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A Complete Guide to Oracle ASCP's Inline Forecast Consumption Solution

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Author Introduction

- Manish Naik is a Senior Consultant in the Enterprise Solutions group of Infosys Technologies Limited
- He has over 8.5 years of experience in end-to-end business transformation engagements leveraging Oracle Applications. He has consulted for multiple clients in discrete manufacturing space in the US and Europe
- Manish is a Production Engineering graduate
- He has presented white papers at OAUG Collaborate & UKOUG TEBS
- Infosys Technologies Limited (NASDAQ: INFY) is a global leader in Consulting and IT services (www.infosys.com)
- Oracle Applications practice in Infosys provides Oracle consulting services to world's leading corporations across industry verticals
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Agenda

- **Business Requirement**

- **Overview**
- **Demand Model**
- **Inline Forecast Consumption Process**

- **Solution Demonstration**

- **Setups / Data Model**
- **Business Process Flow**
- **Under consumption scenario: Calculations & Results**
- **Overconsumption scenario: Calculations & Results**

- **Solution Highlights**

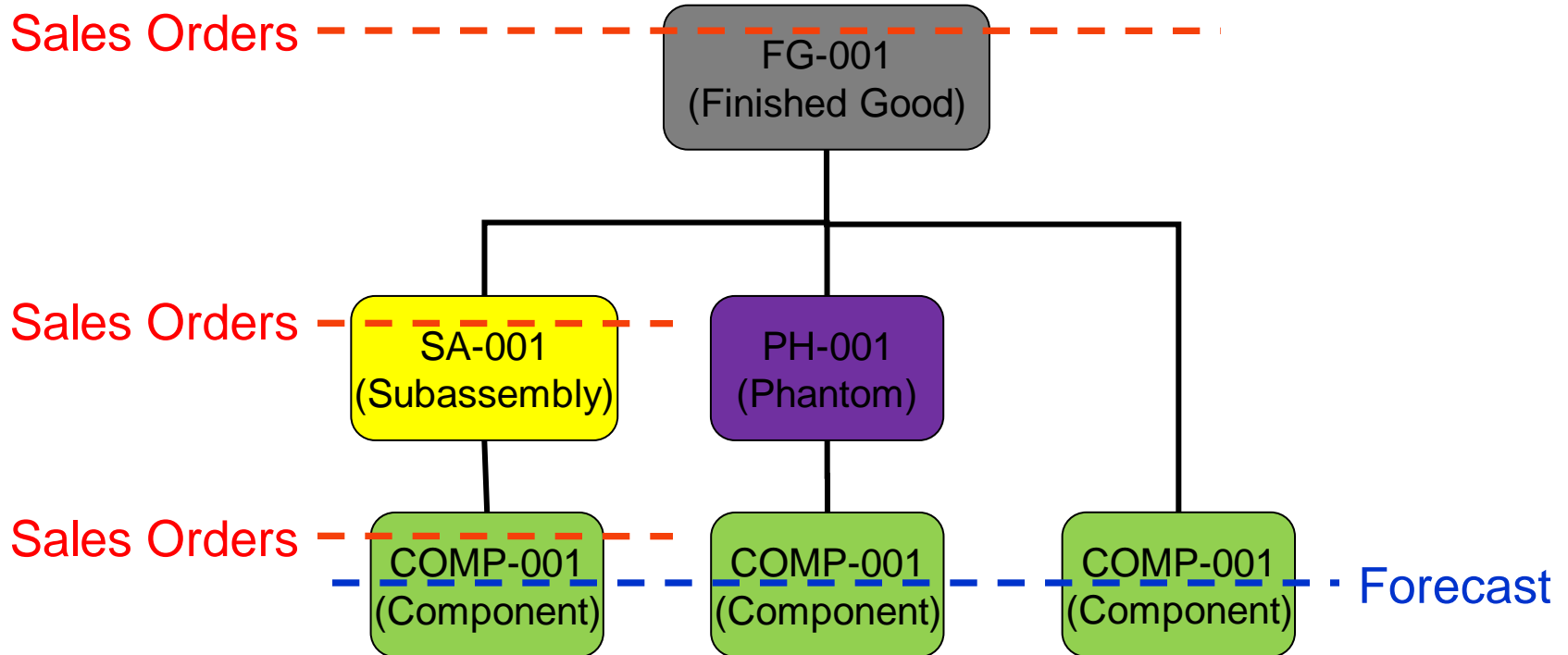
- **Value Proposition**

- **Q & A / Discussion**

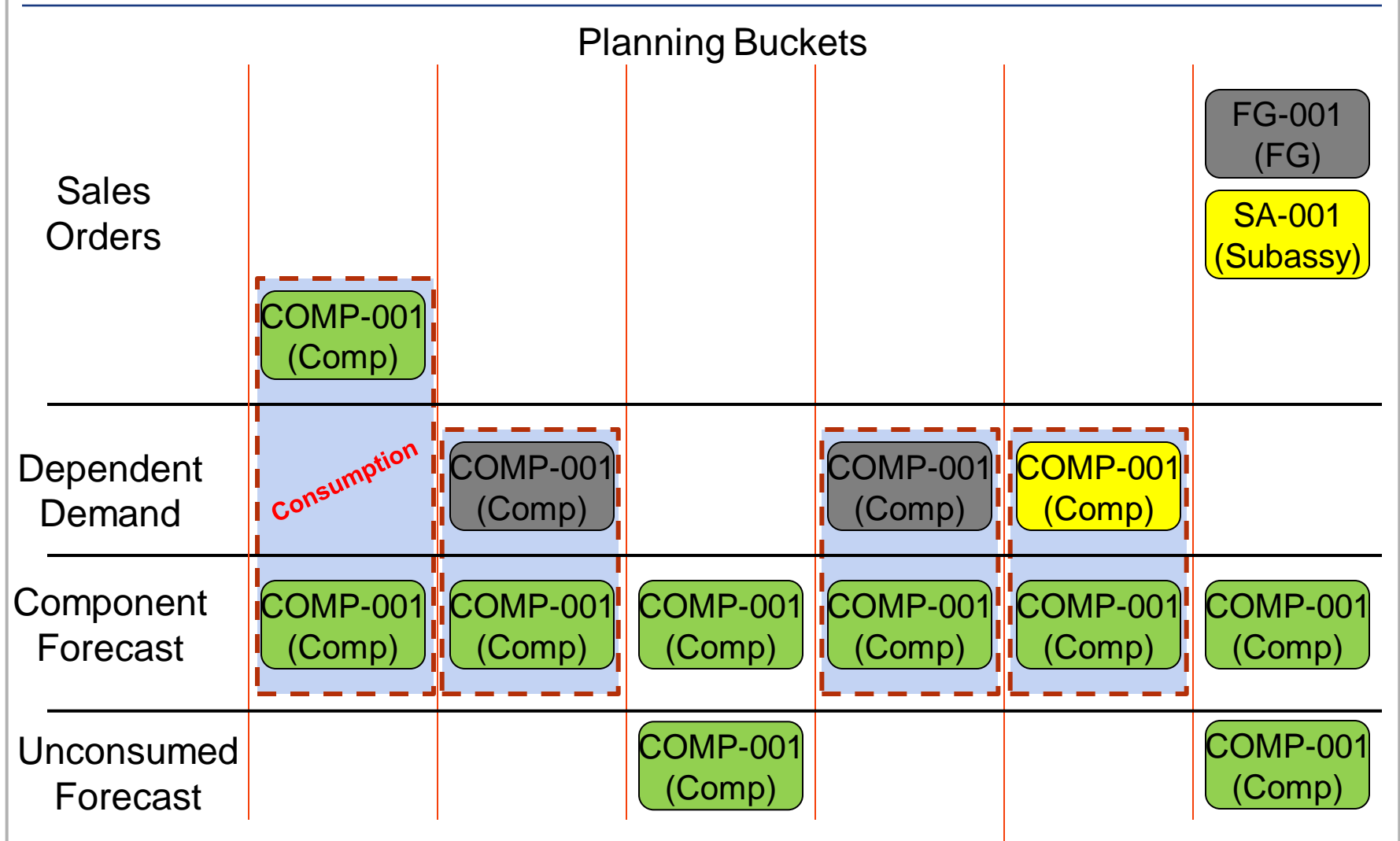
Business Requirement: Overview

- Client's business involves selling ATOs, MTSs, subassemblies as well as components
- A fairly accurate forecast can be generated at component level based on usage history and other parameters
- Sales orders are entered at FG, Sub-Assembly and Component level
- Business requirement is to explode the SO demand of end items (ATO + MTS) and in turn consume the forecast entered at component level by the dependent demand generated by this SO demand
- Both under consumption and over consumption scenarios are possible
- In certain cases, sales orders are also entered at component level. A direct forecast consumption should occur at this level.
- Use of vanilla ASCP is desired with no customizations

