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WD (WESTERN DIGITAL) TOPICS

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WD (Western Digital) Topics

Q1 What is Dhcp ? How can you enable dhcp? How can u navigate the customer to enable DHCP in his computer?

DHCP stands for Dynamic Host Configuration Protocol, and it is a network protocol used to automatically assign IP addresses, subnet masks, default gateways, and other network configuration parameters to devices on a network.

When a device connects to a network, it sends a request to the DHCP server, which responds with an IP address and other network configuration parameters. The device can then use this information to connect to the network.

DHCP simplifies the network configuration process and allows for efficient use of IP addresses by only assigning them when they are needed. With DHCP, network administrators can manage IP addresses and other network configuration parameters centrally, eliminating the need to manually configure each device on the network.

To enable DHCP on a computer, follow these steps:

1. Click on the Start button and go to Control Panel.
2. Click on Network and Sharing Center.
3. Click on Change adapter settings on the left-hand side of the window.
4. Right-click on the network adapter that you want to configure, and select Properties.
5. In the Properties window, scroll down to Internet Protocol Version 4 (TCP/IPv4) and select it.
6. Click on Properties.
7. Select Obtain an IP address automatically and Obtain DNS server address automatically.
8. Click on OK to save the changes.

Q2 What is subnet mask

A subnet mask is a 32-bit number used to identify the network portion and the host portion of an IP address. It is used to divide a larger network into smaller subnetworks or subnets.

For example, in the IP address 192.168.1.10 with a subnet mask of 255.255.255.0, the first three octets (192.168.1) represent the network portion, while the last octet (10) represents the host portion.

Subnetting allows network administrators to create smaller, more manageable networks by dividing a large network into multiple smaller subnets.

In binary form, a subnet mask consists of a series of consecutive 1s followed by a series of consecutive 0s. The 1s indicate the network portion of the IP address, while the 0s indicate the host portion.

Q3 What is DNS and what is google's default dns

DNS stands for Domain Name System, and it is a system that translates domain names, such as www.google.com, into IP addresses, which are used by computers to communicate over the internet.

When a user types a domain name into their web browser, the browser sends a request to a DNS server, asking it to translate the domain name into an IP address. The DNS server then responds with the IP address, allowing the browser to connect to the web server and load the requested web page.

Google has its own DNS service, which is known as Google Public DNS. The default Google DNS addresses are:

- Primary DNS: 8.8.8.8
- Secondary DNS: 8.8.4.4

Q4 What are the functions of a router

A router is a network device that connects multiple networks together and enables communication between devices on those networks. Some of the key functions of a router include:

1. Packet forwarding: Routers receive packets of data from different devices on a network and use routing
2. Network address translation (NAT): Routers use NAT to translate private IP addresses used on a local network to a public IP address that can be used on the internet. This allows multiple devices to share a single public IP address.
3. Firewall: Routers can include firewall functionality to provide security by blocking unauthorized access to the network and filtering traffic based on predefined rules.
4. DHCP server: Routers can include a DHCP server to automatically assign IP addresses and other network configuration parameters to devices on the network.
5. Quality of service (QoS): Routers can prioritize certain types of traffic, such as voice and video, to ensure that they are given higher bandwidth and are not disrupted by other types of traffic on the network.
6. Virtual private network (VPN) support: Some routers can be configured to provide secure access to a private network over the internet using VPN technology.

In summary, routers play a critical role in enabling communication between devices on different networks and provide various functionalities, such as packet forwarding, NAT, firewall, DHCP, QoS, and VPN support.

Q5 What is the diff. b/w router & switch?

Routers and switches are both networking devices that are used to connect devices on a network. However, they have different functions and operate at different levels of the network stack.

A switch is a layer 2 device that is used to connect devices on the same network, such as a local area network (LAN). It uses the MAC addresses of devices to forward data packets between them. Switches are typically used to improve network performance by reducing congestion and improving bandwidth utilization.

A router, on the other hand, is a layer 3 device that is used to connect different networks together, such as connecting a LAN to the internet. Routers use IP addresses to forward data packets between networks, and they can use routing protocols to dynamically learn the best path to forward packets. Routers can also perform network address translation (NAT), firewalling, and other functions to provide security and manage network traffic.

