Mixing E-Business & Pleasure

Integration scenarios for
Oracle EBS and SOA Suite

Also visit presentation
*Increase Throughput and Customer Service with
Production Scheduling (S292721)*

Agenda

- Introduction SABIC Innovative Plastics
- Project overview
- Design Principles & Solution Architecture
- E-Business Suite Adapters
- Lessons learned

SABIC Innovative Plastics

SABIC Innovative Plastics, formerly GE Plastics, is one of the world's leading providers of advanced engineering thermoplastics with annual revenues of $6.8 billion.

SABIC-IP has over 10,000 employees globally and operations in over 40 countries.

Founded in 1976, SABIC has been a top player in the materials industry and was recently recognized by Platts as "Petrochemical Company of the Year" and Fortune Magazine's: Global Most Admired List (2006).

With over $80 billion in market capitalization, SABIC ranks in the Top 10 petrochemical companies worldwide. SABIC is known for its commitment to technology and R&D and considers employees to be its most important asset.
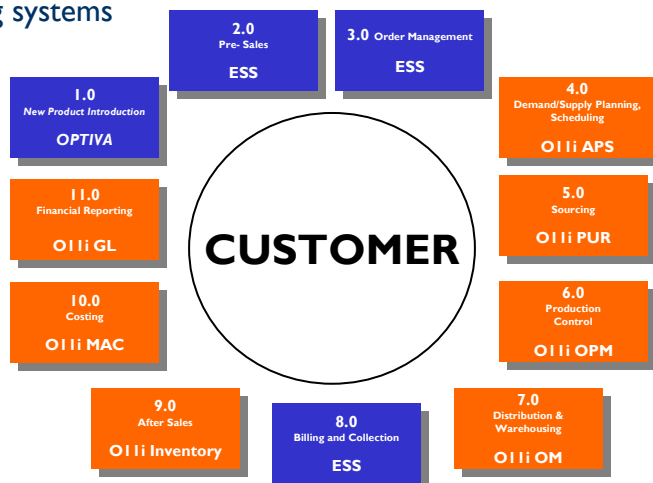

Project: Simplification

- Implement Oracle E-Business Suite
- Integrate with existing systems

CUSTOMER

1.0 New Product Introduction — OPTIVA	
2.0 Pre-Sales — ESS	
3.0 Order Management — ESS	
4.0 Demand/Supply Planning, Scheduling — O11i APS	
5.0 Sourcing — O11i PUR	
6.0 Production Control — O11i OPM	
7.0 Distribution & Warehousing — O11i OM	
8.0 Billing and Collection — ESS	
9.0 After Sales — O11i Inventory	
10.0 Costing — O11i MAC	
11.0 Financial Reporting — O11i GL	

ORACLE

GENPACT
Global Business Impact™
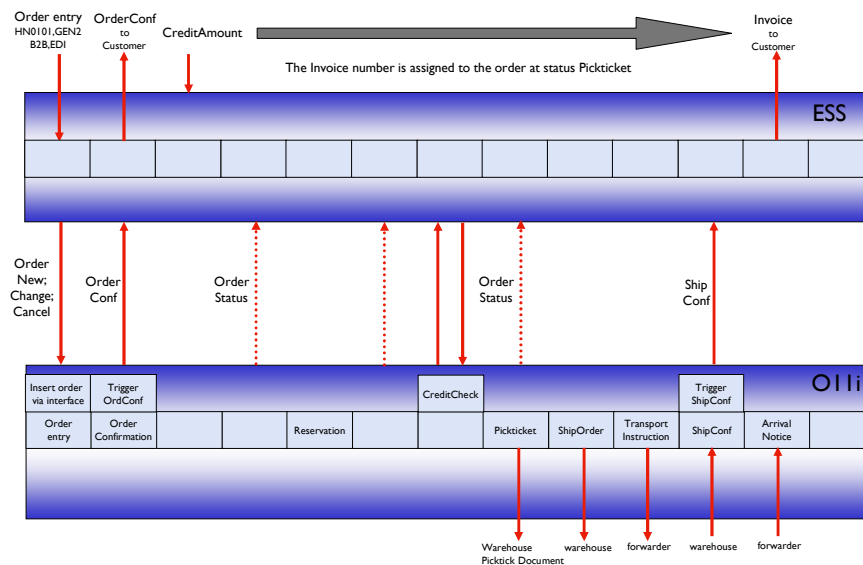
Integration Project: Ambitious