Business Requirement: Demand Model



Business Requirement: Inline Forecast Consumption



Solution Implemented: Setups / Data Model

■ Profile Options

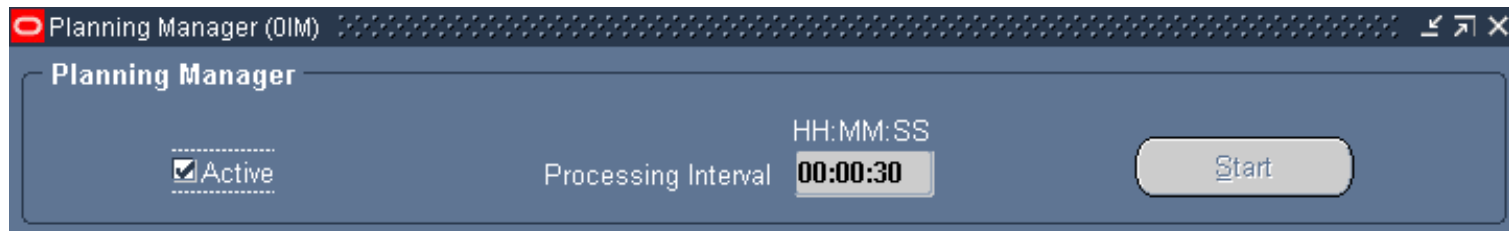
- Forecast Consumption is switched OFF on Source side by means of 2 profile options (values set at Site level)



Profile Option Name	Site
MRP:Consume Fcst Set Summary	No
MRP:Consume Forecast	No

■ Planning Manager

- Planning Manager is Active and running on the Source side



Planning Manager (OIM)

Planning Manager

Active

Processing Interval: HH:MM:SS **00:00:30**

[Start](#)

Solution Implemented: Setups / Data Model

■ Base Model

- Representative base model item setup in Item Master: BM-001
- Assigned to Inventory Org NL1
- Common base model used for all Make items

The screenshot displays the SAP Master Item (DIM) configuration window for item BM-001. The window title is "Master Item (DIM)". The organization is "01M" and the item is "AJ_ITEM_MASTER_ID". The description is "Base Model for IFC" with a language code of "[NL]". The "Display Attributes" section shows "Master" selected. The "Bills of Material" tab is active, showing the following settings:

- BOM Allowed
- BOM Item Type: **Model** (dropdown menu)
- Base Model: (empty text field)
- Autocreated Configuration
- Configurator Model Type: **Standard** (dropdown menu)
- Create Configured Item, BOM: (empty dropdown menu)
- Match Configuration: (empty dropdown menu)

Setups / Data Model

■ Items

- COMP-001: Buy item
- PH-001: Phantom subassembly
- SA-001: Subassembly
- FG-001: ATO Finished product
- The same base model 'BM-001' is assigned to:
 - PH-001, SA-001 & FG-001
- All items are flagged as MRP Planned items

Master Item (DIM)

Organization: OIM AJ_ITEM_MASTER_IO

Item: FG-001

Description: ATO End Item for IFC [NL]

Display Attributes: Master Org All

Main | Inventory | Bills of Material | Asset Management | Costing | Purchasing | Receiving | Physical Attributes

BOM Allowed

BOM Item Type: Standard

Base Model: BM-001 Base Model for IFC

Autocreated Configuration

Planning Method: MRP planning

Forecast Control: Consume and derive

Pegging: End Assembly / Soft Pegging

Setups / Data Model

■ Indented Bill of FG

- 2 level bill
- Component qty = 1 at each level

The screenshot displays the SAP 'Indented Bills of Material (NL1)' window. The main header shows the item 'FG-001' with the description 'ATO End Item for IFC'. The revision is '0' and the date is '22-JUL-2009 04:57:50'. The window is divided into several tabs: 'Item Details', 'Bills Details', 'Quantities', 'Effectivity', 'ECO', 'Order Entry', and 'Shipping'. The 'Bills Details' tab is active, showing a table of bill of material components.

Level	Item	Description	Revision	Type	Status	Engineeri
1	COMP-001	Component for IFC	0		ACT SEL	<input type="checkbox"/>
1	- PH-001	Phantom Item for IFC	0		ACT SEL	<input type="checkbox"/>
2	COMP-001	Component for IFC	0		ACT SEL	<input type="checkbox"/>
1	- SA-001	Subassembly for IFC	0		ACT SEL	<input type="checkbox"/>
2	COMP-001	Component for IFC	0		ACT SEL	<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

At the bottom of the window, there are navigation buttons and a field for 'Item Description' which contains 'Component for IFC'.

