Supply Network Planning (SNP): Deployment and Transportation Load Builder Scenario and Scenario with Fair Share Rule by Quota Arrangement

Applies to:
Supply Network Planning – Deployment and Transport Load Builder – Concepts and a Scenario with Fair share rule by Quota arrangement

Summary
This document describes the Concepts and Scenario of Supply Network Planning’s Deployment and Transport load builder.
After the Goods are manufactured or ready to be supplied to the Distribution centers/Customers/VMI we can use the Deployment and Transport load builder functionalities to supply the finished goods to the Distribution centers/Customer Location and Vendor managed Inventory based on respective demand at the DCs and Locations.
There are various Fair Share Rules and Pull/Push rules that will be used to Deploy.

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Created on: 28 November 2008

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Kiran Magar has over 11 years of experience in Supply Chain Management. He is a team-oriented Sr. Principal Consultant with 9 years of experience in PP/PP-PI/QM, SCM DP and SNP implementations, SAP upgrade project management & execution and technical support management. He has delivered on many complex projects in Life Science Industry, Processing Industry, Automobile Industry and High Tech Industries.
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Introduction to Deployment and TLB

Deployment

Deployment is the process which determines what demands can be met with the existing supplies both for the In-house produced and Externally Procured. In other words Deployment functionality determines how and when the Inventory should be deployed to the Distribution centers, Customers or Vendor Managed Inventory locations.

- Deployment uses various Strategies like Fair share, Push, Pull-Push and minimum cost flow optimization. And these are maintained in the Deployment profiles
- If the Supply is equal to the Demand then Deployment confirms the SNP plan.
- When the Demand is more than the Supply – then the Deployment applies Fair Share Rule and calculates the plan for the deployment.

Fair Share Rules can be as below
- Proportional
- Target fulfillment
- Quota arrangements
- Transportation Priority

- When the Demand is less than the Supply – the Deployment applies Push and calculates the plan for the deployment.

Note: In this document we will demonstrate Fair share rule by Quota arrangements (Deployment – Heuristic) and subsequent TLB scenario

- Pull
  - All demand within the pull deployment horizon is met through deployment
  - Distribution occurs accordingly to the due date specified at the demand location
  - No supply is distributed to the demand source in advance of the demand date

- Push
  - All supply is distributed immediately to the demand locations for the planning horizon
Supply Network Planning (SNP)

- **Pull/Push**
  - All supply is distributed immediately to the demand locations to meet all demand within the Period of time over which deployment considers the planned distribution demand

- **Push by Quota Arrangement**
  - System uses the demand dependant quota arrangements assigned to the transportation lanes to distribute supply

- **Push considering the Safety Stock Horizon**
  - Safety stock at the source location is used to fulfill only the demands within the corresponding safety stock horizon, and not other demands beyond this horizon

Deployment Heuristics versus Optimization

**Heuristics Deployment:**

Calculates a replenishment plan for one product at one location

- Fair share
- Push

Fair share and Push rules are defined in the deployment profile

**Optimized Deployment:**

Calculates a replenishment plan for one product at all locations in the network

- Minimum cost flow optimization

- The Output of Deployment Run will be Firmed Stock transfer Purchase Requisitions.
Deployment Master Data:

Pull Deployment Horizon:

Pull Deployment Horizon is the period of time over which deployment considers the planned distribution demand. The horizon starts from today’s date.

Product Pull Deployment Horizon

Product Push Deployment Horizon:

Product Push Deployment Horizon is the period of time over which deployment considers receipts that were defined in the ATD Receipt category group of location master data. The horizon starts from today’s date.

Product Push Deployment Horizon
Transport Load Builder

The primary purpose of the Transport Load Builder (TLB) is to use the results of the deployment run (single product transport recommendations) to create multi-product transport orders in a time period for a transportation zone.

It should be ensured that:

- The transportation methods are filled to maximum capacity
- No transportation method is dispatched that is not filled to minimum capacity
- For stock transport orders that could not be satisfied during the TLB run due to specified constraints, you can build transport orders manually

Factors Considered in TLB Run:

- Maximum range of coverage
- Minimum/Maximum load weight
- Maximum volume
- ATP check

- The system groups transportation recommendations for individual products together until the minimum values for volume, weight and number of pallets specified in the TLB profile for creating a load have been reached. If transportation recommendations cannot be converted, the system generates an alert and the planner can carry out the conversion manually.

