Supply Chain 360 (SCM 360)

- A Graph-Based Approach to Supply Chain Management

Alexander Hegermann Lauritsen

Agenda

01 The Challenge

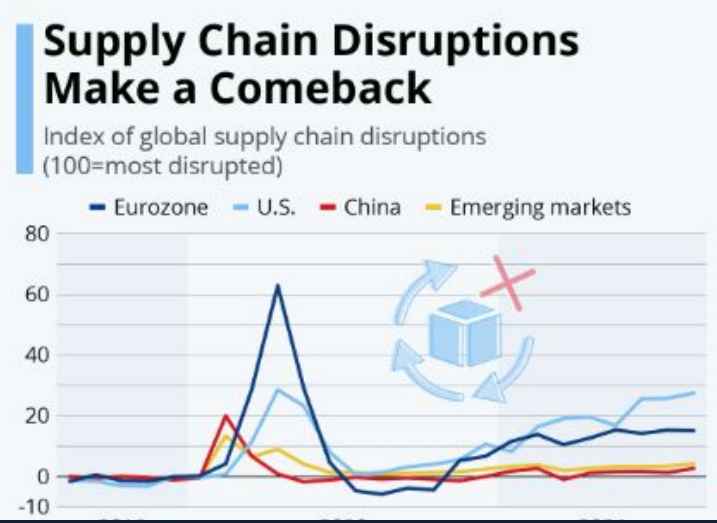
02 Our Solution

03 MVP Use Cases

04 Learnings & Next Steps

The Challenge

Supply Chains are complex and face many challenges



GLOBAL SUPPLY CHAIN

38% Increase in Global Supply Chain Disruptions in 2024

Factory fires continues to be the top disruption, with 2,299 alerts issued.

TRUMP TARIFFS

Product shortages and empty store shelves loom with falling shipments from China

Businesses have been canceling orders for products from China after Trump imposed a 145% tariff on most Chinese imports, risking product shortages for American consumers.

Supply chain management trends to watch in 2025

Retailers and manufacturers will continue to diversify their networks while leaning on new technology to safeguard processes and improve customer experiences.