Setups / Data Model

▪ Routings – Resources

- SA-001, FG-001: Routing → 1 Operation, 1 Resource
- Usage = 0.8 hrs (Basis = Item) → 0.1 day per piece (8 hr shift= 1 day)

The image displays two screenshots of the SAP Routing (NL1) configuration interface. The left screenshot shows the routing for item SA-001 (Subassembly for IFC) with one operation (Seq 10) and one resource (A-11) with a usage of 0.8 hours. The right screenshot shows the routing for item FG-001 (ATO End Item for IFC) with one operation (Seq 10) and one resource (A-11) with a usage of 0.8 hours and an inverse of 1.25.

Routing for SA-001 (Subassembly for IFC)

Item: SA-001, Subassembly for IFC, UOM: EA
Revision: 0, Date: 15-SEP-2009 12:51:18
Display: Future and Current, Implemented Only:

Operations

Seq	Code	Department	Option Dependent	Lead Time %
10		ASSEMBLY	<input type="checkbox"/>	0

Operation Resources (NL1) - 10

Item: SA-001, Sequence: 10, Effective Date: 21-JUL-2009 03:44:58

Resources

Seq	Resource	UOM	Basis	Usage	Inverse
10	A-11	h	Item	.8	

Routing for FG-001 (ATO End Item for IFC)

Item: FG-001, ATO End Item for IFC, UOM: EA
Revision: 0, Date: 15-SEP-2009 12:58:30
Display: Future and Current, Implemented Only:

Operations

Seq	Code	Department	Option Dependent	Lead Time %
10		ASSEMBLY	<input type="checkbox"/>	0

Operation Resources (NL1) - 10

Item: FG-001, Sequence: 10, Effective Date: 21-JUL-2009 03:46:57

Resources

Seq	Resource	UOM	Basis	Usage	Inverse
10	A-11	h	Item	.8	1.25

Setups / Data Model

Lead Times

- COMP-001: Processing Lead Time = 1 day
- FG-001 & SA-001 lead times rolled up after Routing & BOM definition
 - Variable Lead Time = 0.1 days for 1 piece → 1 day for 10 pieces

Organization	NL1	AJ_NL1_IO
Item	SA-001	
Description	Subassembly for IFC [D.]	

Preprocessing	<input type="text"/>
Processing	<input type="text" value="1"/>
Postprocessing	<input type="text" value="0"/>
Fixed	<input type="text" value="0"/>
Variable	<input type="text" value=".1"/>
Cumulative Manufacturing	<input type="text" value="1"/>
Cumulative Total	<input type="text" value="2"/>
Lead Time Lot Size	<input type="text" value="1"/>

Organization	NL1	AJ_NL1_IO
Item	FG-001	
Description	ATO End Item for IFC [D.]	

Preprocessing	<input type="text"/>
Processing	<input type="text" value="1"/>
Postprocessing	<input type="text" value="0"/>
Fixed	<input type="text" value="0"/>
Variable	<input type="text" value=".1"/>
Cumulative Manufacturing	<input type="text" value="2"/>
Cumulative Total	<input type="text" value="3"/>
Lead Time Lot Size	<input type="text" value="1"/>

Business Process

Forecast at Component Level

- Forecast Set 'NL1_MTS' is included in plan options
- Forecast Consumption is switched off on source side:
 - MRP: Consume Fcst Set Summary = No (Site Level)
 - MRP: Consume Forecast = No (Site Level)
- Planning Manager is running

The screenshot shows the 'Forecast Entries (NL1)' application window. At the top, there are tabs for 'Forecast Set' (NL1_MTS), 'Forecast' (MTS_UPL), and 'Item' (COMP-001). Below the tabs is a table with the following columns: Bucket, Date, End Date, Number of Buckets, and Quantity (Current and Original). The first row is highlighted in yellow and contains the following data: Bucket: Weeks, Date: 14-SEP-2009, End Date: (empty), Number of Buckets: 1, Current Quantity: 100, Original Quantity: 100. Below the table is a 'Source Information' section with fields for Origination (Manual), Org (empty), Forecast (empty), End Item (empty), and End Usage (empty). A 'Consumptions' button is located at the bottom right of the window.

Bucket	Date	End Date	Number of Buckets	Quantity
Weeks	14-SEP-2009		1	100

Source Information

Origination: Manual Org: Forecast: End Usage: End Item: Consumptions

Business Process: Under consumption Scenario

■ Sales Orders at FG and SA level

- Dependent Demand of COMP-001 from FG and SA Sales Orders < Forecast of COMP-001

The screenshot displays the SAP Sales Order interface for order 100117572. The 'Line Items' tab is active, showing a table with two items. The 'Order Total' is 0.00. The 'Default SO line' is selected. The table below shows the details of the items:

Line	Ordered Item	Item Description	Qty	Line N	[]	UOM	Unit Selling Price	Request Date	Schedule Ship Date	Status
1.1	FG-001	ATO End Item for IFC	10	1	.NORMAL..A	EA	0.00	17-SEP-2009 09:52:00	17-SEP-2009 23:59:00	Supply Eligible
2.1	SA-001	Subassembly for IFC	10	2	.NORMAL..S	EA	0.00	18-SEP-2009 09:52:00	18-SEP-2009 23:59:00	Awaiting Shipping

Summary information at the bottom of the table:

Line Total	0.00	Line Qty	10	Service Total	0.00
------------	------	----------	----	---------------	------

Description: ATO End Item for IFC

Buttons at the bottom: Actions, Related Items, Configurator, Availability, Book Order

Business Process

Plan Options

- Spread Forecast Evenly = Yes
- Backward Consumption Days = 30
- Forward Consumption Days = 25

The screenshot displays the 'Plan Options (AJ.OIM)' window for a 'Manufacturing Plan'. The interface includes several tabs: 'Main', 'Aggregation', 'Organizations', 'Constraints', 'Optimization', and 'Decision Rules'. The 'Main' tab is active, showing various configuration fields and checkboxes.

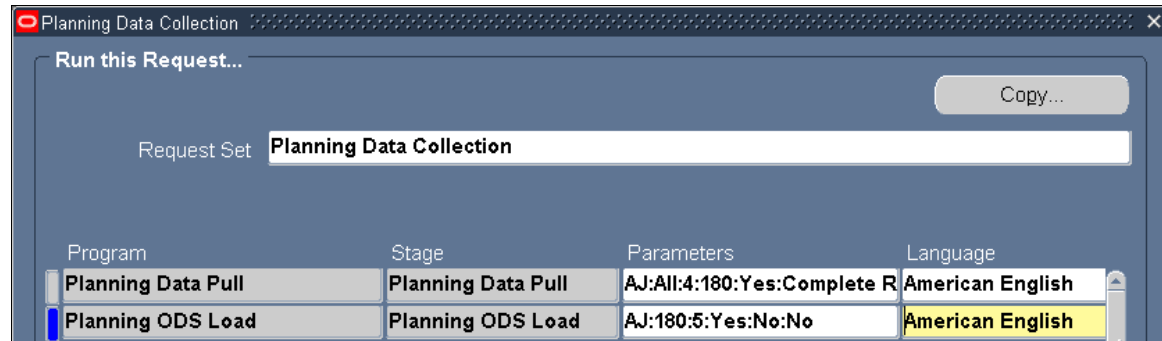
Key configuration details visible in the screenshot include:

- Plan:** AJ-MFG
- Forecast consumption on compone**
- Plan Type:** Manufacturing Plan
- Planned Items:** All planned items
- Material Scheduling Method:** Order Start Date
- End Item Substitution Set:** (Empty)
- Schedule By:** Schedule Ship Date
- Assignment Set:** AJ:ASCO-JOUCOM/...
- Demand Priority Rule:** ASCOJOUCOMATIC
- Overwrite:** All
- Demand Class:** (Empty)
- Checkboxes:**
 - Demand Time Fence Control
 - Planning Time Fence Control
 - Display Key Performance Indicators
 - Include Critical Components
 - Append Planned Orders
 - Move Jobs to PIP
 - Lgt for Lot
- Forecast Allocation and Consumption:**
 - Do Not Spread Forecast
 - Spread Forecast Evenly
 - Consume by Forecast Bucket
 - Explode Forecast
 - Backward Days:** 30
 - Forward Days:** 25
- Enable Pegging:**
 - Peg Supplies by Demand Priority
 - Reservation Level:** None
 - Hard Pegging Level:** None

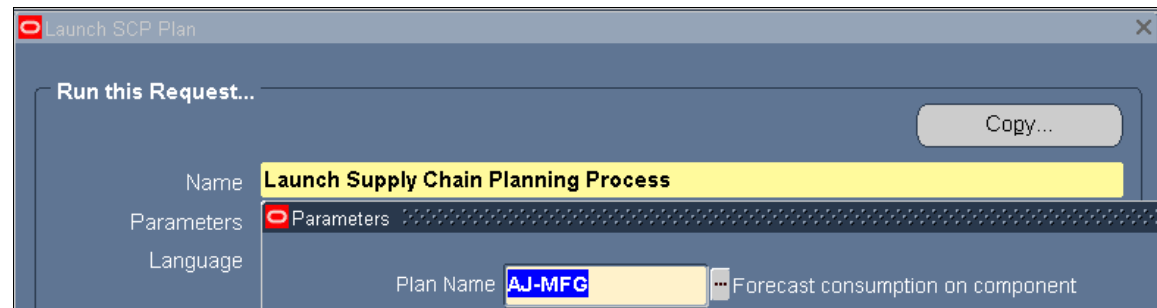
Business Process

- **Planning Cycle**

- **Data Collections**



- **ASCP Plan**



Under consumption Scenario: Results

- Horizontal Plan for COMP-001

Horizontal Plan (AJ:NL1)