- The Transport Load Builder (TLB) combines planned stock transport orders to form feasible transport units. If the planned stock transport order is for a VMI customer, then the result is processed as sales orders in the system. Otherwise, the result is a company-internal transport order.

- There is no tracking of resource usage and no consideration of product-specific constraints (for example, flavor migration) or special transport requirements (for example, package orientation or refrigeration).
Supply Network Planning (SNP)

TLB Master Data

TLB Profile:

- SNP only plans the capacity of an entire transport fleet. The TLB looks first at individual transportation methods.

- The minimum values for capacity (cubic volume and weight) and pallets to build a load and the maximum amount of product per load are defined in the TLB profile. The system checks the planned transport orders against the minimum and maximum values. If the planned transport orders do not meet either the minimum or maximum requirements, the system activates an alert. The role of the Alert Monitor is to inform you of exception cases that occur in the process. An exception is an unexpected event that interrupts the normal planning run.

- The system uses the parameters defined in the TLB profile to calculate the transport orders. The transport orders are always multiples of the rounding value defined in the lot size profile.

- The TLB uses the lane-dependent lot size profile to determine how to build transport loads based on the available transport orders.

### Parameter for TLB Profile: SNP_TLB_01

<table>
<thead>
<tr>
<th>Rule Cntr</th>
<th>Parameter</th>
<th>Oper. LL</th>
<th>Param.Val</th>
<th>Oper. UL</th>
<th>Param.Val</th>
<th>UoM</th>
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<tr>
<td>1</td>
<td>WEIGHT</td>
<td>&gt;</td>
<td>1</td>
<td>&lt;=</td>
<td>1,200</td>
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</tr>
</tbody>
</table>
Supply Network Planning (SNP)

Transportation Lane:

2 Transportation lanes are created for Start Location 3200 (Plant) and Destination Location 3400 & 3800 (D.C.)

Change of Transportation Lane 3200 -> 3400

Means of Transport: 0001 maintained with TLB Profile

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**Scenario**

**Brief Description of the Deployment Scenario**

Product is produced in 3200 manufacturing plant to meet the demand in its distribution centers 3400 and 3800. However, due to capacity constraints, there is insufficient supply to meet the demand. Deployment determines a fair share replenishment of the distribution centers to address the problem immediately.

**Material master settings in SNP**

![Image of Material master settings in SNP](image-url)

**Change Product H-1234567890 for Location 3200**

<table>
<thead>
<tr>
<th>Product</th>
<th>H-1234567890</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pred. Descr.</td>
<td>FINISHED PRODUCT - Ready to Deploy</td>
</tr>
<tr>
<td>Location</td>
<td>3200</td>
</tr>
</tbody>
</table>

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Supply Network Planning (SNP)

Quota arrangement rules maintained for Location 3200 (Manufacturing plant) with 70 percent to DC 3400 and 30 percent to DC 3800.

Display Outbound Quota Arrangements - Location 3200

Planning Book for Material H-1234567890 at Manufacturing Plant 3200
### Supply Network Planning (SNP)

**Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN**

#### Selected Objects

<table>
<thead>
<tr>
<th>Product</th>
<th>Ty Location</th>
<th>Product ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1234567890</td>
<td>3200</td>
<td>FINISHED</td>
</tr>
<tr>
<td>H1234567895</td>
<td>3400</td>
<td>FINISHED</td>
</tr>
<tr>
<td>H1234567890</td>
<td>3600</td>
<td>FINISHED</td>
</tr>
</tbody>
</table>

#### Selection profiling

- VOR TLB
- VOR TLB
- VOR DEP
- TLB PLM

#### Planning Book/Data View Description

| SNP941 | SNP PLAN |
| SNP942 | CAPACITY CI |

#### APO Location

<table>
<thead>
<tr>
<th>APO Location</th>
<th>APO Product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H1234567890</td>
</tr>
</tbody>
</table>

#### APO Planning

<table>
<thead>
<tr>
<th>APO Location</th>
<th>APO Product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H1234567890</td>
</tr>
</tbody>
</table>

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**Notes:**

- Sales Order: 2,000
- Distribution Demand (Planned): 2,000
- Total Demand: 2,000
- In Transit: 2,000
- End Date: 2008-12-31
- Manufacturing Co-Products: 3,000
- Production (Planned): 2,000