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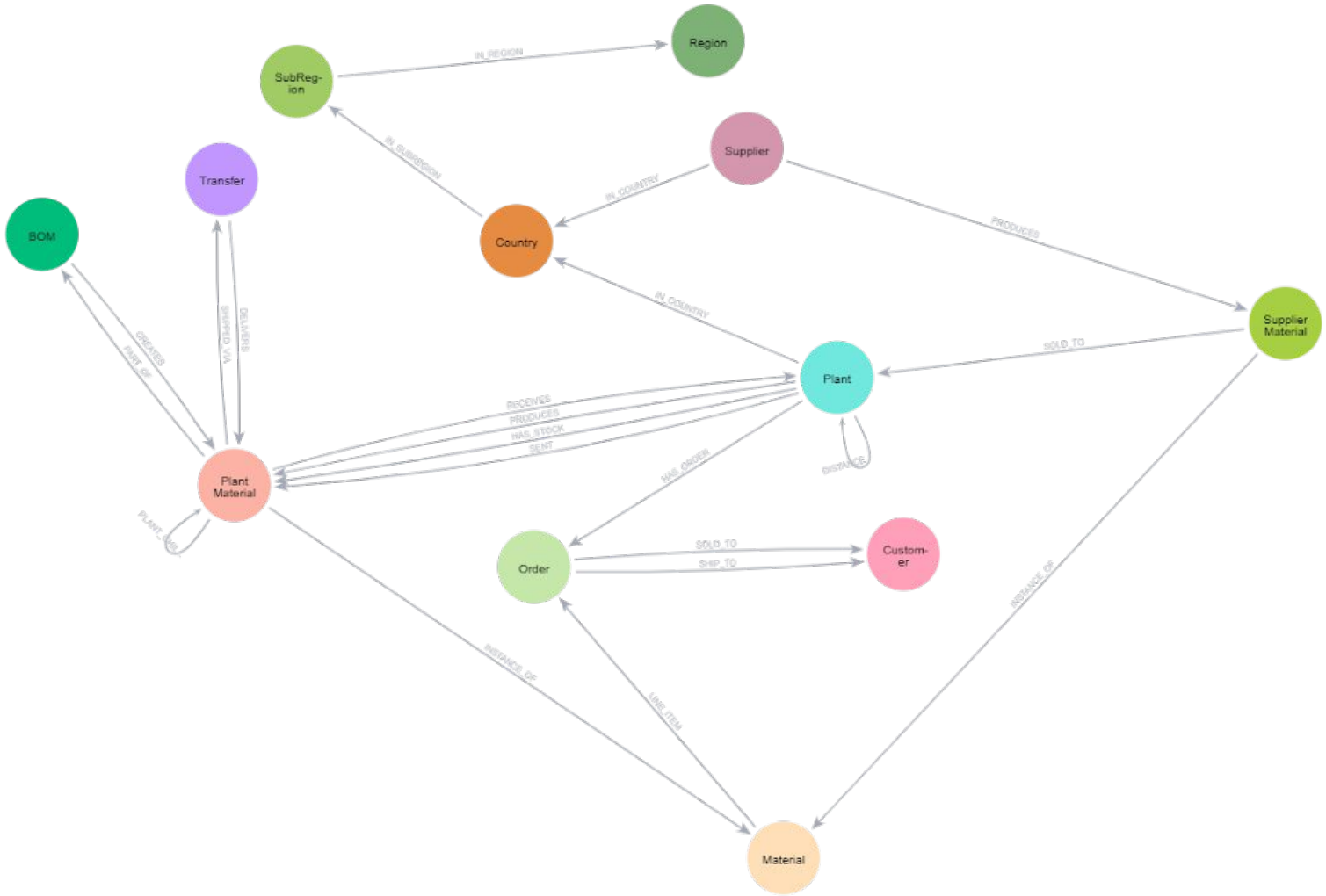
What happens today when there is a Supply Chain disruption?

