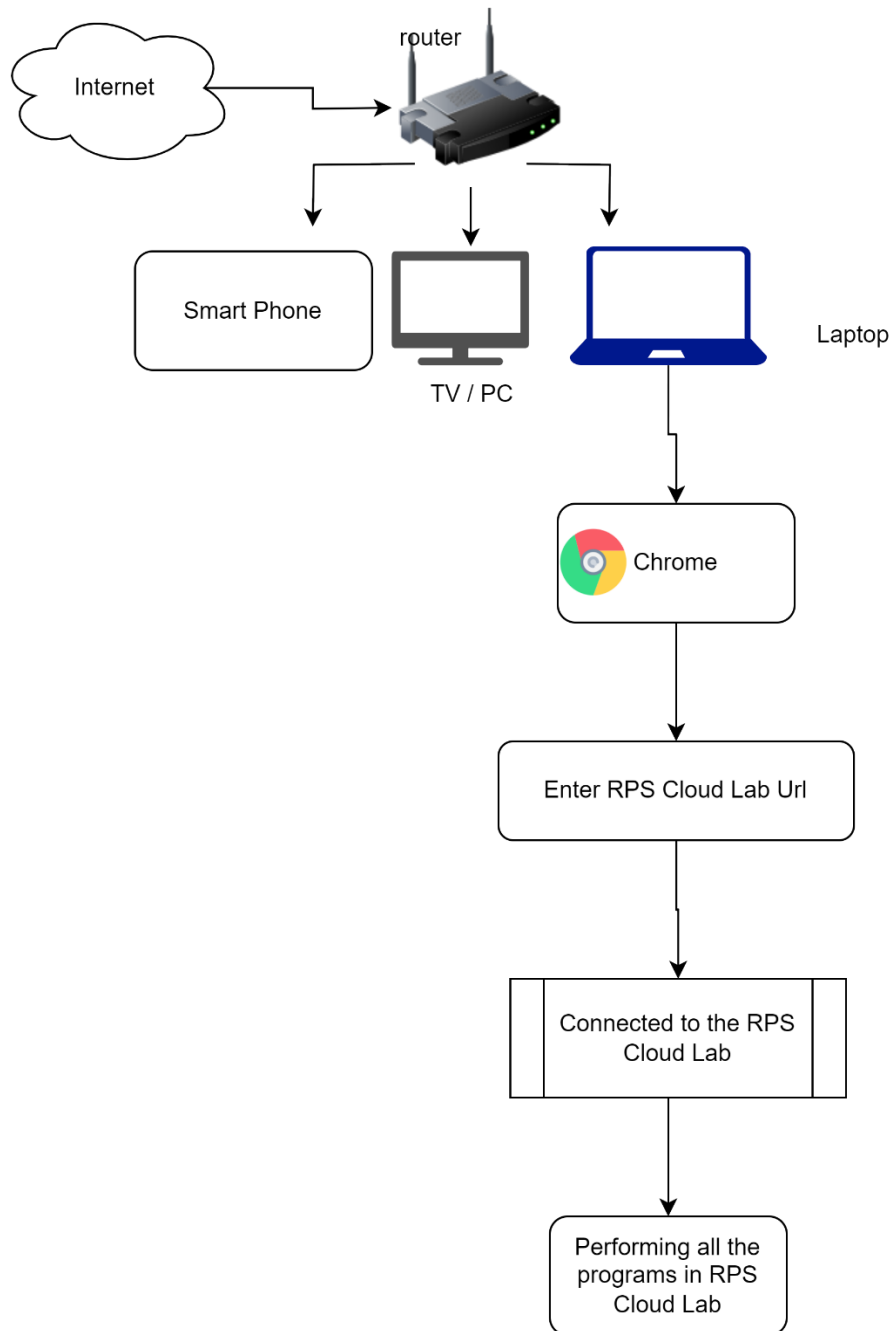


1: Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.



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.

**Parallel computing:**

Parallel computing refers to the process of executing several processors an application or computation simultaneously. Generally, it is a kind of computing architecture where the large problems break into independent, smaller, usually similar parts that can be processed in one go. It is done by multiple CPUs communicating via shared memory, which combines results upon completion. It helps in performing large computations as it divides the large problem between more than one processor.

**Parallel Computing in Weather Forecasting:**

Weather forecasting involves complex simulations of atmospheric conditions using mathematical models. Parallel computing plays a crucial role in weather forecasting by dividing these complex computations into smaller tasks that can be solved simultaneously. Each task can be assigned to a separate processing unit, such as a CPU core or a GPU, allowing for faster and more efficient calculations.

**Importance:**

**Speed:** Parallel computing enables weather forecasting models to run much faster, allowing meteorologists to generate forecasts in a timely manner.

**Accuracy:** By utilizing parallel processing, forecast models can incorporate more detailed and higher-resolution data, resulting in more accurate predictions.

**Scalability:** As computational demands increase with the need for more detailed forecasts or larger geographical areas, parallel computing allows for scaling by adding more processing units.

**Networked Systems in Weather Forecasting:**

Weather forecasting requires access to vast amounts of data from various sources, including satellite imagery, weather stations, and ocean buoys. Networked systems facilitate the collection, transmission, and sharing of this data among different weather forecasting centers and research institutions.

**Importance:**

**Data Access:** Networked systems enable meteorologists to access real-time data from remote locations, allowing for more comprehensive and up-to-date forecasts.

**Collaboration:** Weather forecasting often requires collaboration among multiple organizations and research institutions. Networked systems facilitate data sharing and collaboration among meteorologists worldwide.

**Redundancy and Reliability:** By utilizing redundant network connections and distributed data storage, networked systems ensure that weather data remains accessible even in the event of hardware failures or network outages.

So , parallel computing and networked systems are essential in weather forecasting to improve the speed, accuracy, and reliability of forecast models by enabling efficient computation and seamless data exchange among meteorological organizations and research institutions.