

CD107

Developing SAP Business ByDesign Applications Using Partner Development Infrastructure



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SAP Business ByDesign Solution Management
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 **TECHED 10**

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Agenda



1. SAP ByDesign

- Overview
- Architecture

2. ByDesign Studio

- Overview

3. Demo

SAP Business ByDesign™

Designed as a complete On-demand Suite



- On Demand deployment model – running in the SAP Cloud
- Full Suite covering all relevant aspects
 - Large set of scenarios & processes
 - SOA architected and model driven
 - Modular & Flexible – easy to configure and change
 - Business Network enabled
 - Intuitive user experience incl. Collaboration
 - Business Insight & Analytics
- Flexibility, Extensibility & Partner platform
- Integrated knowledge base
- Built in compliance
- Built in Service & Support

SAP Business ByDesign™

Many end-to-end business processes reduce TCO!



- ...
- **Marketing-To-Opportunity**
- **Order-to-Cash for products**
- Order-to-Cash for services
- Make-to-Order
- Make-to-Stock
- Drop Shipment
- Customer Returns
- Stock Transfer
- Strategic Sourcing
- Procure-to-Pay products/ services
- Product Engineering
- Demand and Supply Planning
- Site Logistics and Warehousing
- Quality Assurance
- Financial Closing
- Cash and Liquidity management
- Project Lifecycle Management
- Field Service and Repair
- Request-to-Resolve
- Workforce Administration
- Payroll Services
- Expense and Reimbursement Management
- ...



- Full Set of End-to-End Integration scenarios
- Covering extended suite: CRM; SRM; FIN; SCM; PLM; HCM; PRO
- Business driven Configuration with Simple scoping
- Process view beyond corporate boundaries
- Designed for phased implementation
- PS880 certified (financial certification) by Ernst & Young



Example: Order-to-Cash (Sell-from-Stock)

Scenario Overview



Scenario Explorer

- Scenario & Processes
- Business Areas
- Business Value
- Scenario Flow

Scenario Description

This scenario enables you to sell goods from stock using a wide range of standard features to handle sales quotes, sales orders, deliveries, customer invoices, and payments. This scenario includes features such as:

- **Available-to-Promise (ATP) Check**
The system informs you of whether the products can be delivered at the requested date and in the requested quantity
- **Pricing**
The system determines prices and discounts automatically. You can also enter these manually, if required. The system can support you by displaying the cost and profit margin

- **Credit Card**
Sales order processing supports the payment by credit cards with integration to payment service providers
- **Credit Limit Check**
You can minimize credit risk by specifying a credit limit for a customer. If a credit limit in an order is exceeded, a delivery block is set automatically
- **Automatic Order Creation**
A sales order can be created on the basis of a lead, opportunity, sales quote, or through an e-shop or B2B interface (external system)

[Open Legend](#)

The following business roles are involved in this scenario:



SAP Business ByDesign™

Details on Business Functionality Level (Examples)



Financial Management

- Credit limit check
- Revenue on projects / project profitability
- Recurring documents
- Audit work center
- Closing cockpit
- Incoming payment by credit card
- Petty cash

Supplier Relationship Mgmt

- List prices
- Down payment
- Recurring invoices
- Stock transfer (inter-company via B2B)
- Return to supplier
- Expense product
- Support of drop shipment

Project Management

- Project cost estimation
- Project invoicing
- Project profitability
- Editable Gantt chart
- XML up- and download (e.g. for Microsoft Project)

Customer Relationship Mgmt

- Campaign management
- Project-based selling
- Down payments
- Recurring invoicing
- Support of drop shipment
- Support of eCommerce

Product Development

- Product definition
- Product engineering

Supply Chain Management

- Make-to-order (lean)
- Drop shipment
- Intra-company stock transfer
- Return-to-supplier
- Quality assurance
- Freight list
- Cycle counting
- Production order-based replenishment & feasibility check
- Labeling & serial numbers
- Inbound advanced shipping notification

Human Resources

- Quick time data-entry including periodical overview
- Excel upload for employee times
- Working time accounts
- Resource pool management
- HR dashboard for corporate performance



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Details on User Experience & Cross Topics (Examples)