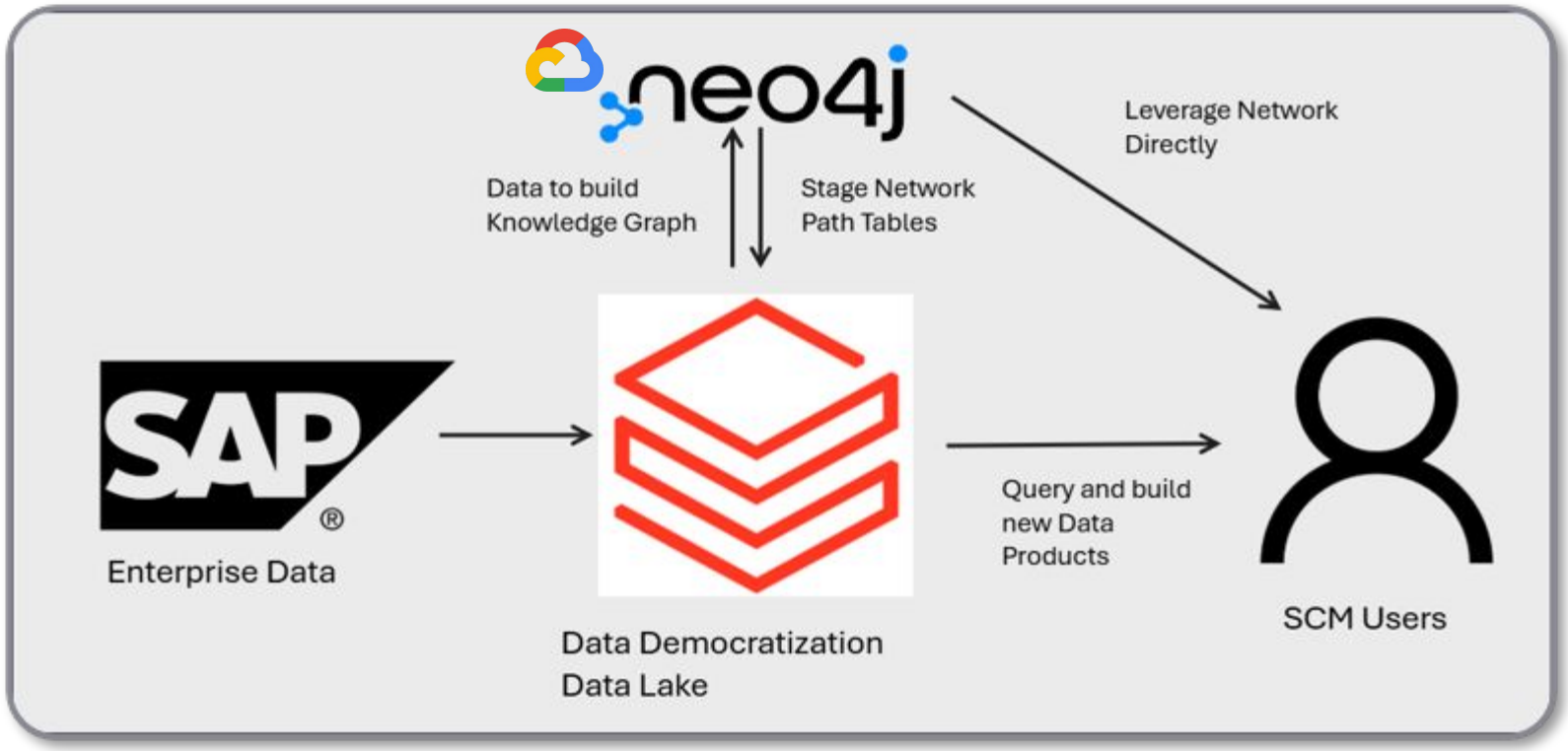
Reliance on Manual Lookups when disruptions happen

