Day1Assignments

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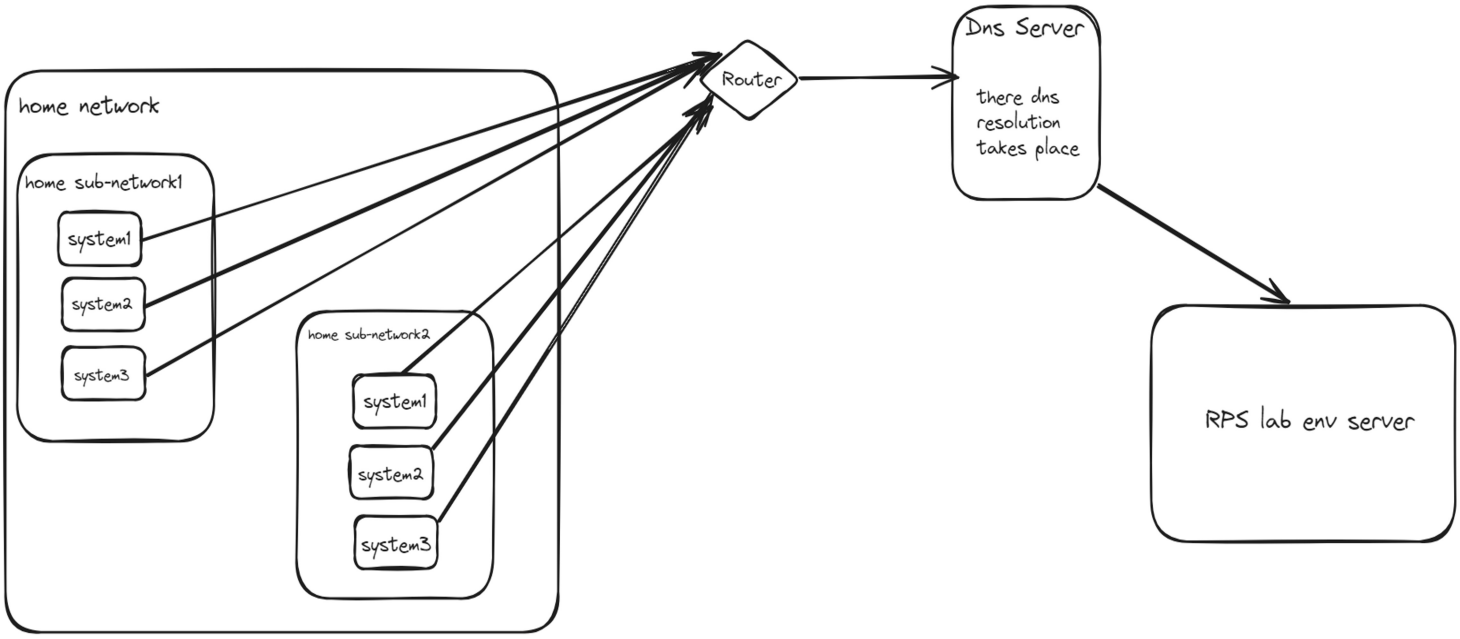
Assignment 1: Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.



- Home Network Topology:

- Internet Connection:
  - Incoming internet connection via an Internet Service Provider (ISP), typically connected to a modem provided by the ISP.

- Router:
  - The modem connects to a router which manages the local network.
  - The router provides wired (Ethernet) and wireless (Wi-Fi) connections to devices within the home network.

- Devices:
  - Desktop Computer: Used for general computing tasks.
  - Laptop: Personal work and browsing.
  - Smartphone: Connected to Wi-Fi for mobile access.
  - Smart TV: Connected to Wi-Fi for streaming services.

- Accessing RPS Lab Environment:

  To access the RPS Lab environment, which likely resides outside the local home network, several methods can be employed:

- VPN (Virtual Private Network):

- I connect to a VPN service that securely extends my home network to the lab environment.
- This VPN connection creates a secure tunnel over the internet, allowing access to resources in the lab.

- Remote Desktop Protocol (RDP):
  - If I need direct access to lab computers or servers, I might use RDP.
  - This involves connecting to a specific machine in the lab environment from my local computer.
  - RDP provides a graphical interface to work with resources in the lab.

- SSH (Secure Shell):
  - For command-line access to lab servers or devices, I use SSH.
  - SSH provides a secure way to access and manage remote systems.

- Web-based Interfaces:
  - Some lab resources might be accessible through web-based interfaces.
  - I can use a browser to access specific tools or applications hosted in the lab

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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.

- E-commerce Websites: Web servers and databases form the backbone of online shopping platforms, handling user requests, product catalogs, and transaction data.
- Inventory Management Systems: Networked systems connect e-commerce platforms with inventory databases and supply chain systems to track product availability and manage stock levels in real-time.
- Payment Gateways: Secure networked systems are used to process online transactions, encrypting sensitive information (like credit card details) and communicating with banks or payment processors.
- Order Fulfillment Networks: Networked systems coordinate logistics operations, including order processing, shipping, and delivery tracking, often integrating with third-party shipping providers.

Importance in this Context:

- Global Reach: Networked systems enable online shopping platforms to reach customers worldwide, providing a seamless shopping experience irrespective of geographical location.

- Reliability and Scalability: Robust network infrastructure ensures high availability and scalability, supporting heavy traffic loads during peak shopping seasons.

- Security: Networked systems employ encryption and other security measures to protect customer data and ensure secure transactions, fostering trust among online shoppers.

- Real-Time Updates: By leveraging networked systems, customers receive real-time updates on product availability, order status, and shipment tracking, enhancing the overall shopping experience.