Analytics & Manager

- Corporate performance
- Executive dashboards
- Formatted reports
- KPI Monitor
- New work center Business Analytics for key users
- Easy creation of new reports

User Productivity

- Enhanced search on business objects, documents within ByDesign and via external search service providers
- Add and manage favorites from ByDesign and external content
- Enhanced web services/mashups
- Personalize work center sort order, page UI, date/time/number format
- Quick access via keyboard navigation
- Less clicks for finishing an action
- Personalize screen content: hide and show fields

Business Task Management

- Work assignment across organization
- Delegate work based on workload and responsibility
- Task monitoring and reporting

Groupware Integration

- Synchronization of ByDesign appointments, emails, tasks, contacts with Outlook client
- Follow-up on service requests from Outlook directly
- Support both Outlook 2003 and 2007

Office Integration

- Refresh previously downloaded data in Excel with real-time ByDesign data
- Uploading new data from an Excel template into ByDesign
- Create business document with ByDesign data in Microsoft Word

People Collaboration

- Telephony integration
- Click to dial directly from UI
- Automatic incoming caller determination, with related business content

Business Configuration

- Definition of customer-specific fields
- Application work center allows fine tuning
- Support of a partial implementation approach (e.g. CRM or SRM only)
- Extend the partial implementation in a follow up phase (e.g. adding Financials once CRM has been implemented)

Output Management

- Form editing with simple form editor
- Advanced error handling

Identity and Access Management

- New audit reports
- Enhanced rules for segregation of duty
- Self-service for password changes



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Services embedded into the Product!



Automated & Built-In Support

- Self-healing capabilities
- Preventative measures address potential issues
- Integrated incident management

Providing full contextual information

SAP Support

- 24x7 direct support – one phone number
- Technical and application experts available to support you
- Direct support in local language



Built-in learning

- Built-in learning environment
- Learning "on the job"
- Learning content always up-to-date and continuously growing



Online Help Resource

- ByDesign™ tightly integrated with communities using Web 2.0 features

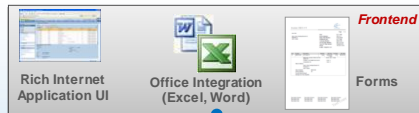
Source: SAP



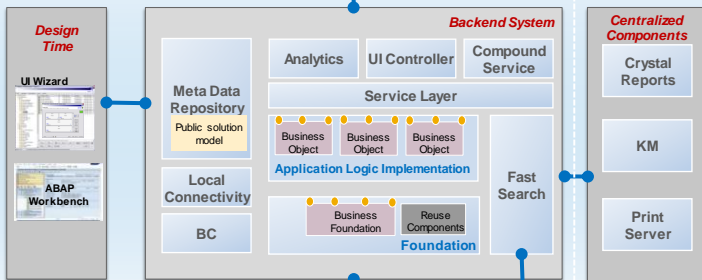
Architecture Overview



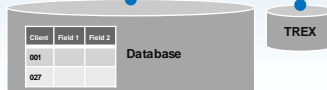
Client Tier



Application Tier

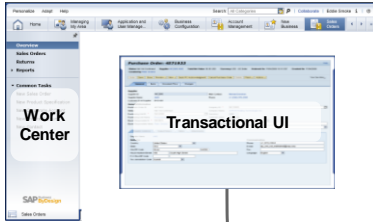


DB Tier

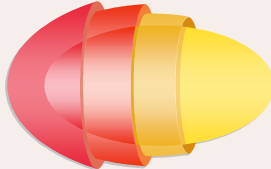


3 Tier Architecture

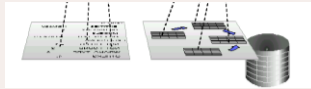
User Interface



Application Business Logic



Persistence Database and Search Engine



Service-oriented architecture:

Core Services standardize the access to business objects like SQL standardizes access to database tables

- Create
- Read
- Update
- Delete

“Business Object”

Definition

“A *business object* is an entity of significance to a business.”

