General Thoughts

The time horizon is one week or one month with the periods being 1 day.

Each week/month we will have a new set of orders, a production plan, and a warehouse inventory availability dataset.

The production plan really is just what will be available at the warehouses in the future. I don’t think I care about anything about production except the avaialbity and time of the products.

I don’t think there is anything about transportation or inventory policies in this model. The sourcing should be super simple I think. Maybe there is something about certain orders can only be fulfilled by certain products that are sourced from certain production facilities, but that should be a product dimension.

Like the product name convention is prod facility\_SKU\_age\_SPEC

LYNDEN\_35001\_5D\_1001

And the order (aka customer) that we want lynden to fulfill would only be allowed to source from a group that includes the LYNDEN type products or something.

Customers

This will be the orders. Each order is a customer. Ill just use the order\_release\_gid or sales\_order\_number or po\_number as the customer entries.

Sites:

This will have to be the production plants and the warehouses. Do we need an entry for each production plant? I definitely need each warehouse (that we care about, like we don’t need buhl or elpaso probably)

Or can I just have a single plant?

Products

This one might be the most complicated. Ill have a huge set of products because Ill have many product dimensions

SKU

Production plant

SPEC

AGE

Grade

How am I going to deal with the quantity vs weight thing? I must have everything in quantities like bags totes cases etc NOT lbs. The product subsitition doesn’t work with weight. It might be ok since each product has a unique UOM. 30051 is ALWAYS cases. 45602 is always eaches.

Im not sure I need to have a uom in the model. Maybe its just a quantity value in the model. Outside the model I have a mapping sheet that says 43444 is gallons. So if in the model the quantity is 5 that means 5 gallons.

Another thought, does every spec and grade go together? In other words, IF we have 10 distinct specs and 5 distinct grades does that mean there are 50 total combinations or maybe its like 30 because spec X and grade Y aren’t a possible combination.

Customer Demand

This is just the order and the products we need. The tricky part will be to associate the correct group to the demand. So we have an order

DGI.100053233 which is for 5 cases of product 30005 and it must be less than 180 days old, it must be spec 10001 and grade 1 or grade 2 or grade 3

So I need to have a group with three members for every age and spec combo

1 sku

180 days old before expiring

4 possible specs

3 possible grades

1 \* 180 \* 4 = 720 groups each with 3 members (each grade are the members)

Group SKU 30005 Age 1 Spec 1001

SKU 30005 Age 1 Spec 1001 Grade 1

SKU 30005 Age 1 Spec 1001 Grade 2

SKU 30005 Age 1 Spec 1001 Grade 3

I hopefully only need to make the groups once. I could make them once and then duplicate the model each week. Import new demand, production plan, and warehouse availability. The products shouldn’t actually change.

Customer Sourcing policies

Reasonable straight forward. Each order/customer can source from any warehouse (or maybe we want to have specific rules? I don’t know)

Production Policies

Do I need a policy to allow a production constraint to work? Can I have a constraint of min 10 of sku 13333 at plant A if I don’t have a production policy for sku 13333 at plant A?

A lot of the model can just be reused each week. Like all the production policies should be able to stay the same. Ill need to have a huge number of polcies for all the aging and such. But those wont change week to week. Same thing with the boms and bom assignments

We are not expanding this to a whole network problem

For example, the orders go to specific geographic locations. If the order is going to florida, using product from the atlanta warehouse might be best. I DO NOT want to include any type of geographic factors.

If the team wants that can I do something like customer sourcing policies to restrict maybe a specific warehouse can only source these specific orders.

Datasets I am thinking I need

* Master Product list with all possible spec and grade combinations
  + Sku
  + Spec
  + Grade
  + Production plant
  + Unit of measures
    - Conversions of quantity to weights
* Warehouse availability
  + Sku
  + Spec
  + Grade
  + Unit of measure
  + Production plant
  + Snapshot date
* Production plant
  + Sku
  + Spec
  + Grade
  + Unit of measure
  + Production plant
  + Warehouse destination
  + Production date by day
* Orders / Demand
  + All products spec grade and age necessary
  + Order number
  + Day order needs to be filled