Our Solution – Graph Digital Twin

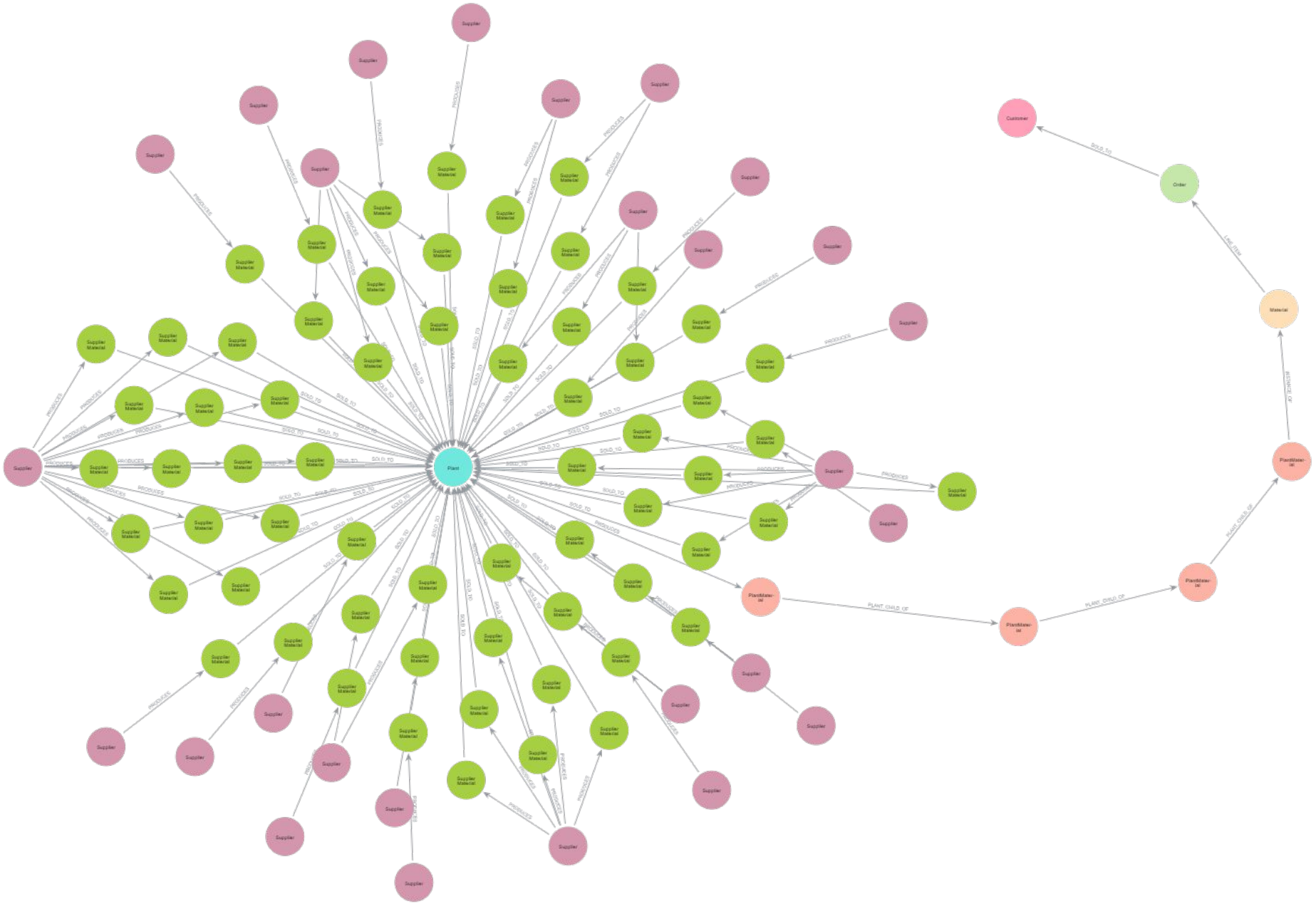
SCM 360 Data Model



High Level Architecture



Example


Supplier
Supplier Material
Plant
PRODUCES
SOLD TO
Customer
Order
Material
LINE ITEM
PlantMaterial
PLANT_CHILD_OF

MVP Use Cases

❖ Supply Chain Disruption Management