⇒ A Business Objects represents a clearly defined, self-contained business entity

In Business ByDesign business objects

- Encapsulate **business logic** (by its definition and implementation) and **business data** (represented by concrete instances)
- Act as service consumer and provider: provides data via well-defined interfaces to other business objects and consumes services of other business objects
- Are accessible exclusively through a standardized set of (core) services
- Are described by a business object model which defines:
 - Structure
 - Type of the attributes
 - Aspects of the behavior
 - Service interfaces

Business Transaction Documents

Purchase Order	Sales Order
Customer Invoice	Accounting Document

Master Data Objects

Business Partner	Product
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Business Configuration Objects

Dunning Strategy	...
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Note: In our context business object means the type and **not** the instance!

Business object:

purchase order

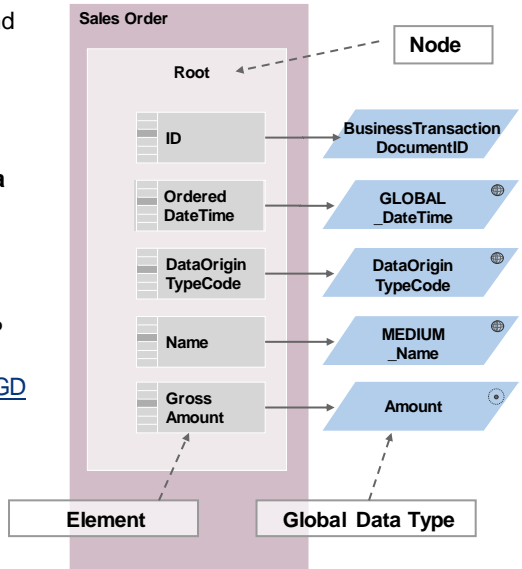
Business object instance:

purchase order with ID 32452

Business Object Node Attributes



- As soon as the nodes are defined and their business semantic is clear, the attributes can be assigned.
- Assign the attributes as elements to nodes according to their semantic.
- **Attributes are typed by global data types (GDTs) or core data types (CDTs)**
- **All business objects and service interfaces share the same pool of global data types**, published in SAP Developer Network (SDN):
<http://wiki.sdn.sap.com/wiki/display/GDT/SAP+Global+Data+Type+Catalog>



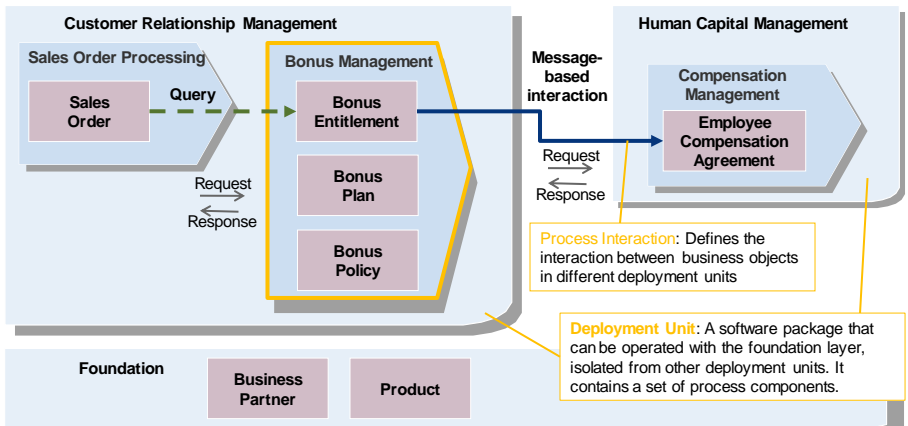
“Integration Scenario ”

Definition



“An **integration scenario** is a realization of a given **end-to-end business process**. The model shows the **required entities for the process** and the **high-level process integration points**.”

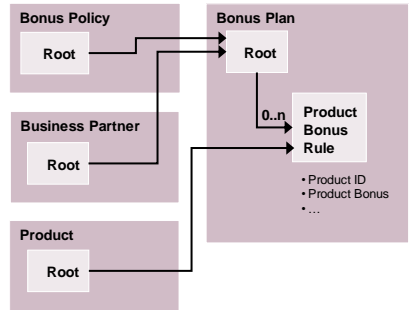
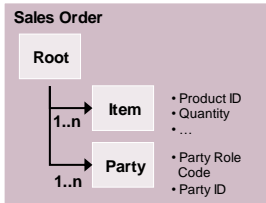
Integration Scenario “Bonus Management”



