY FOR YOU FOR ONLY \$13.90/PAGE Order Now

Imagine a network with two routers that are connected with a point-to-point HDLC serial link. Each router has an Ethernet, with PC1 sharing the Ethernet with Router1, and PC2 sharing the Ethernet with Router2. When PC1 sends data to PC2, which of the following is true?

- a. Router1 strips the Ethernet header and trailer off the frame received from PC1, never to be used again.

b. Router1 encapsulates the Ethernet frame inside an HDLC header and sends the frame to Router2, which extracts the Ethernet frame for forwarding to PC2.

c. Router1 strips the Ethernet header and trailer off the frame received from PC1, which is exactly re-created by R2 before forwarding data to PC2.

d. Router1 removes the Ethernet, IP, and TCP headers and rebuilds the appropriate headers before forwarding the packet to Router2. AWhich of the following are valid Class C IP addresses that can be assigned to hosts?

a. 1. 1. 1. 1

b. 200. 1. 1. 1

c. 128. 128. 128. 128

d. 224. 1. 1. 1

e. 223. 223. 223. 255B. 224. 1. 1. 1 is a class D address. 223. 223. 223. 255 is the network broadcast address for class C network 223. 223. 223. 0, so it cannot be assigned to a host. What is the range of values for the first octet for Class A IP networks?

a. 0 to 127

b. 0 to 126

c. 1 to 127

d. 1 to 126

e. 128 to 191

f. 128 to 192DPC1 and PC2 are on two different Ethernets that are separated by an IP router. PC1's IP address is 10. 1. 1. 1, and no subnetting is used.

Which of the following addresses could be used for PC2?

a. 10. 1. 1. 2

b. 10. 2. 2. 2

c. 10. 200. 200. 1

d. 9. 1. 1. 1

e. 225. 1. 1. 1

f. 1. 1. 1. 1D and F. Without any subnetting in use, all addresses in the same network as 10. 1. 1. 1—all addresses in Class A network 10. 0. 0. 0—must be on the same LAN. Addresses separated from that network by some router cannot be in network 10. 0. 0. 0. So, the two correct answers are the only two answers that list a valid unicast IP address that is not in network 10. 0. 0. 0. Each Class B network contains how many IP addresses that can be assigned to hosts?

a. 16, 777, 214

b. 16, 777, 216

c. 65, 536

d. 65, 534

e. 65, 532

f. 32, 768

g. 32, 766DEach Class C network contains how many IP addresses that can be assigned to hosts?

a. 65, 534

b. 65, 532

c. 32, 768

d. 32, 766

e. 256

f. 254FWhich of the following does a router normally use when making a decision about routing TCP/IP packets?

a. Destination MAC address

b. Source MAC address

c. Destination IP address

d. Source IP address

e. Destination MAC and IP address
C Which of the following are true about a LAN-connected TCP/IP host and its IP routing (forwarding) choices?

a. The host always sends packets to its default gateway.

b. The host sends packets to its default gateway if the destination IP address is in a different class of IP network than the host.

c. The host sends packets to its default gateway if the destination IP address is in a different subnet than the host.

d. The host sends packets to its default gateway if the destination IP address is in the same subnet as the host. B and C

Which of the following are functions of a routing protocol?

a. Advertising known routes to neighboring routers.

b. Learning routes for subnets directly connected to the router.

c. Learning routes, and putting those routes into the routing table, for routes advertised to the router by its neighboring routers.

d. To forward IP packets based on a packet's destination IP address. A and

C Which of the following protocols allows a client PC to discover the IP address of another computer based on that other computer's name?

a. ARP

b. RARP

c. DNS

d. DHCP
C Which of the following protocols allows a client PC to request assignment of an IP address as well as learn its default gateway?

a. ARP

b. RARP

c. DNS

d. DHCP
 Routing: The process of forwarding packets (Layer 3 PDUs).
 Logical addressing: Addresses that can be used regardless of the type of physical networks used, providing each device (at least) one address. Logical addressing enables the routing process to identify a packet's source and destination.
 Routing protocol: A protocol that aids routers by dynamically learning about the groups of addresses in the network, which in turn allows the routing (forwarding) process to work well.

sometimes called path selection

CLNS: Connectionless Network Services

Layer 3 protocol (rare in today's networks): IP: Internet Protocol

The main job of IP is to route data (packets) from the source host to the destination host.
 IPX: Novell Internetwork Packet Exchange
 DDP: AppleTalk Datagram Delivery Protocol
 ARP: Address Resolution Protocol.

