TCP/IP Protocol Interview Questions And Answers Guide.

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TCP/IP Protocol Job Interview Preparation Guide.

Question # 1

Explain What is the data unit of "Transport layer"?

Answer:-

The data unit of transport layer is "Segment".

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Question # 2

Explain How can we detect that the other end of a TCP connection has crashed? Can we use "keepalives" for this?

Answer:-

Detecting crashed systems over TCP/IP is difficult. TCP doesn't require any transmission over a connection if the application isn't sending anything, and many of the media over which TCP/IP is used (e.g. Ethernet) don't provide a reliable way to determine whether a particular host is up. If a server doesn't hear from a client, it could be because it has nothing to say, some network between the server and client may be down, the server or client's network interface may be disconnected, or the client may have crashed. Network failures are often temporary (a thin Ethernet will appear down while someone is adding a link to the daisy chain, and it often takes a few minutes for new routes to stabilize when a router goes down) and TCP connections shouldn't be dropped as a result.

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Question # 3

Explain What is the full form of OSI and TCP/IP model?

Answer:-

OSI - Open System Interconnection
TCP/IP - Transmission Control Protocol/ Internet Protocol

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Question # 4

What is sockets?

Answer:-

A socket is an abstraction that represents an endpoint of communication. Most applications that consciously use TCP and UDP do so by creating a socket of the appropriate type and then performing a series of operations on that socket. The operations that can be performed on a socket include control operations (such as associating a port number with the socket, initiating or accepting a connection on the socket, or destroying the socket) data transfer operations (such as writing data through the socket to some other application, or reading data from some other application through the socket) and status operations (such as finding the IP address associated with the socket).

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Question # 5

Explain What is the PDU of "Network layer" and "Data link layer"?

Answer:-

PDU for Network Layer is: "Packet" and PDU for Data Link Layer is :"Frame"
128 bit in tcp ip

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Question # 6

Explain How do applications coexist over TCP and UDP?

Answer:-

Each application running over TCP or UDP distinguishes itself from other applications using the service by reserving and using a 16-bit port number. Destination and source port numbers are placed in the UDP and TCP headers by the originator of the packet before

it is given to IP, and the destination port number allows the
packet to be delivered to the intended recipient at the
destination system.

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Question # 7

Explain What is the Role of TCP/IP in data transmission from source to destination?

Answer:-

TCP/IP is a protocol stack used for data transmission from source to destination.
In the physical layer all the physical connections like LAN cards, cables etc will b there which will send data in the form of bits. layer 2 operates with frames where the switches comes into picture.
in the network layer which operates on packets.routing takes places, routers are the devices used for this.
transport layer is above the network layer and it uses mainly TCP/ UDP for transport of data.
the application layers is on top of this layer.
application layer
|
transport layer[tcp/udp]
|
network layer[routers]
|
datalink layer[switches]
|
physical layer[Network Interface card, cables etc]
for any transfer of data between 2 systems this TCP/IP stack comes into picture, whether it is file transfer or uploading something,sending an email etc. any application based on web will use TCP/IP

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Question # 8

Explain How does ARP response the request?

Answer:-

ARP sent the request in broadcast, response is unicast
When a source sends arp request the switch broadcast the arp req. if it doesn't hav d destination mac address in its mac address table, if the destination mac is known then switch simply forwards the request to that particular host and the host sends the arp response to the switch and the switch will further send the arp response to the source requesting the mac address.

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Question # 9

What is the port number of Telnet and DNS?

Answer:-

Telnet = 23 and DNS = 53
using telnet we can take command mode in the system , it work's under port no 23

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Question # 10

Explain Which layer is closer to the user?

Answer:-

There is only an application layer which is closer to user and also provides many application which user directly connected .for example web browser

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Question # 11

Explain How can we measure the performance of an IP link?