In summary, switches are used to connect devices on the same network, while routers are used to connect different networks together. Switches operate at the MAC layer, while routers operate at the IP layer.

Q6 What is the diff between logical address & physical address?

Logical addresses and physical addresses are both used in computer networking to identify devices on a network, but they have different functions and characteristics.

A logical address is a network layer address used to uniquely identify a device on a network. The most common type of logical address is the IP address, which is used in the internet protocol (IP) to identify devices on a network. Logical addresses can be used to identify a device regardless of its physical location on the network.

A physical address, also known as a hardware address or MAC address, is a unique identifier assigned to a network interface controller (NIC) by the manufacturer. It is a globally unique address that is burned into the NIC's hardware and cannot be changed. The physical address is used by switches to forward data packets between devices.

In summary, logical addresses are used to identify devices at the network layer, while physical addresses are used to identify devices at the data link layer. Logical addresses are assigned by the network administrator and can be changed, while physical addresses are unique and burned into the hardware of a device.

Q7 What is DNS server & its purpose?

A DNS (Domain Name System) server is a network server that translates human-readable domain names (such as www.example.com) into IP addresses (such as 192.168.1.1) that can be used by computers to connect to other devices or services on the internet.

The primary purpose of a DNS server is to provide a hierarchical, distributed database of domain names and their associated IP addresses. When a user enters a URL in their web browser or requests any resource from the internet using a domain name, the DNS server is responsible for resolving that domain name into the corresponding IP address that can be used to establish a connection to the requested resource.

DNS servers also support caching, which means that they store previously resolved domain names and their IP addresses to reduce the time required to resolve those names again in the future. Caching improves the efficiency of DNS queries and reduces the load on the DNS infrastructure.

DNS servers can also be used to provide other services, such as mail routing, dynamic host configuration (DHCP), and virtual private network (VPN) support.

In summary, DNS servers play a critical role in enabling communication on the internet by translating domain names into IP addresses. They provide a hierarchical, distributed database of domain names and their associated IP addresses, support caching to improve efficiency, and can provide additional services like mail routing and VPN support.

Q8 what is the diff. b/w subnet mask & default gateway?

Subnet mask and default gateway are two separate networking concepts, but they work together to enable communication between devices on a network.

A subnet mask is a 32-bit number that is used to divide an IP address into two parts: the network address and the host address. The subnet mask is used to determine which part of an IP address identifies the network and which part identifies the individual host on that network. The subnet mask is usually expressed in dotted decimal notation, such as 255.255.255.0.

A default gateway, on the other hand, is the IP address of a device on a network that acts as the entry point for traffic from other networks. It is used by devices on a network to send traffic to destinations on other networks. The default gateway is usually the IP address of the router that connects the local network to the internet or another network.

In summary, the subnet mask is used to divide an IP address into network and host portions, while the default gateway is used to route traffic from one network to another. The subnet mask is used locally on a device to determine which IP addresses are on the local network, while the default gateway is used to send traffic to destinations on other networks.

Q9 What is default gateway and how does it work

A default gateway is a networking device that serves as an entry point for traffic from devices on a local network to devices on other networks. It is typically the IP address of the router that connects the local network to the internet or another network.

When a device on a local network wants to communicate with a device on another network, it sends the data to the default gateway, which then routes the data to the destination network. The default gateway is responsible for directing traffic between networks based on the destination IP address of the data.

Here's an example of how a default gateway works:
Suppose a user on a local network wants to access a website on the internet. When the user enters the URL in their web browser, the device sends a request to the default gateway, which is usually the local router. The router looks up the IP address of the website in its routing table and forwards the request to the next hop, which might be another router or the internet service provider (ISP) gateway. The ISP gateway then forwards the request to the appropriate web server, and the server responds with the requested web page. The response follows the same path back to the user's device via the default gateway.

In summary, a default gateway is a critical networking device that enables communication between devices on a local network and devices on other networks. It acts as a central point of communication for data that needs to be sent outside the local network, and it routes data based on the destination IP address of the data.

Q10 I have router in house, multiple devices, one device is not connected how will u troubleshoot that?