ARP is used to dynamically learn the data-link address of an IP host connected to a LAN.

An Internet protocol used to map an IP address to a MAC address. L3

PDUs: Layer 3 packets, also called Layer 3 protocol data units. Version (IPv4 Header field): Version of the IP protocol. Most networks use version 4 today.

IHL (IPv4 Header field): IP Header Length. Defines the length of the IP header, including optional fields.
 DS Field (IPv4 Header field): Differentiated Services Field. It is used for marking packets for the purpose of applying different quality-of-service (QoS) levels to different packets.
 Packet length (IPv4 Header field): Identifies the entire length of the IP packet, including the data.

Identification (IPv4 Header field)Used by the IP packet fragmentation process; all fragments of the original packet contain the same identifier.

Flags (IPv4 Header field)3 bits used by the IP packet fragmentation process.

Fragment offset (IPv4 Header field)A number used to help hosts reassemble fragmented packets into the original larger packet.

TTL (IPv4 Header field)Time to live. A value used to prevent routing loops.

Protocol (IPv4 Header field)A field that identifies the contents of the data portion of the IP packet. For example, protocol 6 implies that a TCP header is the first thing in the IP packet data field.

Header Checksum (IPv4 Header field)A value used to store an FCS value, whose purpose is to determine if any bit errors occurred in the IP header.

Source IP address (IPv4 Header field)The 32-bit IP address of the sender of the packet.

Destination IP address (IPv4 Header field)The 32-bit IP address of the intended recipient of the packet.

default gateway/default routerOn an IP host, the IP address of some router to which the host sends packets when the packet's destination address is on a subnet other than the local subnet.

DHCPDynamic Host Configuration Protocol. A protocol used by hosts to dynamically discover and lease an IP address, and learn the correct subnet mask, default gateway, and DNS server IP addresses.

DNSDomain Name System. An application layer protocol used throughout the Internet for translating hostnames into their associated IP addresses.

host partA term used to describe a part of an IPv4 address that is used to uniquely identify a host inside a subnet. The host part is identified by the bits of value 0 in the subnet mask.

IP addressIn IP Version 4 (IPv4), a 32-bit address assigned to hosts using TCP/IP. Each address consists of a network number, an optional subnetwork number, and a host number. The network and subnetwork numbers together are used for routing, and the

<https://assignbuster.com/ccna-chapter-5-ip-addressing/>

host number is used to address an individual host within the network or subnetwork. logical address A generic reference to addresses as defined by Layer 3 protocols, which do not have to be concerned with the physical details of the underlying physical media. Used mainly to contrast these addresses with data-link addresses, which are generically considered to be physical addresses because they differ based on the type of physical medium. network broadcast address In IPv4, a special address in each classful network that can be used to broadcast a packet to all hosts in that same classful network. Numerically, the address has the same value as the network number in the network part of the address, and all 255s in the host octets—for example, 10. 255. 255. 255 is the network broadcast address for classful network 10. 0. 0. 0. network number/network address A number that uses dotted decimal notation like IP addresses, but the number itself represents all hosts in a single Class A, B, or C IP network. network part The portion of an IPv4 address that is either 1, 2, or 3 octets/bytes long, based on whether the address is in a Class A, B, or C network. routing table A list of routes in a router, with each route listing the destination subnet and mask, the router interface out which to forward packets destined to that subnet, and, as needed, the next-hop router's IP address. subnet broadcast address A special address in each subnet, specifically the largest numeric address in the subnet, designed so that packets sent to this address should be delivered to all hosts in that subnet. subnet number/subnet address In IP v4, a dotted decimal number that represents all addresses in a single subnet. Numerically, the smallest value in the range of numbers in a subnet, reserved so that it cannot be used as a unicast IP address by a host. subnet part In a subnetted IPv4 address, interpreted with classful addressing rules,

one of three parts of the structure of an IP address, with the subnet part uniquely identifying different subnets of a classful IP network.