Answer:-

You can get a quick approximation by timing how long it takes to
FTP or RCP a large file over the link, but bear in mind that that
measurement will be skewed by the time spent in dealing with the
local and remote filesystems, not simply with the network itself.
And remember to measure the time it takes to receive a file, not
the time it takes to send it; the sender can report completion
even though large amounts of data are still buffered locally by
TCP and have not yet been delivered to the destination.

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Question # 12

Explain 4 example of application layer?

Answer:-

DNS, FTP, Telnet, http

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Question # 13

Explain What is the difference between flow control and error control?

Answer:-

* Flow control: adjust and confirm data flow rate for successful transmission.
* Error Control: a way to recover corrupted data .

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Question # 14

Explain Does IP Protect Data On The Network?

Answer:-

IP itself does not guarantee to deliver data correctly. It leaves
all issues of data protection to the transport protocol. Both TCP
and UDP have mechanisms that guarantee that the data they deliver
to an application is correct.
Using the IP layer the correct destination of the packet is identified and delivered. The Transport layer protocols(TCP/UDP/SCTP) check if the data delivered are correct using Check sum mechanism. However if the destination IP is not alive, the packet is hopped by decrementing the TTL field and when it becomes zero, the packet is lost and undelivered. If the Transport layer is UDP the source doesn't know of the failure in delivery of the packet

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Question # 15

What is TCP/IP?

Answer:-

TCP/IP is a name given to the collection (or suite) of networking protocols that have been used to construct the global Internet. The protocols are also referred to as the DoD (dee-oh-dee) or Arpanet protocol suite because their early development was funded by the Advanced Research Projects Agency (ARPA) of the US Department of Defense (DoD).

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Question # 16

Explain How is data send by IP layer?

Answer:-

IP layer PDU is "packet". So, data is send as packet.

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Question # 17

Explain How many hosts can be on each network? Consider a fixed subnet partition of a class B network number that will accommodate at least 76 networks.?

Answer:-

2^6=64 and 2^7=128
as per question, we need to accommodate 76 networks through fixed subnetting(ie VLSM is not asked for); so we need to use /23 mask which gives 128 subnets
No. of hosts per subnet = (2^9)-2 = 510
Subnet Address = 172.16.0.0
Subnet mask = 255.255.254.0
Valid subnets = 256-254 = 0,2,4,6...254
Subnet Example: for Subnet 0.0
First Host = 0.1
Last Host = 1.254
Broadcast = 1.255

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Question # 18

Explain What are the networking protocol options for the Windows clients if for some reason you do not want to use TCP/IP?

Answer:-

NWLink (Novell), NetBEUI, AppleTalk (Apple).

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Question # 19

Explain How Is IP Carried On A Network?

Answer:-

IP really isn't very fussy about how its packets are transported.
The details of how an IP packet is carried over a particular kind
of network are usually chosen to be convenient for the network
itself. As long as the transmitter and receiver observe some
convention that allows IP packets to be differentiated from any
other data that might be seen by the receiver, then IP can be used
to carry data between those stations.
Ip is just a protocol which used to carry data,packets over the network in the manner which the n/w components can understand.
ip is a identity of n/w devices

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Question # 20

Explain How does TCP try to avoid network meltdown?

Answer:-

TCP includes several mechanisms that attempt to sustain good data transfer rates while avoiding placing excessive load on the network. TCP's "Slow Start", "Congestion Avoidance", "Fast Retransmit" and "Fast Recovery" algorithms are summarised in RFC 2001. TCP also mandates an algorithm that avoids "Silly Window Syndrome" (SWS), an undesirable condition that results in very small chunks of data being transferred between sender and receiver. SWS Avoidance is discussed in RFC 813. The "Nagle Algorithm", which prevents the sending side of TCP from flooding the network with a train of small frames, is described in RFC 896.

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Question # 21

What is the difference between flow control and error control?

Answer:-

* Flow control: adjust and confirm data flow rate for successful transmission.
* Error Control: a way to recover corrupted data .

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