			▶ D:54:13-SEP-2009	▶ D:55:14-SEP-2009	▶ D:56:15-SEP-2009	▶ D:57:16-SEP-2009	▶ D:58:17-SEP-2009	▶ D:59:18-SEP-2009	▶ D:60:19-SEP-2009
AJ:NL1	COMP-001	Sales orders	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Forecast	0.0	20.0	0.0	10.0	10.0	20.0	0.0
		Dependent demand	0.0	0.0	10.0	20.0	10.0	0.0	0.0
		Payback Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Gross requirements	0.0	20.0	10.0	30.0	20.0	20.0	0.0
		WIP+	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Purchase orders	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Requisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		In Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		In Receiving	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Planned orders	0.0	20.0	10.0	30.0	20.0	20.0	0.0
		Payback Supply	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total supply	0.0	20.0	10.0	30.0	20.0	20.0	0.0
		Beginning on hand	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Under consumption Scenario: Consumptions

Forecast Consumption at Component Level

➤ Percolated through both Phantom and Subassembly

		14-Sep-09	15-Sep-09	16-Sep-09	17-Sep-09	18-Sep-09	
Sales Orders	FG-001				10		
Dependent Demand	COMP-001			10			
Dependent Demand	SA-001			10			
Sales Orders						10	
Dependent Demand	COMP-001		10		10		
Dependent Demand	PH-001			10			
Dependent Demand	COMP-001			10			
Total Dependent Demand	COMP-001	0	10	20	10	0	
Consumption			10 ↓	10 ↓	10 ↓	10 ↓	
Forecast	COMP-001	20	20	20	20	20	
Forecast after Consumption	COMP-001	20	0	10	10	20	
Gross Requirements (Total Dependent Demand + Unconsumed Forecast)	COMP-001	20	10	30	20	20	100

Under consumption Scenario: Calculations

- Forecast of 100 nos. of COMP-001 on 14-Sep-09
 - Evenly spread as 20 nos. on each day from 14-Sep-09 to 18-Sep-09
- Total SO Demand of FG-001 = 10
 - Dependent Demand of COMP-001 = $10 \times 3 = 30$
- Total SO Demand of SA-001 = 10
 - Dependent Demand of COMP-001 = $10 \times 1 = 10$
- Forecast of $30 + 10 = 40$ nos. of COMP-001 to be consumed
 - Unconsumed Forecast of COMP-001 = $100 - 40 = 60$

September, 2009						
Su	Mo	Tu	We	Th	Fr	Sa
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

Business Process: Overconsumption Scenario

- **Sales Orders at FG, SA and Component level**
 - Dependent Demand of COMP-001 from FG and SA Sales Orders > Forecast of COMP-001

Sales Orders (100117572) - BLUEDELTA

Order Information Line Items

Default SO line Order Total **0.00**

Main Pricing Shipping Addresses Returns Services Others

Line	Ordered Item	Item Description	Qty	Line N	[]	UOM	Request Date	Schedule Ship Date	Status
1.1	FG-001	ATO End Item for IFC	30	1		.NORMAL..A EA	17-SEP-2009 09:52:00	17-SEP-2009 23:59:00	Supply Eligible
2.1	SA-001	Subassembly for IFC	20	2		.NORMAL..S EA	18-SEP-2009 09:52:00	18-SEP-2009 23:59:00	Awaiting Shipping
3.1	COMP-001	Component for IFC	1	3		.NORMAL..C EA	14-SEP-2009 09:52:00	14-SEP-2009 23:59:00	Awaiting Shipping