- **Approximately 100 point-to-point interfaces**
- **12 Satellite systems; many external parties**
- **Different integration types & patterns**
- **11i + SOA integration**
  - First business live is NORYL*
  - Rest of businesses to follow later
- **Short timeline: in 5 months**
  - Introduce new concepts and technology
  - Define the solution
  - Train project team and get them up to speed
- **Meanwhile Plastics is sold by GE and bought by SABIC …**

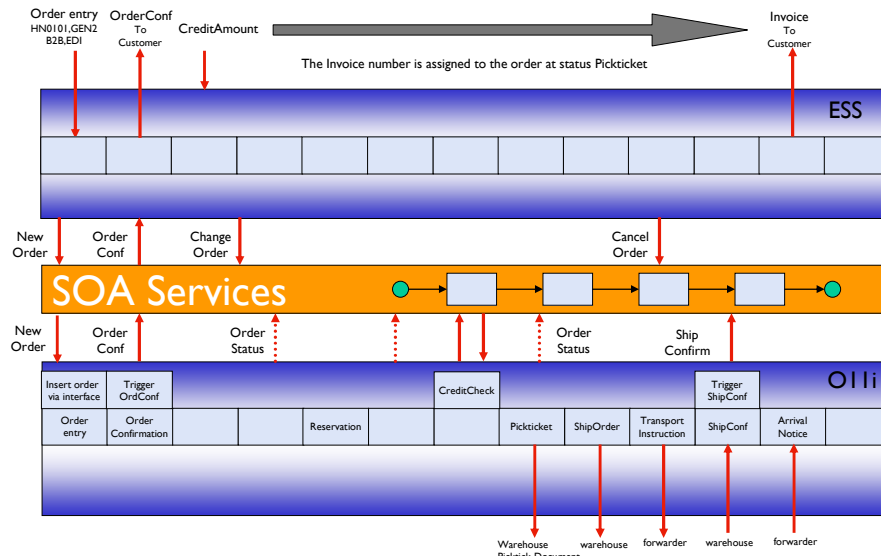* Trademark of SABIC Innovative Plastics IP BV

Example: Order Management Interfaces (Point-to-Point)

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Example: Order Management Interfaces (SOA)

Order entry
HN0101,GEN2
B2B,EDI

OrderConf
To
Customer

CreditAmount

Invoice
To
Customer

The Invoice number is assigned to the order at status Pickticket

ESS

New
Order

Order
Conf

Change
Order

Cancel
Order

SOA Services

New
Order

Order
Conf

Order
Status

Order
Status

Ship
Confirm

Insert order via interface	Trigger OrdConf			CreditCheck		Trigger ShipConf		OIIi
Order entry	Order Confirmation		Reservation		Pickticket	ShipOrder	Transport Instruction	ShipConf	Arrival Notice

Warehouse
Picktick Document

warehouse

forwarder

warehouse

forwarder

Example: Order Management Interfaces (SOA)

