Cisco VIP 2025 – Networking Industry Problem Statement

🔧 **Title: "Auto Topology Generation & Simulation"**

🧠 **Imagine This Scenario:**

You are building a tool that:

- Automatically **creates a network topology** from a set of router config files
- **Validates** the configuration
- Simulates **network performance, load balancing, and failures**
- Provides **optimization recommendations**

✅ **Step-by-Step Breakdown**

We'll cover this in 5 clean phases:

Phase	Task
1️⃣	Understand & Parse Router Configs
2️⃣	Generate the Network Topology
3️⃣	Validate Configuration + Detect Issues
4️⃣	Simulate Network Load and Faults
5️⃣	Create Technical Report + Architecture Diagram

🔹 **Step 1: Understand & Parse Router Configs**

📁 **You'll be given files like:**

Conf/R1/config.dump

Conf/R2/config.dump

Conf/R3/config.dump

Each config contains:

- Interface IPs
- VLAN IDs
- Gateway settings
- Protocols (e.g., OSPF/BGP)

- Link info (bandwidth, neighbor IPs)

✅ Your tool should **read these files**, **extract data**, and **build a logical topology**.

🧩 **Example Parsed Data from config.dump:**

interface GigabitEthernet0/0

ip address 192.168.1.1 255.255.255.0

description LINK TO R2

bandwidth 1000000

So, your tool should extract:

- Router ID: R1
- Interface: G0/0
- IP: 192.168.1.1/24
- Link: Connects to R2
- Bandwidth: 1 Gbps

✅ **For Now:**

Assume we have sample config files like the one above. Later we can:

- Create mock .dump files
- Simulate the parsing logic

🛠️ **Next Step: Generate Topology**

📌 **In the Next Step, We'll:**

- Build a **graph-like representation** of routers and their links
- Understand **hierarchical layout** (core → distribution → access)
- Create a **network diagram image** showing the auto-generated layout