Line Total **0.00** Line Qty **30** Service Total **0.00**

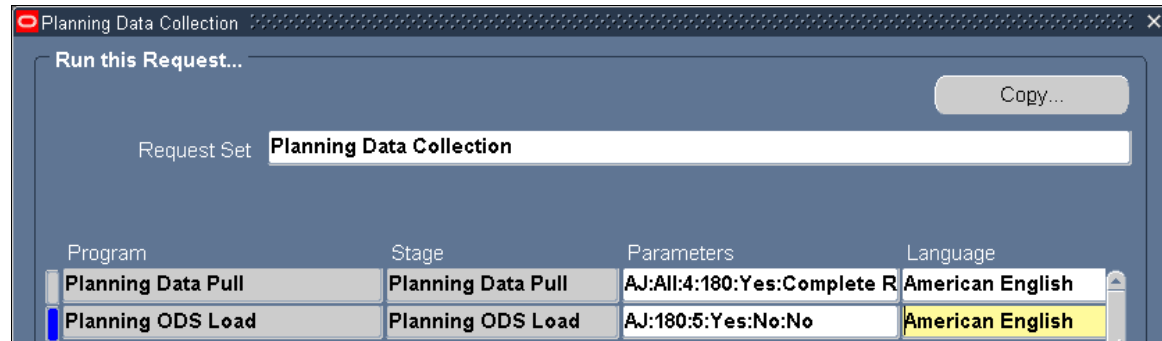
Description **ATO End Item for IFC**

Actions Related Items Configurator Availability Book Order

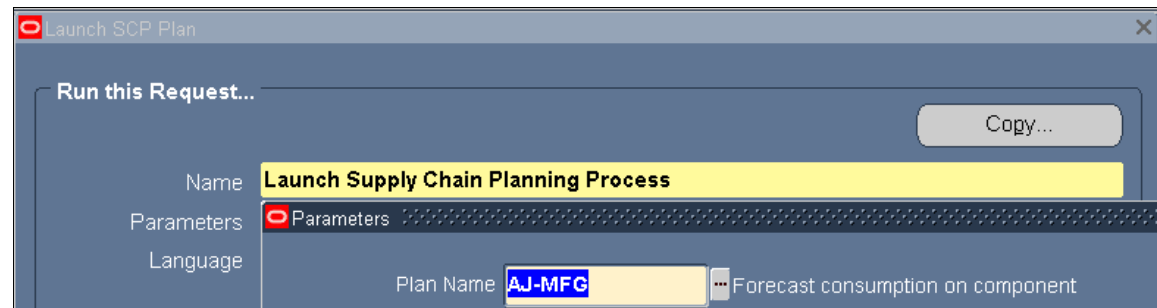
Business Process

- **Planning Cycle**

- **Data Collections**



- **ASCP Plan**



Overconsumption Scenario: Results

Horizontal Plan for COMP-001

Horizontal Plan (AJ:NL1)

			W:8:14-SEP-2009									
			D:41:09-SEP-...	D:42:10-SEP-...	D:43:11-SEP-...	D:44:12-SEP-...	D:45:13-SEP-...	D:46:14-SEP-...	D:47:15-SEP-...	D:48:16-SEP-...	D:49:17-SEP-...	D:50:18-SEP-...
Global Org (Local Forecasting)	COMP-001	Original	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0
		Cumulative Original	0.0	0.0	0.0	0.0	0.0	20.0	40.0	60.0	80.0	100.0
		Consumed	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0
		Cumulative Consumed	0.0	0.0	0.0	0.0	0.0	20.0	40.0	60.0	80.0	100.0
		Current	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Cumulative Current	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Expired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Orgs for this Plan in AJ	COMP-001	Sales orders	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
		Forecast	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Dependent demand	30.0	0.0	0.0	0.0	0.0	60.0	0.0	20.0	0.0	0.0
		Payback Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Gross requirements	30.0	0.0	0.0	0.0	0.0	61.0	0.0	20.0	0.0	0.0
		Planned orders	30.0	0.0	0.0	0.0	0.0	61.0	0.0	20.0	0.0	0.0
		Payback Supply	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total supply	30.0	0.0	0.0	0.0	0.0	61.0	0.0	20.0	0.0	0.0

Exception Details (AJ:NL1)