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Order
Status

Order
Status

Ship
Confirm

OIIi

Order
entry

Order
Confirmation

Reservation

Pickticket

ShipOrder

Transport
Instruction

ShipConf

Arrival
Notice

Warehouse
Picktick Document

warehouse

forwarder

warehouse

forwarder

EBS already supports Business Processes!
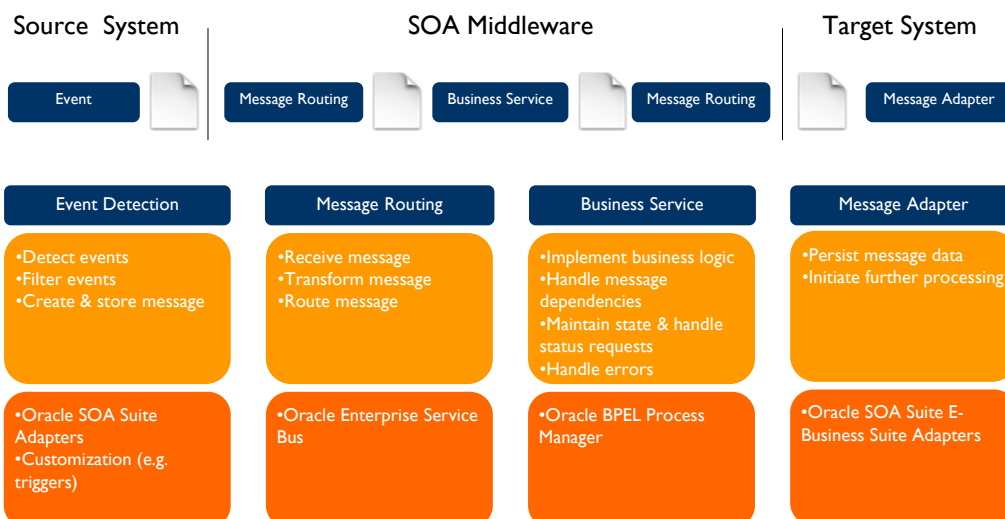
Solution Architecture: Design Principles

- **Buy over build**
  - Packaged apps, Fusion technology
  - → E-Business Suite is leading
  - → Leverage EBS process support
- **Bridging gaps between different worlds**
  - Technicalities (e.g. availability)
  - Semantics
  - → Loosely coupled
  - → Canonical model
- **Team understands E-Business Suite & traditional Oracle technology (PL/SQL)**
  - → Assembly over programming
  - → Use of SOA Suite adapters where possible
- **Time constraints**
  - → Parallel work
  - → Design to interfaces & contracts
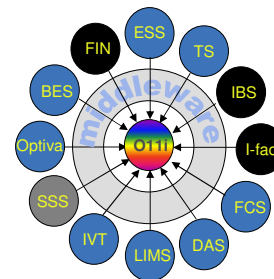
Solution Architecture: Component Overview

Source System	SOA Middleware			Target System
Event	Message Routing	Business Service	Message Routing	Message Adapter

Event Detection	Message Routing	Business Service	Message Adapter
•Detect events •Filter events •Create & store message	•Receive message •Transform message •Route message	•Implement business logic •Handle message dependencies •Maintain state & handle status requests •Handle errors	•Persist message data •Initiate further processing
•Oracle SOA Suite Adapters •Customization (e.g. triggers)	•Oracle Enterprise Service Bus	•Oracle BPEL Process Manager	•Oracle SOA Suite E-Business Suite Adapters

Example Flow: Order Management in System ESS

Order Header

Order Lines

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Example Flow: Order Management BPEL Process Instance