Quickly assess disruption impacts and implement solutions to keep supply chain running

❖ Inventory Risk Analysis

Highlight stock risks linked to single or few customers for informed decisions

❖ E2E Transparent Lead Times

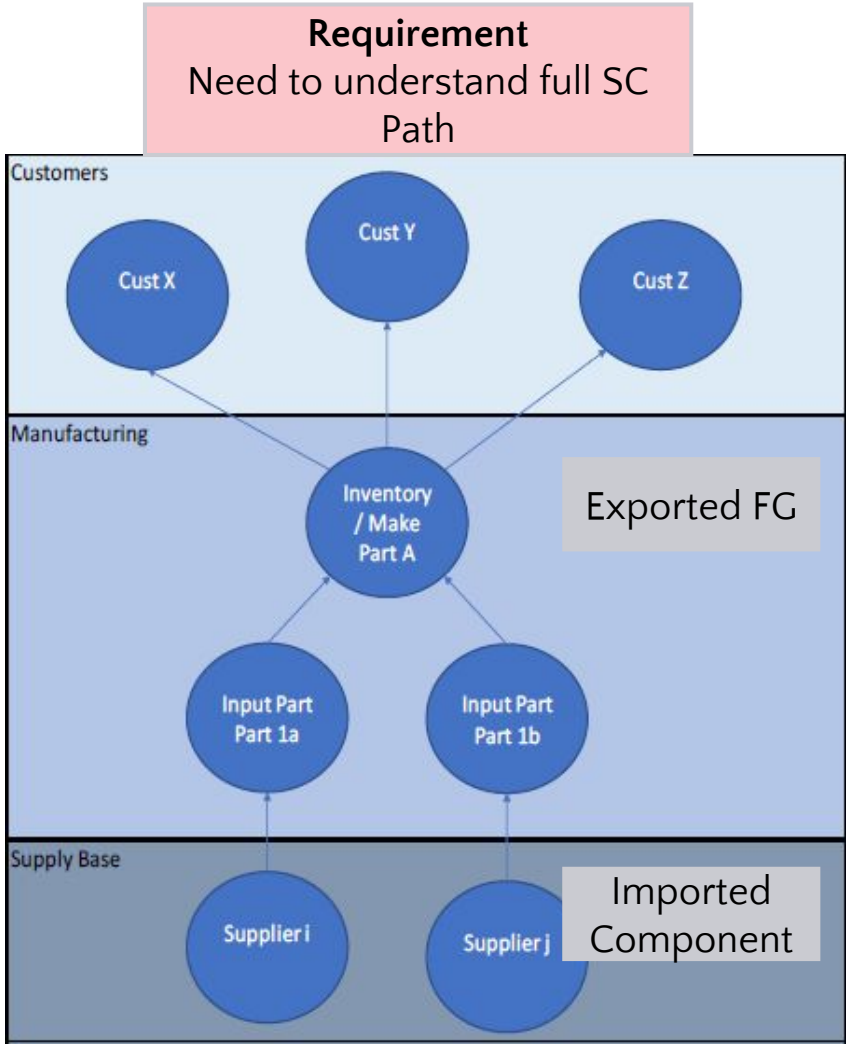
Provide full visibility of lead times across production, suppliers, and shipping

