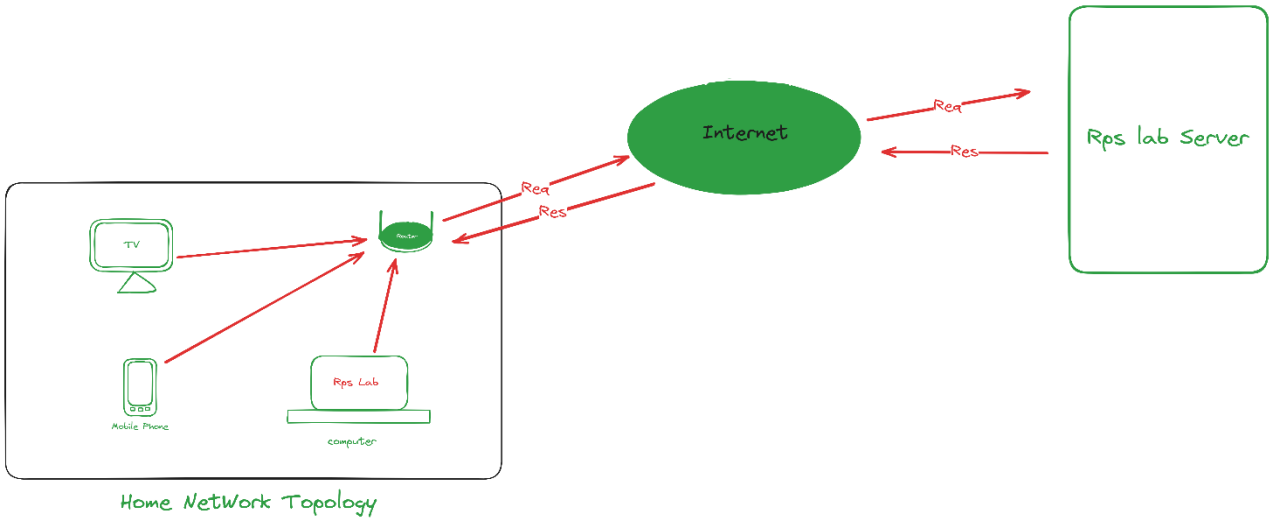
Assignment 1:

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



In Home network Topology,

We have some node or device like Television, mobile phone and laptop that will connect to the Router. Router is gateway where every request and response will validate and then It will send to the specific nodes.

In our scenario,

1. we have to send the request from our device for accessing the Rps cloud lab after that It will goes the request to router. because we are dealing with public network.

2. Router will take request and forward the request to rps lab Server.

3. After that rps cloud lab server take request and validate after that It will send back to the response to router.

4. Router will take response and giving back to the device.

5. we will use rps cloud lab in my device. so We are accessing the cloud lab.

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.

1. Parallel Computing :

   Parallel computing refers to a computing paradigm where multiple processors or computing units work together simultaneously to execute tasks, solve problems, or process data. In simpler terms, it's like having several workers collaborate on different parts of a big task at the same time to get it done faster.

2. Networked System:

   A networked system refers to a collection of interconnected devices, components, or nodes that communicate and share resources with each other over a network.

In the financial industry, institutions like banks, investment firms, and insurance companies deal with vast amounts of data daily, including customer transactions, market trends, risk assessments, and regulatory compliance. Analyzing this data efficiently and accurately is crucial for making informed decisions, managing risks, detecting fraud, and optimizing business processes. Parallel computing and networked systems are integral to achieving these goals.

These technologies are used and why they are important in the context of large-scale data analytics in finance:

1. Parallel Computing for Data Processing:

- Parallel computing allows financial institutions to process enormous datasets quickly. For example, when analyzing transaction records or market data, parallel processing techniques distribute the workload across multiple processors or computing nodes, enabling concurrent data processing tasks.
- Complex analytics tasks, such as predictive modeling, risk simulations, and portfolio optimizations, benefit significantly from parallel computing. These computations involve intensive mathematical calculations and data manipulations that can be parallelized to accelerate processing times.
- In the context of high-frequency trading (HFT), where split-second decisions can impact trading outcomes, parallel computing plays a crucial role in executing trading algorithms and analyzing market data in real-time across distributed systems.

2. Networked Systems for Data Integration and Collaboration:

- Networked systems facilitate data integration from multiple sources within and outside the organization. Financial institutions often need to aggregate data from various internal systems (e.g., transaction databases, CRM systems, risk management platforms) and external sources (e.g., market feeds, economic indicators, regulatory databases).

- Collaborative analytics is essential in financial services, where teams across different departments or locations work together on data analysis projects. Networked systems enable seamless communication, data sharing, and collaborative workflows, ensuring that insights derived from data analytics are accessible to relevant stakeholders.

- Cloud-based networked systems provide scalability and flexibility in managing data analytics workloads. Financial institutions can leverage

cloud infrastructure to scale computing resources based on demand, perform distributed data processing, and deploy analytics applications across geographically dispersed teams.