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Entry Level Cybersecurity Interview Questions

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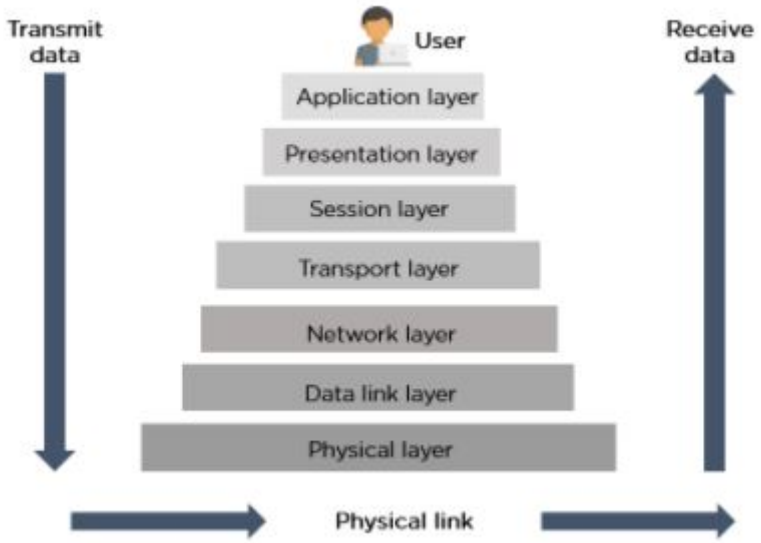
Cybersecurity Interview Questions - Networking

01. What is the OSI model? Explain the different layers of the OSI model.

The Open Systems Interconnection (OSI) model is a reference model that describes how applications interact with each other over a computer network. It has seven layers; they are as shown below:



1. Physical Layer: This is the lowest level of the OSI model. Here, data is converted into an electrical impulse and sent through a physical medium. It is also responsible for the physical connection between the devices.
2. Data Link Layer: Here, the data packet is encoded and decoded into bits. This layer looks into the node-to-node delivery of a message.

3. Network Layer: In this layer, datagrams are transferred from one to another. The functions here are routing and logical addressing.
4. Transport Layer: This layer is responsible for end-to-end connections. The data in this layer is called segments. This is where TCP and UDP protocols work.
5. Session Layer: This layer controls signals between computers. The session layer establishes, maintains, and ends connections between processes.
6. Presentation Layer: It is responsible for translating data into the application layer format. Here, the data is formatted, encrypted, and then sent to the next layer.
7. Application Layer: Finally, here, services are provided to the end-users. The application layer deals with any sort of data that the application of a machine generates, like a user input such as a password, and so on.

02. Define Unicasting, Multicasting, and Broadcasting.

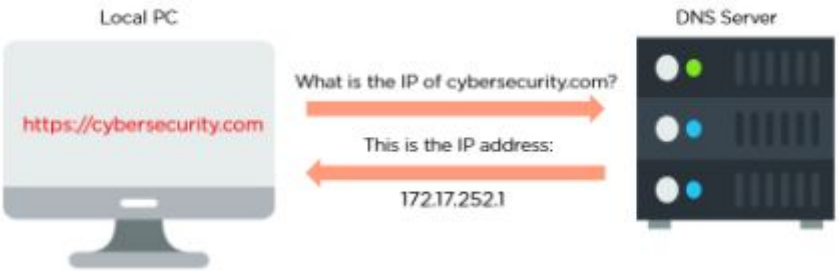
Unicast, Multicast, and Broadcast are the three methods by which we transmit data over a network.

1. Unicast: It sends the information from a single user to a single receiver. We use this for point-to-point communications.
2. Multicast: Here, data is sent from one or more sources to multiple destinations.
3. Broadcast: Broadcast is known as one-to-all, i.e., the communication is between a single user and several receivers.

03. What is DNS?

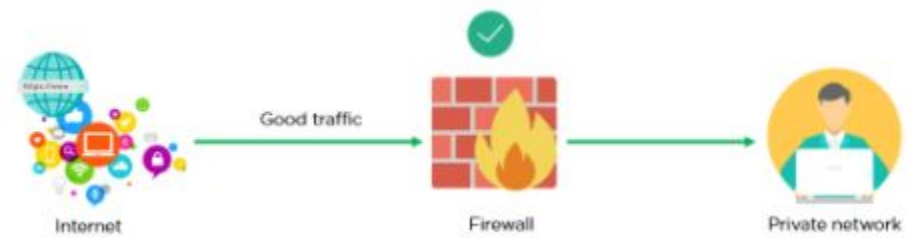
DNS stands for Domain Name System. It maps the domain name into its corresponding IP address.

As seen below, the DNS server provides the website's IP address.



04. What is a Firewall?

It is software or hardware that blocks incoming or outgoing traffic from the internet to your computer. They are responsible for securing a network.



