Case Study: Grand Canyon Infrastructure (GCI) - Saguaro Rack Supply Chain Crisis

Company: Grand Canyon Infrastructure (GCI) – Provider of data center hardware. **Product:** "Saguaro Rack" – Flagship server rack product. **Situation:** GCI faces surging demand for its Saguaro Rack amidst aggressive US & EMEA expansion plans. However, critical supply chain disruptions threaten growth and profitability.

Core Supply Chain & Constraints:

1. **Critical Component:** A specialized processing unit sourced from a **single supplier** in Taiwan. **Two (2) units** are required per Saguaro Rack.
2. **Component Lead Time:** Increased dramatically from 4 to **12 weeks**.
3. **Component Capacity:** Supplier allocation to GCI is capped at **1,500 processing units per month**. *(This is now the primary bottleneck)*.
4. **Tariffs:** New **15% tariffs** imposed on these components imported into both the US and EU. Assume component cost is **$500 per unit** before tariffs.
5. **Manufacturing:** Two regional Contract Manufacturers (CMs) with *increased* capacity:
    - CM NA (Serves NA): **100 racks/week** capacity.
    - CM EMEA (Serves EMEA): **80 racks/week** capacity.
    - CM Lead Time: **1 week** assembly *after* all components are received.
6. **Final Assembly:** At customer sites (NA & EMEA).

The Challenge: This confluence of extended lead times, *severe component capacity constraints*, and increased costs jeopardizes GCI's ability to meet demand, impacts margins, and risks market share during a critical growth phase.

Projected Saguaro Rack Demand (H2 2025):

Month (2025)	NA Demand (Racks)	EMEA Demand (Racks)	Total Rack Demand
July	500	350	850
August	550	350	900
September	600	350	950
October	650	400	1050
November	700	400	1100
December	750	400	1150
H2 Total	**3750**	**2250**	**6000**

Case Questions for MBA Students:

1. **Immediate Allocation & Mitigation (Next 3-6 Months):** Given the **1500 units/month component limit** (the primary constraint), 12-week lead time, and 15% tariffs:
    - How should GCI allocate the limited components/racks between NA and EMEA, considering their respective CM capacities (NA: 100/wk, EMEA: 80/wk)? Justify your allocation criteria (e.g., profitability, strategic importance, demand size).
    - What are 2-3 immediate actions GCI can take to mitigate the impact on customers and financials?
2. **Logistics & Lead Time Optimization:**
    - Analyze the Taiwan -> CM -> Customer logistics flow. Propose specific changes (transport, inventory) to maximize throughput of the constrained components and potentially reduce end-to-end time, considering tariffs.
    - What are the key cost vs. speed vs. risk trade-offs?
3. **Demand & Supply Planning Analysis (H2 2025):**
    - **(a)** Determine the *maximum monthly rack supply* achievable considering *both* the component limit (1500 units/month) and total CM capacity (NA+EMEA). Which is the primary bottleneck?
    - **(b)** Calculate the *total projected unmet rack demand* for H2 2025.
    - **(c)** When must the *first* component orders be placed to receive *any* supply during H2 2025 (i.e., for July delivery)?
    - **(d)** Estimate the total *additional cost* due to the 15% tariffs on the components GCI *can* supply in H2 2025.
4. **Strategic Sourcing & Risk Reduction (6-18 Months):**
    - Propose and prioritize long-term strategies to address the single-source dependency, **component capacity limit**, lead time, and tariff exposure.
    - Evaluate options like second sourcing (where?), supplier development/investment, product redesign, or tariff engineering. Justify your recommendations based on risk reduction, cost, feasibility, and long-term strategic fit.