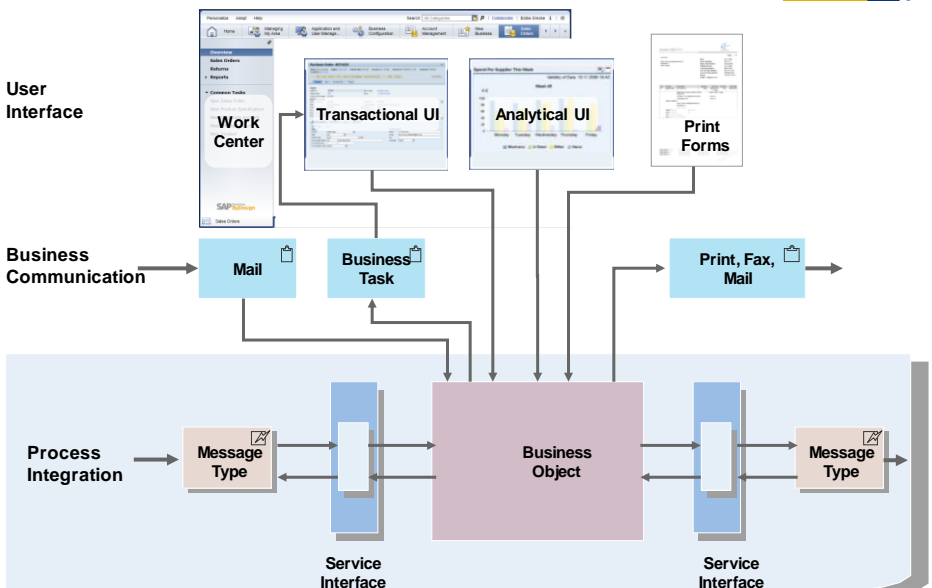
Refinement of an Object Model: Compositions and Associations

- The internal structure of a business object is described by its components (object nodes)
- Nodes are **compositions** with cardinality and are related via a strict hierarchical relationship and exposes semantics and business understanding
- Elements (attributes) in one node can be mandatory or optional. Elements with cardinality larger than 1 require a separate node.

- External relationships to business object in the same deployment unit and to business objects in foundation are expressed as **associations**



Communication Capabilities



The following floor plans are available in ByD:

- Work Center (WC), Control Center (CC):

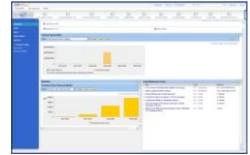
An area where an employee can perform the typical tasks or functions that they are responsible for within an enterprise.

The Control Center is a dedicated work center that is the central starting point for all business activities

- Object Work List (OWL)

- Quick Activity (QA), Fact Sheet (FS), Object Instance (OI)

For viewing and maintaining the key properties of an object and for viewing the full set of properties of a business object. The employee can switch back and forth between different views



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SAP Business ByDesign

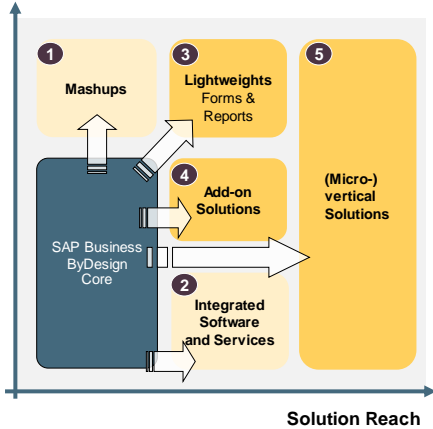
Types of Partner Solution



SAP is focusing on SAP Business ByDesign as the application platform with core business scope

- Solution Partner integrate best-of-breed applications and services
- Increase Solution Reach with additional backend functionality
- Increase Solution Attractiveness on front-end

Solution Attractiveness



Examples:

- Mashups**
 - Frontend integrations like
 - maps,
 - company information,
- Integrated Software and Services**
 - Backend integrations like
 - Credit card processing
 - Payroll services
- Lightweights**
 - Forms, Reports, Excel Workbooks, and UI Adaptations
 - Financial Health Check via MS Excel Download
- Add-on solutions**
 - Native solutions
 - Trade promotion management
 - Service help desk
- (Micro-)vertical solutions**
 - Pre-configured or native micro-verticals like
 - Pharmaceutical Solution
 - Wine yard Solution