❖ Product Traceability

Track the complete journey of products through manufacturing, purchases, shipping, and sales

Product Traceability – Tariff Drawback

Tariff Drawback Concept:
Allows for the refund on the import duty and tax on components that are imported into the United States and further manufactured into a new product with a new name, character use a.k.a. substantial transformation, and then exported.



Imports

Domestic Logistics

Exports

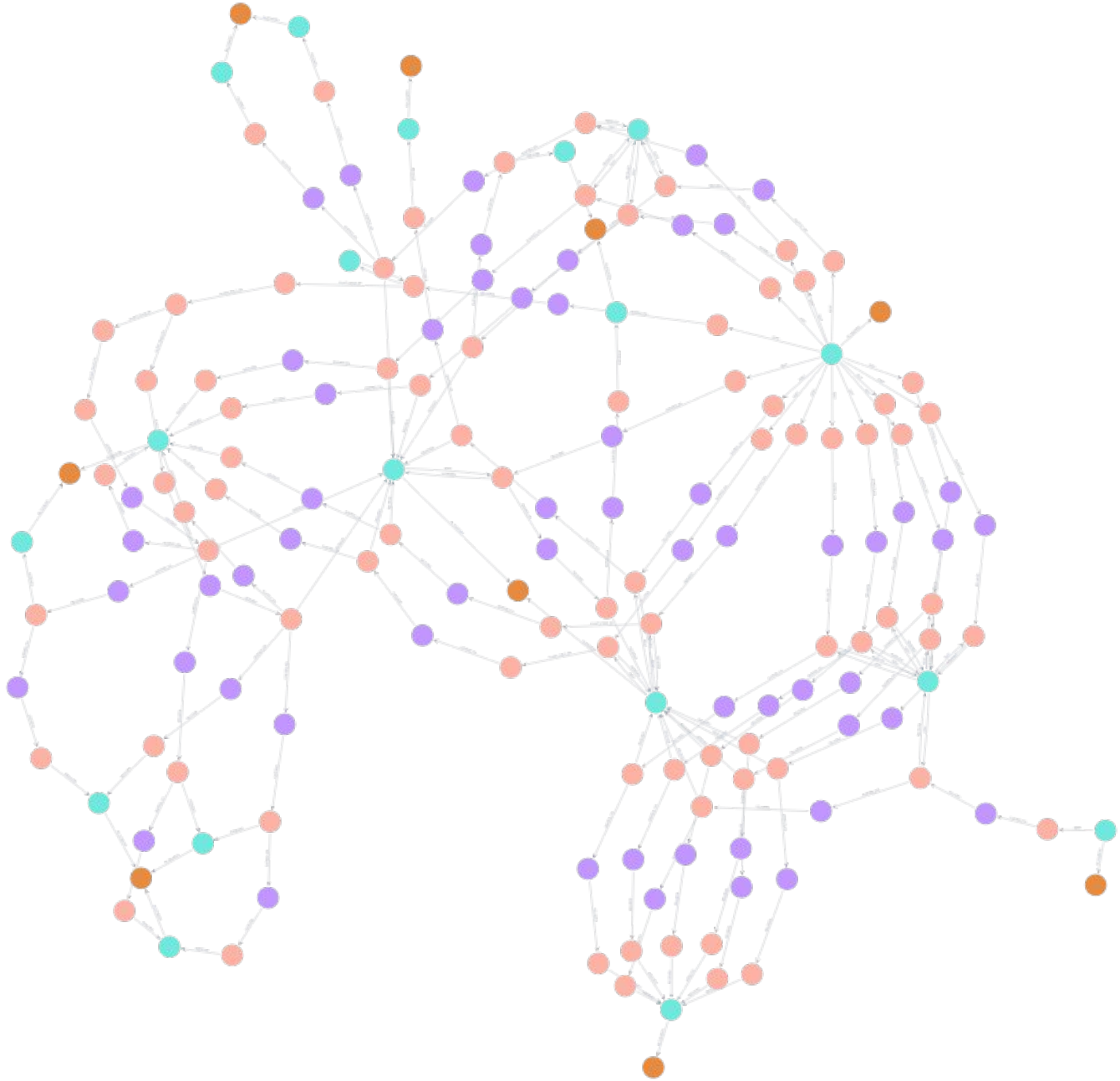
Node Legend

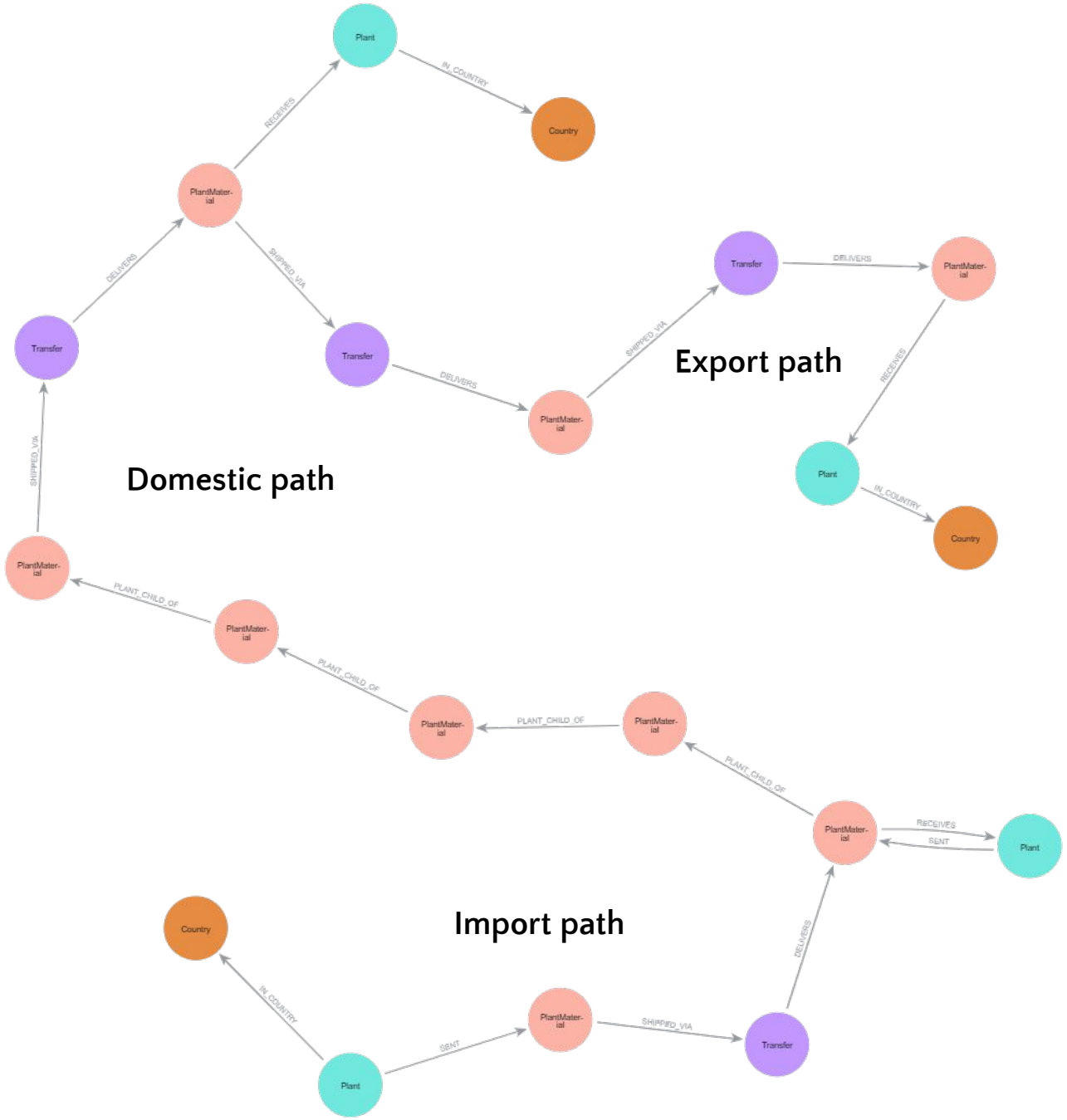
Plant

Country

PlantMaterial

Transfer




Plant
IN_COUNTRY
Country
RECEIVES
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SHIPPED_VIA
DELIVERS
Transfer
Transfer
DELIVERS
PlantMater-ial
SHIPPED_VIA
Export path
Transfer
DELIVERS