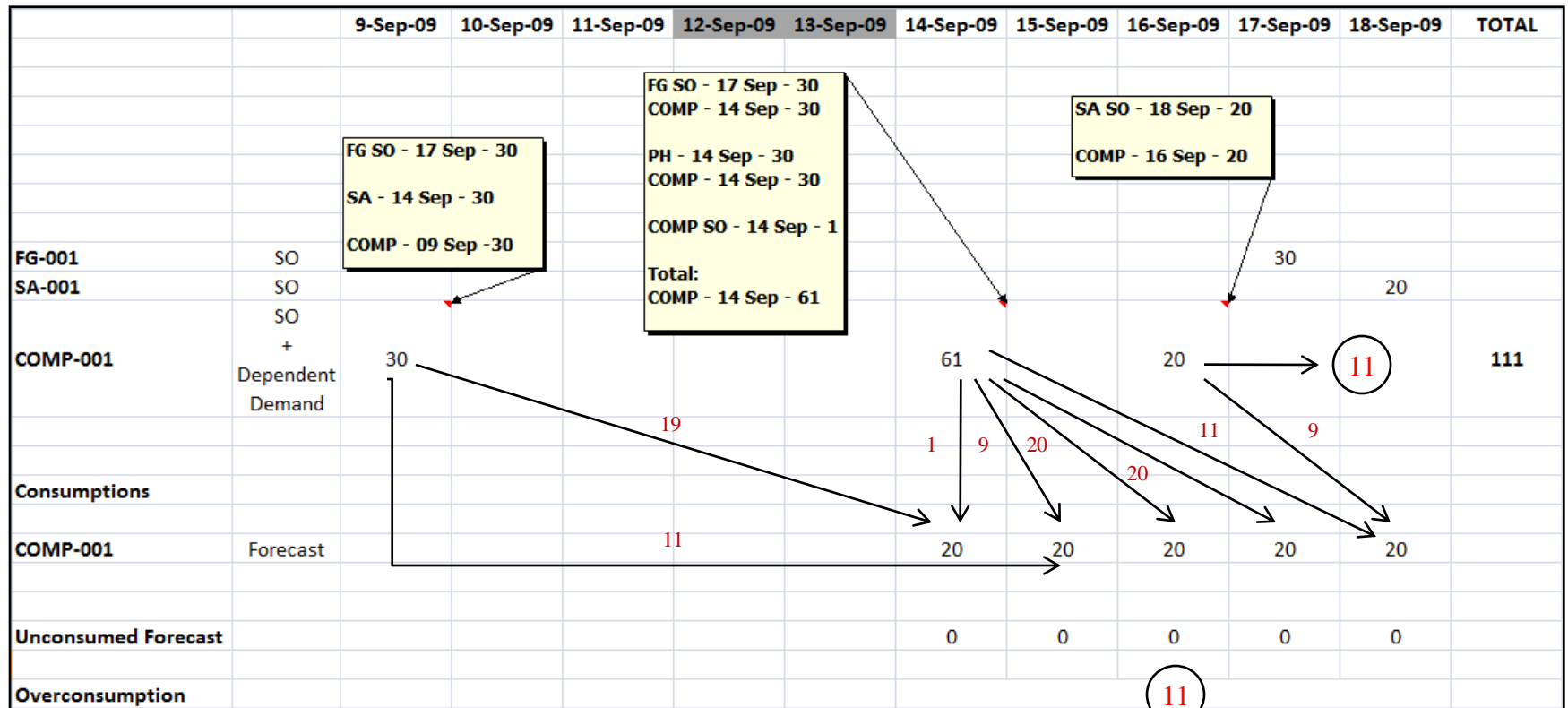
Plan **AJ-MFG** Forecast consumption on component Type **Manufacturing**

Action	Exception	Org	Item	Date	Quantity	To Date
<input type="checkbox"/>	Late supply pegged to sales order	AJ:NL1	COMP-001	14-SEP-2009 00:00	61	17-SEP-2009 23:59:00
<input checked="" type="checkbox"/>	Items with Forecast Overconsumption	AJ:NL1	COMP-001		11	

Overconsumption Scenario: Consumptions

Forecast Consumption at Component Level

➤ Percolated through both Phantom and Subassembly



Overconsumption Scenario: Calculations

- Forecast of COMP-001 in Week Starting 14-Sep-09 = 100
- Total SO Demand of FG-001 = 30
 - Dependent Demand of COMP-001 = $30 \times 3 = 90$
 - Split & placed as per lead times of FG-001 & SA-001
- Total SO Demand of SA-001 = 20
 - Dependent Demand of COMP-001 = $20 \times 1 = 20$
- Total SO Demand of COMP-001 = 1
- Total SO + Dependent Demand: $90 + 20 + 1 = 111$
 - Overconsumption = $111 - 100 = 11$
- COMP-001: Gross Requirements = Planned Orders = 111

Solution Highlights

- Easy to set up and implement
 - Minimum setups involved
 - No major business process transformations required
- Ability to use the forecast generated at component level, which in certain cases is more accurate than end assembly level forecast
- Forecast entered at component level consumed by ATO / MTS Sales Orders by drilling down through the BOMs, at each level, till the lowest level of dependant demand
- Consumption calculations for every component are visible through the horizontal plan thereby making it possible for the planners to analyze the same

Value Proposition

- The solution is based on standard Oracle ASCP features with no customizations involved
- Facilitates use of component level forecast in supply chain planning in an ATO environment, while the Sales Orders can still be entered at a higher level
- The solution will drive correct consumption at granular level of the demand thereby ensuring optimum gross demand
- Provides better visibility of the forecast consumption process at component level
- Improves planned order suggestions
- Reduces maintenance (in absence of customizations)

Contact Information

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Thank You !