If one device is not able to connect to the internet through your home router, here are some troubleshooting steps you can take:

1. Check the physical connections: Ensure that the device is properly connected to the router with an Ethernet cable or Wi-Fi. Check that the Ethernet cable is plugged in correctly and that the Wi-Fi is turned on and connected to the right network.
2. Restart the device: Sometimes, restarting the device can solve connectivity issues. Restart the device that is not connecting to the internet and see if it can connect to the internet after rebooting.
3. Restart the router: If restarting the device did not work, try restarting the router. Unplug the power cable from the router, wait for 10 seconds, and then plug it back in. Wait for a few minutes for the router to restart and then check if the device can connect to the internet.
4. Check the network settings: Make sure that the device is configured with the correct IP address and subnet mask. If the device is using a static IP address, verify that the IP address is within the range of the router's IP address pool. If the device is using DHCP to obtain an IP address automatically, make sure that the DHCP settings are correctly configured.
5. Check for network congestion: If multiple devices are using the network at the same time, the network may become congested and slow down. Try disconnecting some devices or limiting their bandwidth usage to see if that solves the issue.
6. Update the router firmware: Make sure that the router firmware is up-to-date. Outdated firmware can cause connectivity issues and other problems.
7. Contact the internet service provider: If none of the above steps work, contact your internet service provider (ISP) to see if there is an issue with the internet connection. The ISP may be able to diagnose and resolve the issue remotely or send a technician to fix the issue.

In summary, troubleshooting a device that is not connecting to the internet through your home router involves checking the physical connections, restarting the device and the router, checking the network settings, checking for network congestion, updating the router firmware, and contacting the ISP if none of these steps work.

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Q15 How will you find IP address of router using a laptop connected by wifi & desktop by ethernet.

IP address of the router:

1. Open the command prompt on your desktop: Press the Windows key + R on your keyboard to open the Run dialog box. Type "cmd" in the box and press Enter to open the command prompt.
2. Type "ipconfig" and press Enter: This command will display the IP address, subnet mask, and default gateway of your desktop's network connection.
3. Look for the Default Gateway address: The IP address displayed next to "Default Gateway" is the IP address of your router. Note down this IP address.

In summary, you can find the IP address of your router by opening the command prompt on your desktop and laptop, typing "ipconfig," and looking for the IP address displayed next to "Default Gateway."

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Q17 What is Active directory

Active Directory is a directory service that is used by Microsoft Windows networks to store information about network resources such as computers, users, and printers. It provides a central location for network administration and allows administrators to manage network resources, configure user accounts, and apply security policies from a single location.

Active Directory is often used in enterprise environments to provide a secure and centralized way to manage network resources.

Q18 What are Cat. 5&6 categories of cable

Cat 5 and Cat 6 are categories of Ethernet cables used in networking. They are used to connect devices such as computers, switches, routers, and other network components.

Cat 5 cables are an older type of Ethernet cable, but they are still widely used. They support speeds up to 100 Mbps (megabits per second) and can be used for both voice and data transmissions. Cat 5 cables have four pairs of twisted copper wires and are capable of transmitting data up to 100 meters.

Cat 6 cables are a newer type of Ethernet cable and are designed to support faster network speeds than Cat 5 cables. They support speeds up to 10 Gbps (gigabits per second) and are backward compatible with Cat 5 and Cat 5e cables.

Cat 6 cables have four pairs of twisted copper wires and are capable of transmitting data up to 55 meters. They also have better shielding than Cat 5 cables, which makes them less susceptible to interference and crosstalk.

Q19 What is RJ45

RJ45 (Registered Jack 45) is a type of connector commonly used for Ethernet networking cables.
It has eight pins and is designed to connect network devices such as computers, switches, routers, and other networking equipment.

RJ45 connectors are commonly used with Cat 5, Cat 5e, and Cat 6 Ethernet cables to transmit data between devices. They are widely used in home and office networks and are the standard connector for Ethernet cables used in most modern networking applications.

Q20 How can i check internet connectivity through command prompt

You can check internet connectivity through the command prompt by following these steps:

1. Open the Command Prompt on your computer. You can do this by pressing the Windows key + R on your keyboard, typing "cmd" in the Run box, and then pressing Enter.
2. In the Command Prompt window, type "ping google.com" (without the quotes) and press Enter. This will send a ping request to Google's server and wait for a response.
3. If your computer is connected to the internet, you should see a series of lines that look like this:

```
Reply from 172.217.12.174: bytes=32 time=11ms TTL=56
Reply from 172.217.12.174: bytes=32 time=12ms TTL=56
Reply from 172.217.12.174: bytes=32 time=13ms TTL=56
Reply from 172.217.12.174: bytes=32 time=14ms TTL=56
```

These lines indicate that your computer is successfully communicating with Google's server.