1st Service in Sales Order Creation

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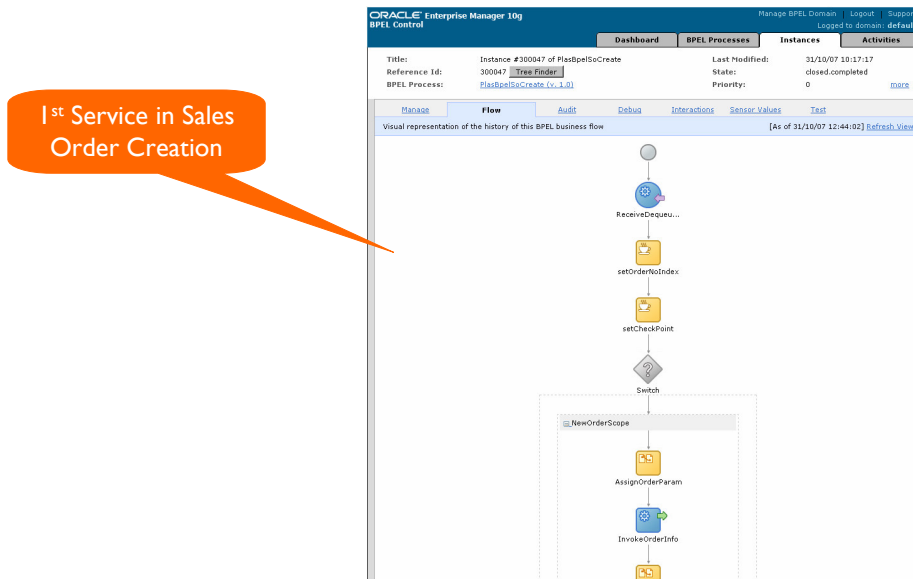
Example Flow: Tracking and Tracing

Trace the Order through a number of Services

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Example Flow: Order Management in EBS

Order Header

Order Lines

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Oracle EBS Adapters

- Part of the SOA Suite Adapter Framework (version 10.1.3+)
- Interfaces being added constantly (http://irep.oracle.com)
- Types:
  - Business Event System
  - XML Gateway
  - Oracle E-Commerce / EDI Gateway
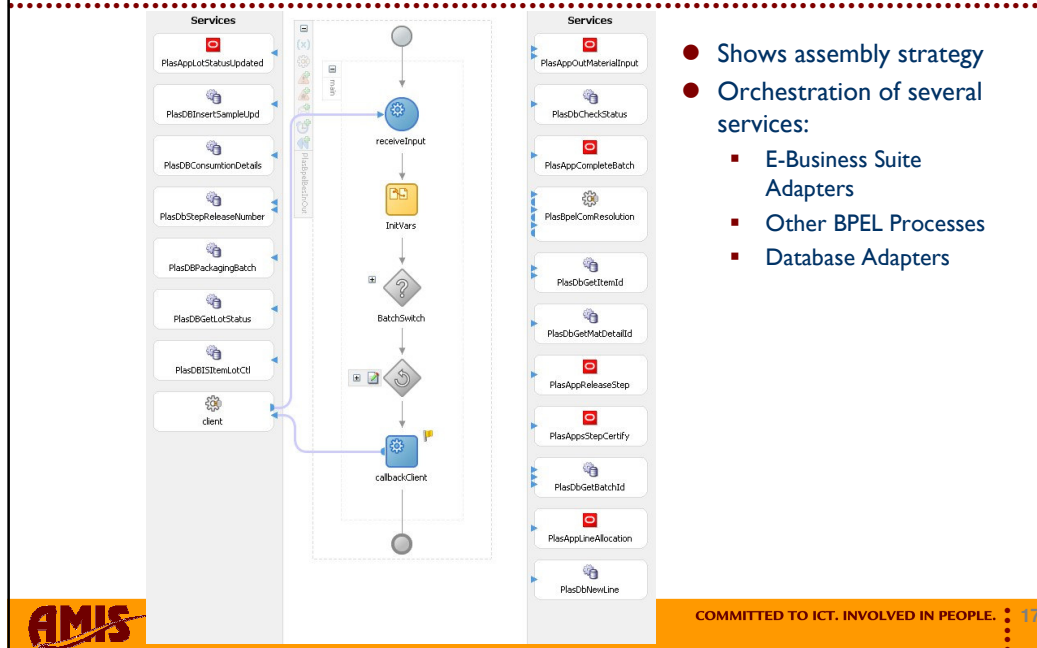 - PL/SQL API's
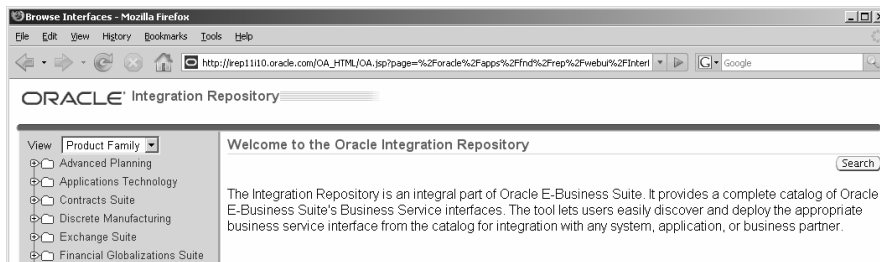
Using the Oracle EBS Adapters