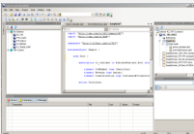
- Developed by SAP, operated by SAP
- Developed by Partner, operated by partner / customer
- Developed by Partner, operated by SAP

ByDesign Studio

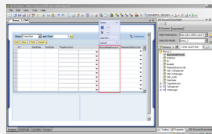
Efficient partner development infrastructure provided by SAP



ByD Software Development Toolkit



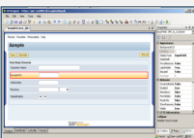
Integrated development environment based on MS Visual Studio



UI designer for desktop and mobile devices



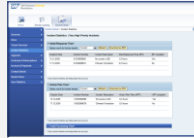
End-to-end software lifecycle management



Reuse of key user tools e.g. reports builder, forms editor



Enhanced developer productivity – wizards support

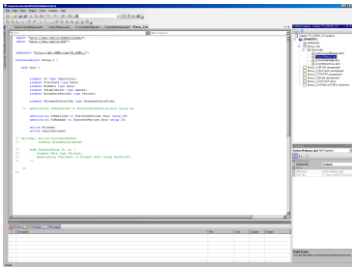


Link to Commercial Platform via Partner Control Center

Partner solutions

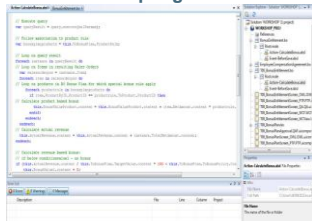
- Modification-free
- Multi-tenant
- Multi-device
- De-coupled lifecycle
- Scalable
- Easy to integrate

New Business Objects



- Business objects contain nodes, elements, associations and actions
- The business objects are tree-like structured by nodes and sub-nodes
- The data of the elements is persisted in the database. Transient elements are also possible
- Associations can point to other BOs within the add-on or to ByD BOs
- Actions capsule the business logic
- Authorization on instance level
- Link ByD BO to BO of partner

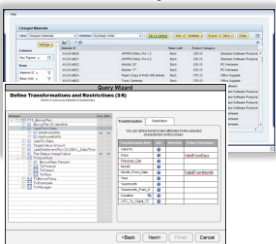
Scripting



- Implement the business logic of add-ons. Examples: Calculate bonus, initialize elements, check user input
- Usual control structures like „if“, „while“, „foreach“, ...
- Read-write access to elements of own or associated BOs
- Query BO-instances
- Exception handling
- Library of reuse services
- Usable in different contexts: BOs, process agents, service adaptations, exit implementation

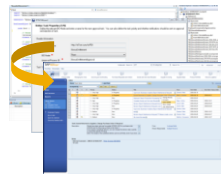
UI's, Forms, Reports and Workflows

Custom Analytics



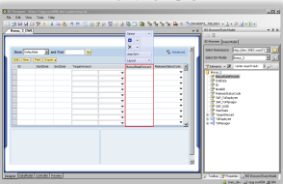
- Custom reports (new or based on existing)
- Use (custom) fields
- Create & personalize Excel Workbook
- Create formatted reports
- Create new reporting views and reports for partner BOs

Workflow



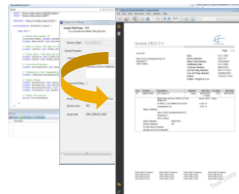
- Add an approval workflow to partner business object
- Add task to universal work list

Partner UIs



- Build ByD conform standard UIs for Partner BOs
- Create Mobile UIs
- Create new partner specific UI controls (e.g. CAD drawings) using Silverlight

Forms Maintenance



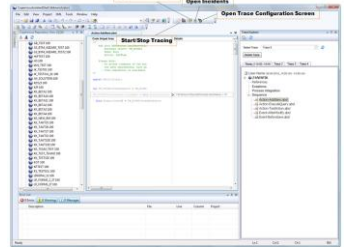
- Custom forms via highly accessible form editor
- Use additional fields (custom or standard)
- Create new print forms for partner BOs and associated ByD BOs, and for ByD BOs