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PlantMater-ial
RECEIVES
SENT
Plant
Import path
Country
IN_COUNTRY
Plant
SENT
PlantMater-ial
SHIPPED_VIA
Transfer
DELIVERS

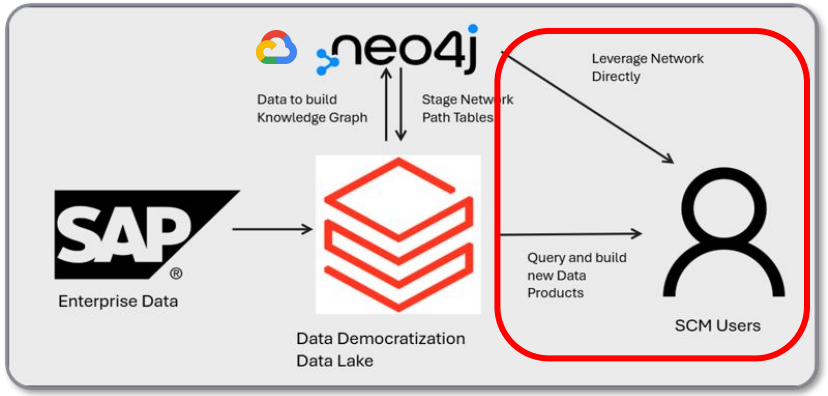
Lessons Learned & Next Steps

Lessons:

- Assess data quality early on
- Iteratively test your graph locally and globally as you build

Next Up:

- Finish MVP Use Cases
- Focus on defining how to best expose the knowledge graph
  - Supply Chain Agents – GraphRAG
  - API
  - Supply Chain App



Key Takeaways

- Neo4j is highly scalable, ideal for large, complex supply chain networks
- Neo4j unlocks new possibilities beyond traditional tabular data structures
- Validating your data model as you build is important
- Neo4j integrates seamlessly with Databricks
- Graphs are fun!

Thank You For Listening