- Started with Proofs of Concept
- Worked closely with Oracle
  - On-site EBS consultants
  - Support and Development (OWC Sessions)
  - Offshore development team in India (training and roadmap)
- Focus on PL/SQL API Adapters
  - Risk-averse
  - Other interfaces may require additional license fee

Example: Batch Release (EBS to BES)

Services

- PlasAppLotStatusUpdated
- PlasDBInsertSampleUpd
- PlasDBConsumtionDetails
- PlasDbStepReleaseNumber
- PlasDBPackagingBatch
- PlasDBGetLotStatus
- PlasDBISItemLotCtl
- client

receiveInput

InitVars

BatchSwitch

callbackClient

Services

- PlasAppOutMaterialInput
- PlasDbCheckStatus
- PlasAppCompleteBatch
- PlasBpelComResolution
- PlasDbGetItemId
- PlasDbGetMatDetailId
- PlasAppReleaseStep
- PlasAppsStepCertify
- PlasDbGetBatchId
- PlasAppLineAllocation
- PlasDbNewLine

- Shows assembly strategy
- Orchestration of several services:
  - E-Business Suite Adapters
  - Other BPEL Processes
  - Database Adapters

EBS Adapters: Design considerations

- Setup interfacing account in EBS with matching responsibilities
- Concurrency problems → 'Trickle-feeding pattern'
- Where and how to handle exceptions?
  - There will be exceptions, mostly functional errors
  - Preferred: let user handle exceptions in EBS
  - But: what if data does not appear in EBS when adapter returns functional error? Options are:
    - Use of traditional open interfaces
    - Handle exceptions in middleware

Lessons Learned: Organizational Impact

- EBS as well as SOA implementations have tremendous impact on an organization
  - Both require an united business and IT effort
  - Both provide business process support → challenge is to find balance between EBS business process support and use of BPEL processes
- Project is eye-opener → step-up to an event-driven enterprise with open IT systems
- Carefully manage complexity: implied architected approach
- Improved control: growing awareness for need of SOA Governance
  - First: requires functional design and organization
  - Second: support with tools like BAM and OWSM
- SOA impacts (traditional) roles
  - From EBS Functional consultant to Fusion Process consultant?
- Designing to interfaces & contracts facilitated parallel work
  - EBS and BES were implemented separately and integrated seamlessly when both were ready

Lessons Learned: Oracle SOA Suite EBS Adapters

- Facilitates assembly of BPEL Services: alternative for 'traditional' EBS customizations
- Explore use of EBS Adapters carefully
  - Current SOA Suite release is first with EBS Adapters
  - Keep track of news, changes and patches; work closely with Oracle
  - OTN Forum shows increased attention and usage
- EBS Adapters: test your integrations thoroughly
  - BPEL is ideally suited for modeling behavior in case of functional errors
  - Execute stress tests in order to determine possible concurrency bottlenecks

Questions?

→ EBS + SOA = Mixing E-Business and Pleasure
(meanwhile preparing for the Fusion Apps future)

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