The figure above shows how good traffic is allowed to enter the user's network. Similarly, the figure below shows how the firewall blocks the bad traffic, thereby protecting the user's network.

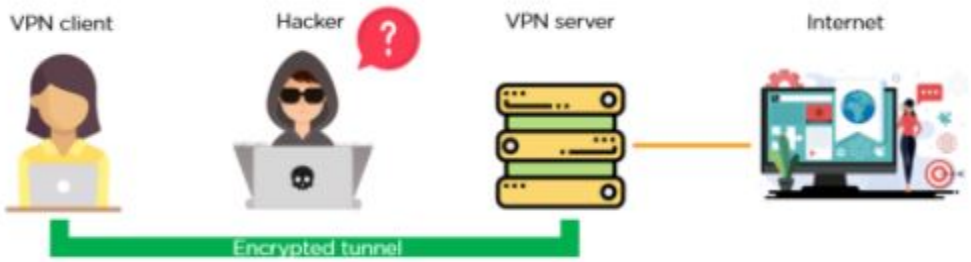
A few common types of firewalls are:

1. Packet-filtering Firewalls: These are the most common type of firewalls that analyze packets and let them pass through only if they match an established security rule-set.
2. Proxy Firewalls: They filter network traffic at the application level.
3. Stateful Multilayer Inspection (SMLI) Firewalls: These filter packets at the network, transport, and application layers. Here, the packets are compared to the known trusted packets.

05. What is a VPN?

VPN is also called a Virtual Private Network; it connects a VPN server and a VPN client. It creates a safe encrypted tunnel across the internet.

As seen below, the user has a VPN client installed on the machine. The VPN client then creates an encrypted tunnel to the VPN server; thus, information is received and sent to the internet securely.



06. What are the advantages of distributed processing?

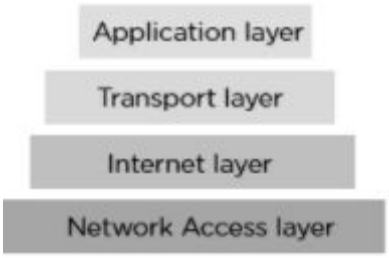
Distributed processing describes various computer systems that use more than one processor to run an application. Multiple computers across different locations share the same processor. The advantages of distributed processing are

1. Data Recovery: When one computer loses data, another interconnected computer can recover this loss of data.
2. Reliability: Any glitch in one machine does not affect the processing since it will use several other machines.
3. Lower Cost: Several cost-effective minicomputers are used instead of using costlier mainframe machines.
4. Easy to expand: Depending on the data processing amount, we can attach additional computers to the network.

07. What is TCP/ IP?

Transmission Control Protocol (TCP) is a set of communication protocols used to interconnect network devices on the internet. It defines how data should be transmitted over the internet by providing end-to-end communication.

Internet Protocol (IP) is all about routing every individual packet to ensure it reaches its destination. The TCP/IP model is a compressed version of the OSI model. It consists of four layers; they are:



08. What do you mean by ipconfig and ifconfig?

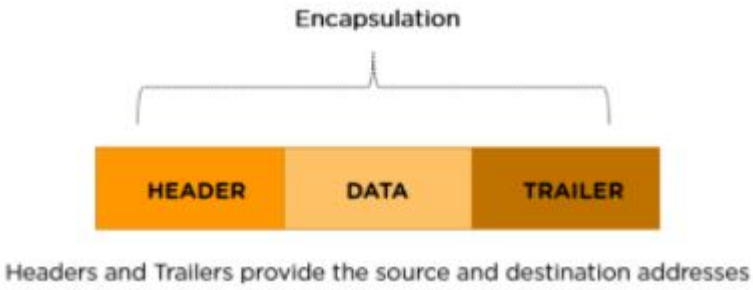
ipconfig	ifconfig
ipconfig (Internet Protocol Configuration) is a command used on Microsoft Windows to view and configure the network interface.	ifconfig (Interface Configuration) command is used on Linux, Mac, and UNIX operating systems.
This is a useful command for displaying all the TCP/IP network summary information currently available on a network. Additionally, it also helps in modifying the DHCP protocol and the DNS setting.	This command is used to configure and control the TCP/IP network interface parameters from the Command Line Interface. It also allows you to view the IP addresses of these network interfaces.

09. What is the difference between Domain and Workgroup?

Domain	Workgroup
A domain is a centralized network model.	A workgroup is a decentralized network model.
Here, one administrator manages the domain and its resources.	Here, every user manages the resources individually on their PCs.
It is good for large networks.	It is good for small networks.
Here, the computer can be connected to any network.	All the computers here should be connected to the same LAN.

10. What is Data encapsulation in networking?

Data encapsulation is the process of adding headers and trailers to data. The data link layer binds each packet into a frame that consists of the hardware address of the source and the destination computer.



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