External Integration



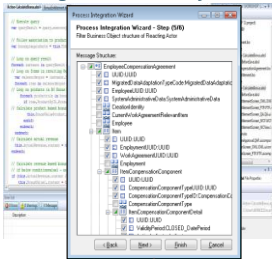
- Provide synchronous web services to access BOs of partners and ByD from the outside
- Push to and retrieve data from ByD via external actor
- File upload to ByD BOs or partner BOs

Tracing and Supportability



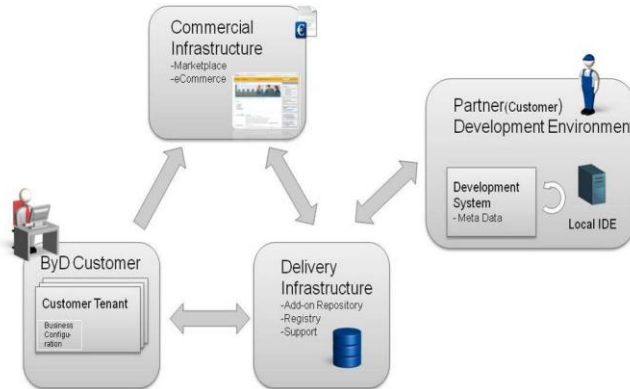
- Write trace statements from Scripting coding
- Explore and manage traces within ByDesign Studio

Asynchronous Process Integration within ByD



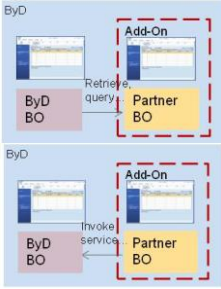
- Functional decoupling via asynchronous integration
- Well defined interfaces and messages
- Send / receive messages across ByD deployment units

Support of the full lifecycle of a partner add-on



- Initial creation / registration of a partner add-on
- Ensure the adherence to lifecycle relevant constraints during development (namespaces, packages, transports)
- Assemble shippable add-ons
- Manage shipping of add-ons to repository and customer systems
- Deploy and activate add-on on customer systems
- Set up maintenance processes: split maintenance from development version, build and apply hot-fixes

Supported Application Patterns - an excerpt



Add-On's

- Inbound / Outbound handling (providing data and consuming)
- UI simplification (cockpits)

Use Cases

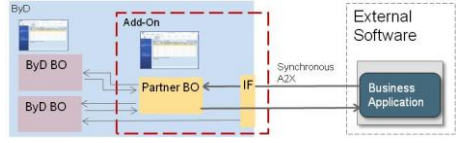
- Bonus management
- Planning Service Orders
- Simplify confirmation within professional service

3rd Party Software Integration

- Synchronous (external initiated) integration (push/pull from external)
- File upload

Use Cases

- Ticketing integration, Daily upload of cash journal

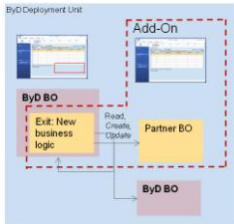


Logic Extension

- Calculated extension fields
- Adaptation of ByD screens

Use Cases

- Fast order entry
- Inventory Properties Management

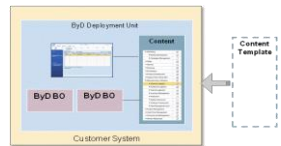


Preconfigured Template

- Deliver preconfigured project templates for initial project start
- Template includes BC sets, Reports, basic data