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**Related Links:**

- SAP COMMUNITY NETWORK SDN: sdn.sap.com
- BPX: bpx.sap.com
- BOC: boc.sap.com

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# Supply Network Planning (SNP)

## Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

### Selected Objects

<table>
<thead>
<tr>
<th>Product</th>
<th>Tx Location</th>
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<tbody>
<tr>
<td>H-1234567890</td>
<td>9200</td>
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<tr>
<td>H-1234567890</td>
<td>9400</td>
<td>FINISHED</td>
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</tr>
<tr>
<td>H-1234567890</td>
<td>9900</td>
<td>FINISHED</td>
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### Selection profile

- YOR_TLB
- VOR_TLB
- YOR_DEF
- VOR_DEF
- TLB_PKM

### Planning Book/Date View

<table>
<thead>
<tr>
<th>Description</th>
<th>SNP PLAN</th>
<th>CAPACITY CH</th>
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</thead>
<tbody>
<tr>
<td>Block in Hand</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Supply Shortage</td>
<td>EA</td>
<td>2,000</td>
</tr>
<tr>
<td>Safety Stock</td>
<td>EA</td>
<td>2,000</td>
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<tr>
<td>Freezer Point</td>
<td>EA</td>
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<tr>
<td>Target Days' Supply</td>
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<td>0</td>
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<tr>
<td>Total Receipts</td>
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<td></td>
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<tr>
<td>Manufacturer of Co-Products</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Production (Confirmed)</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Production (Planned)</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>In Transit</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Distribution Record (TLB-Confirmed)</td>
<td>EA</td>
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</tr>
<tr>
<td>Distribution Receipt (Confirmed)</td>
<td>EA</td>
<td></td>
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<tr>
<td>Distribution Receipt (Planned)</td>
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<tr>
<td>Total Demand</td>
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<tr>
<td>Independent Demand</td>
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<tr>
<td>Distribution Demand (TLB-Confirmed)</td>
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<tr>
<td>Distribution Demand (Planned)</td>
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<tr>
<td>Sales Order</td>
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<td>Forecast</td>
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<td>Distribution Demand (Planned)</td>
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On running Location Heuristic at Distribution centers 3400 and 3800 the demand
Run Deployment at manufacturing plant 3200 - Based on the quota arrangement 700 units were deployed to DC 3400 and 300 units were deployed to DC 3800

The requisitions created are now available in SAP and we can see this in ME53n

Brief Description of the Transportation Load Builder (TLB) Scenario:

After the deployment run, the transportation planner needs to group the different orders going from manufacturing plants to distribution centers. The orders must be grouped to meet the minimum requirement by weight, volume and number of pallets to ensure that transportation vehicles are filled to maximum capacity.

TLB – Interactive Planning

- Deployment run results in recommended transport orders.
- Transport Load Builder then enables you to manipulate the recommended transport orders within the time period you specify to build a feasible, consolidated transport load.
- Interactive planning displays the relevant values such as cumulative volume, cumulative weight, and capacity consumed so that you can determine when a load is complete.
- TLB Interactive planning desktop is similar to the other interactive planning desktops in SNP.
- The profile selection, planning books/data view, and macros are on the far left side of the screen.
- Work is displayed on the right side with three sub area
  - TLB-confirmed shipments appear on the left hand side of the work area.
  - Transport recommendations appear on the right side of the work area
  - Transport order items appear on the bottom half of the work area
TLB Interactive Planning before TLB Run for Transportation lane with source location 3200 (Plant) and destination location 3800 (D.C.).

Click on Change icon (Ctrl+F2) and run TLB

After TLB Run you can see TLB order created under TLB Shipments:
Double clicking the order will open the order item under TLB Shipment Items.

**TLB Interactive Planning**

TLB Stock transfer order of 300 Quantity created.

Similarly run TLB for APO Destination 3400 (D.C.)

**TLB Interactive Planning**

TLB Stock transfer order of 700 quantities created.
Go back to SNP Interactive planning and refresh the screen. You can see 2 orders 8027 – 300 ea and 8028 – 700 ea created and TLB Confirmed.
Related Content

- SAP Help: [www.help.sap.com](http://www.help.sap.com)
- Deployment Help (SCM 5.0): [http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm](http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm)
- TLB Help (SCM 5.0): [http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm](http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm)
- For more information, visit the [Supply Chain Management homepage](http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm).
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