1. If your computer is not connected to the internet, you will see an error message that looks like this:

```
Ping request could not find host google.com. Please check the name and try again.
```

Q21 How can i check my external ip on my windows pc

You can check your external IP address on your Windows PC by following these steps:

1. Open a web browser such as Google Chrome or Microsoft Edge.
2. Navigate to a website that displays your public IP address, such as https://www.whatismyip.com/ or https://www.whatismyip.net/.
3. The website will display your external IP address on the page.

Alternatively, you can also use the command prompt to retrieve your public IP address by following these steps:

1. Open the command prompt by typing "cmd" in the Windows search bar and clicking on the Command Prompt app.
2. Type "nslookup myip.opendns.com resolver1.opendns.com" and press Enter.
3. Your external IP address will be displayed on the screen under "Non-authoritative answer:".

Note that your external IP address is assigned to you by your Internet Service Provider (ISP) and may change periodically unless you have a static IP add

Q22 Switches OR routers, Which one is smarter?

In general, routers are considered "smarter" than switches. This is because routers are able to make more intelligent decisions about where to send data packets based on their destination IP addresses. Routers also typically have more advanced features such as the ability to assign IP addresses, perform Network Address Translation (NAT), and establish virtual private networks (VPNs).

Switches, on the other hand, are designed to provide high-speed, low-latency connectivity between devices on the same network. They are typically used to connect devices within a local area network (LAN) and are capable of delivering data at wire speed.

In summary, while both switches and routers are important components of a computer network, routers are generally considered to be the more intelligent and feature-rich of the two.

Q23 What is the Booting process, explain

Booting is the process of starting up a computer or device and preparing it for use. The booting process typically involves several steps, which may vary depending on the operating system and the hardware being used. Here is a general overview of the booting process:

1. Power on: The user turns on the computer or device, and power is supplied to the hardware components.
2. Basic Input/Output System (BIOS) initialization: The BIOS is a firmware that is built into the computer's motherboard, and it is responsible for initializing the hardware components and performing basic system checks. During this stage, the BIOS performs a Power-On Self-Test (POST) to check that the hardware is functioning properly, and it loads the necessary drivers to communicate with the hardware.
3. Boot loader: The boot loader is a program that is responsible for loading the operating system into memory. The boot loader is typically stored in the computer's boot sector, which is a small area of the hard drive or other storage device. The boot loader loads the operating system kernel into memory and prepares it for execution.
4. Kernel initialization: The kernel is the core component of the operating system, and it is responsible for managing the hardware resources, running applications, and providing services to other programs. During the kernel initialization stage, the kernel sets up the system memory, initializes the drivers for the hardware components, and starts the system services.
5. User space initialization: After the kernel is initialized, the operating system starts the user space initialization process. This involves loading the user applications and services into memory, and starting them up. Once the user space initialization is complete, the computer is ready for use.

In summary, the booting process involves a series of steps that initialize the hardware components, load the operating system into memory, and prepare the system for use. The booting process can vary depending on the hardware and operating system being used, but the general process is similar across different platforms.

Q24 what is POST

POST stands for Power-On Self-Test. It is a diagnostic test that a computer system performs during the booting process to ensure that the hardware components of the system are functioning properly.
The POST process starts as soon as you turn on your computer. The CPU sends a signal to the BIOS (Basic Input/Output System) firmware, which is located on a chip on the motherboard. The BIOS performs a series of tests to check the hardware components, such as the processor, memory, hard drive, keyboard, and mouse. The purpose of the POST is to detect any problems or errors with the hardware, and report them to the user.

During the POST, the BIOS checks the integrity of the system memory by performing a memory test, commonly known as a RAM test. The BIOS also checks the basic input and output devices, such as the keyboard, mouse, and hard drive. If the hardware passes the tests, the BIOS will initiate the next stage of the booting process, which involves loading the operating system into memory. If any problems are detected during the POST, the BIOS will usually beep or display an error message to alert the user to the problem.

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