Use Cases

- Professional service template



DEMO

Business ByDesign Studio: Build a Customer Classification Application



Customer Classification

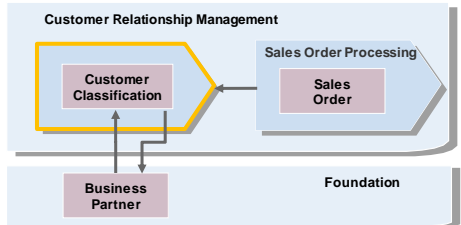
Business Scope

- Provide a revenue based calculation of the customer classification

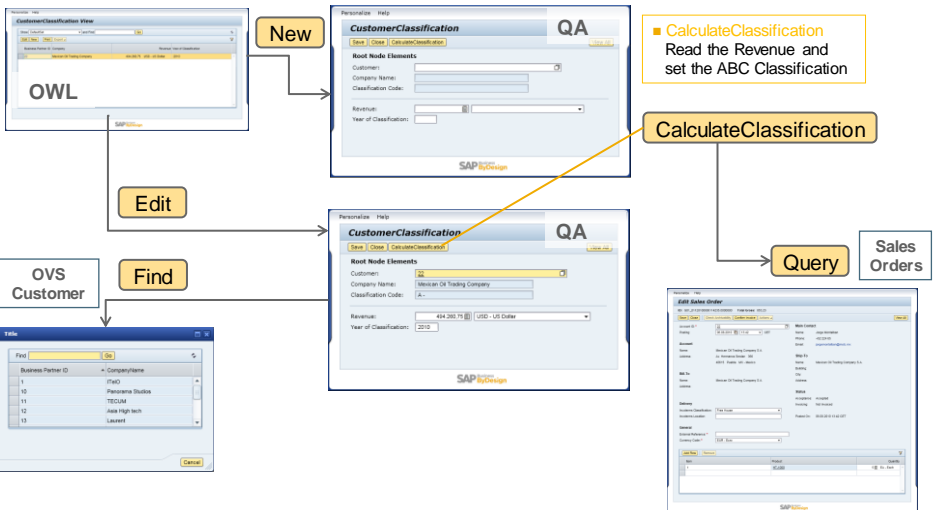
Enduser

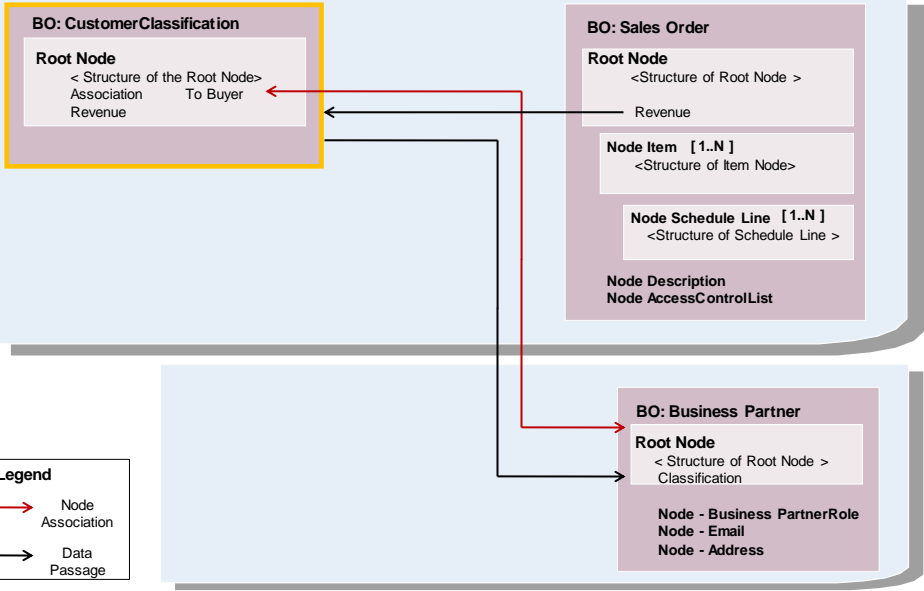


- New BO *Customer Classification* to
 - Query sales orders
 - Calculate the classification based on the revenue
 - Write back the classification to the Business Partner



UI Interaction Model Customer Classification





Summary

We have covered today:



- SAP Business ByDesign as a complete onDemand Suite and a Platform
- Architectural Overview and Development Model.
- Developing own Business Objects with the corresponding UI's using ByDesign Studio

Further Information



SAP Public Web:

SAP Business ByDesign Business Center: <http://www.sme.sap.com/>

Related SAP Education and Certification Opportunities

<http://www.sap.com/education/>

Related Workshops/Lectures at SAP TechEd 2010

CD167: SAP Business ByDesign - E2E Application Development Using Partner Development Infrastructure and SAP Business ByDesign Studio, Hands On

CD115: SAP Business ByDesign - Easy to Implement, Easy to Extend, Lecture



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