

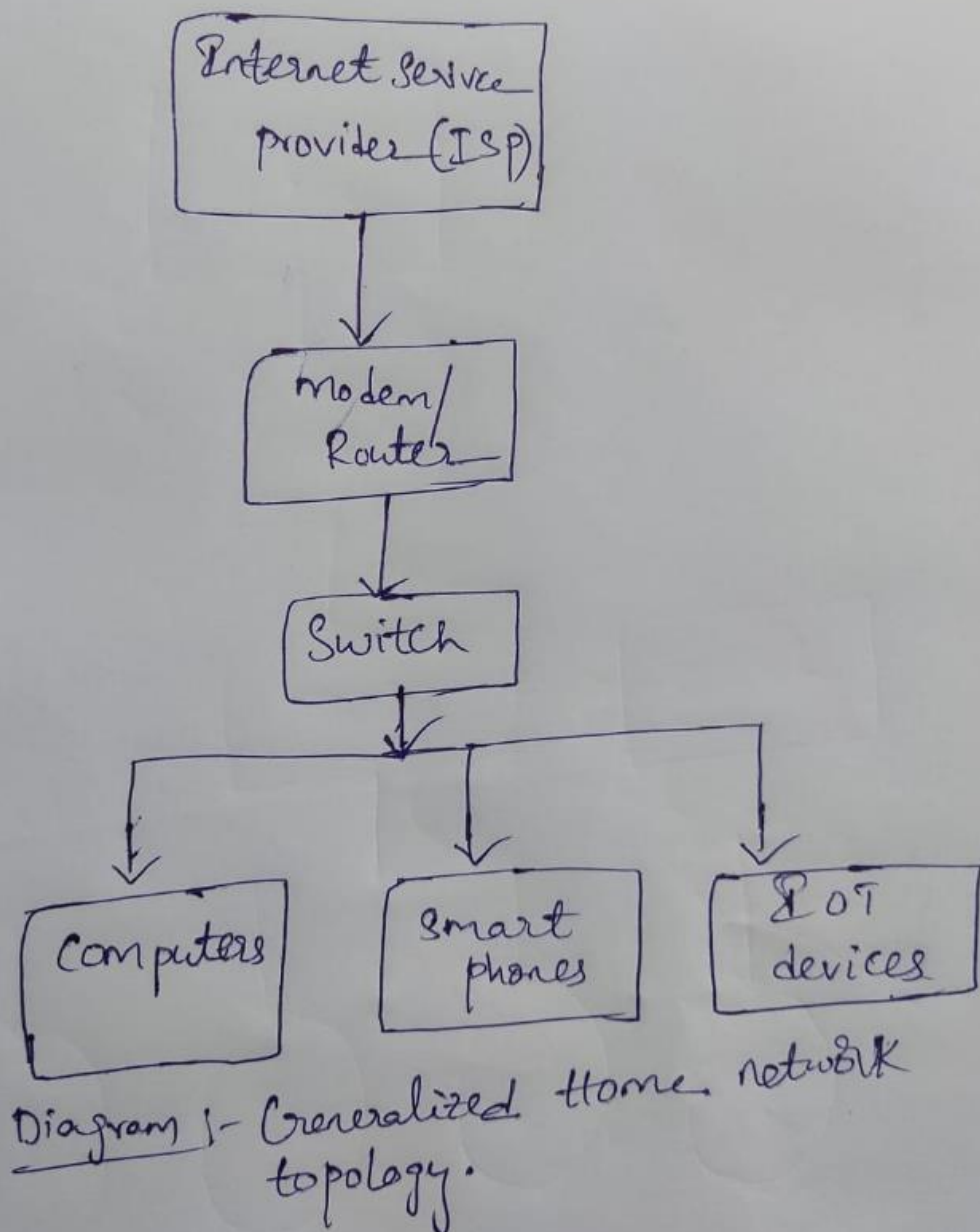
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Day 1-Assignment

Assignment 1-Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.

Answer:



Home Network Topology

A home network topology refers to the way devices on your home network are connected to each other. Here's a common home network setup with a star topology:

- **Internet Modem:** This device receives the internet signal from your internet service provider (ISP).
- **Router:** The router acts as a central hub for your network. It manages traffic between devices on your network and the internet. Most routers also provide Wi-Fi connectivity.
- **Wired Devices:** These devices connect directly to the router using an Ethernet cable. This provides a faster and more stable connection compared to Wi-Fi. Examples include desktop computers, gaming consoles, or network attached storage (NAS) devices.
- **Switch:** In larger home networks, a switch may be used to connect multiple devices via Ethernet cables. It helps in expanding the number of wired connections available.
- **Wireless Devices:** These devices connect to the router's Wi-Fi network. Examples include laptops, smartphones, tablets, and smart home devices.

Accessing an RPS Lab Environment

RPS Lab environments can vary depending on the institution, but here are some general ways you might access one:

- **Remote Desktop Protocol (RDP):** This method allows you to connect to a virtual machine in the lab from your own computer. You'll need the lab's IP address or hostname and login credentials to connect.
- **Web-based Interface:** Some labs provide a web interface where you can access lab resources through a web browser. You'll need the lab URL and login credentials to access this.
- **VPN (Virtual Private Network):** A VPN creates a secure tunnel between your device and the lab network. This allows you to access lab resources as if you were physically present in the lab. You'll need VPN client software and configuration details from your instructor to set this up.

Assignment 2: Identify a real-world application for both parallel computing and networked systems. Explain how these technologies are used and why they are important in that context.

Answer- Real-world application for parallel computing: Weather Forecasting

Explanation: Weather forecasting involves complex simulations of atmospheric conditions, which require significant computational power. Parallel computing allows weather forecasting models to break down these simulations into smaller tasks that can be processed simultaneously across multiple computing nodes. Each node can handle a portion of the simulation independently, speeding up the overall computation. This enables meteorologists to produce more accurate and timely weather forecasts, crucial for various industries like agriculture, transportation, and disaster preparedness.

Importance: Parallel computing enhances the scalability and efficiency of weather forecasting models, enabling meteorologists to analyze larger datasets and run more complex simulations. This leads to improved forecast accuracy, which in turn helps decision-makers and the general public make informed choices based on weather predictions, such as evacuating areas prone to natural disasters or optimizing crop planting schedules.

Real-world application for networked systems: Online Retail

Explanation: In online retail, networked systems play a vital role in managing various aspects of the business, including inventory management, order processing, customer relationship management (CRM), and website hosting. These systems rely on networked infrastructure to communicate and exchange data in real-time. For example, when a customer places an order on an e-commerce website, networked systems handle the transaction processing, inventory updates, and shipping logistics seamlessly across multiple interconnected servers and databases.

Importance: Networked systems enable online retailers to provide a seamless and responsive shopping experience to customers, regardless of the scale of operations. These systems facilitate efficient order processing, inventory tracking, and customer support, leading to increased customer satisfaction and loyalty. Additionally, networked

