



SAP NetWeaver™ Training Overview - SAP® xApps™

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SAP America

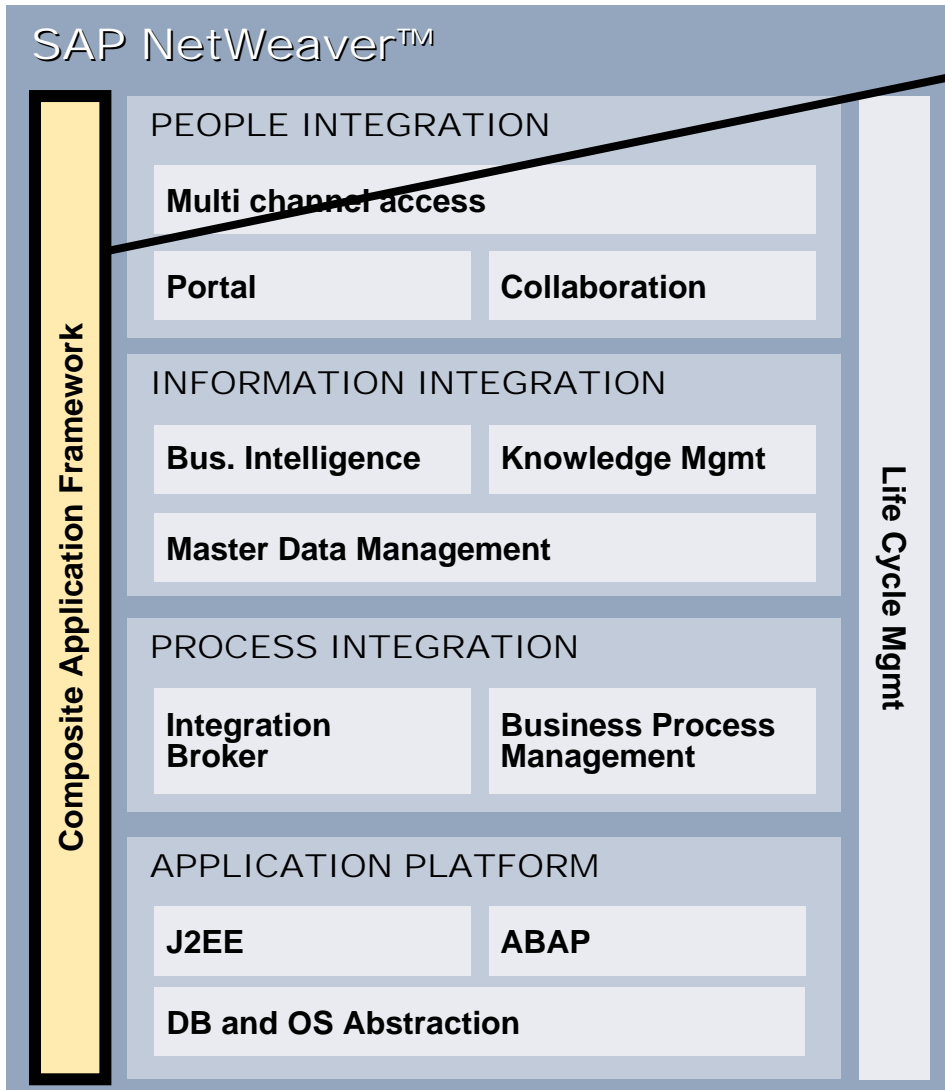
Technical Solution Architect



Detail



**SAP® xApps™ and
Composite Application Framework**



CAF benefits for building composite applications

- a model- and metadata-driven programming model
- modeling and generation tools
- a repository
- a runtime framework
- aggregated APIs to access objects and services across all NetWeaver components
- reusable object models as well as application and UI patterns
- a methodology for building composite applications

***SAP xApps are composite applications
based on Enterprise Services Architecture
that implement Next Business Practices***

Composite Application: “apps on apps”

ESA: Service-oriented architecture for adaptive business solutions, built on NetWeaver

Next Business Practice: innovation for competitive advantage (Prahalad)

Integrate heterogeneous system landscape

- ◆ **Connect to existing repositories**
- ◆ **Separate CA Business Objects from persistency**
- ◆ **Remote data access via XI to backends**

Leverage NetWeaver services

- ◆ **Support semi-structured, ad-hoc business processes**
- ◆ **Provide collaboration services for Business Objects**

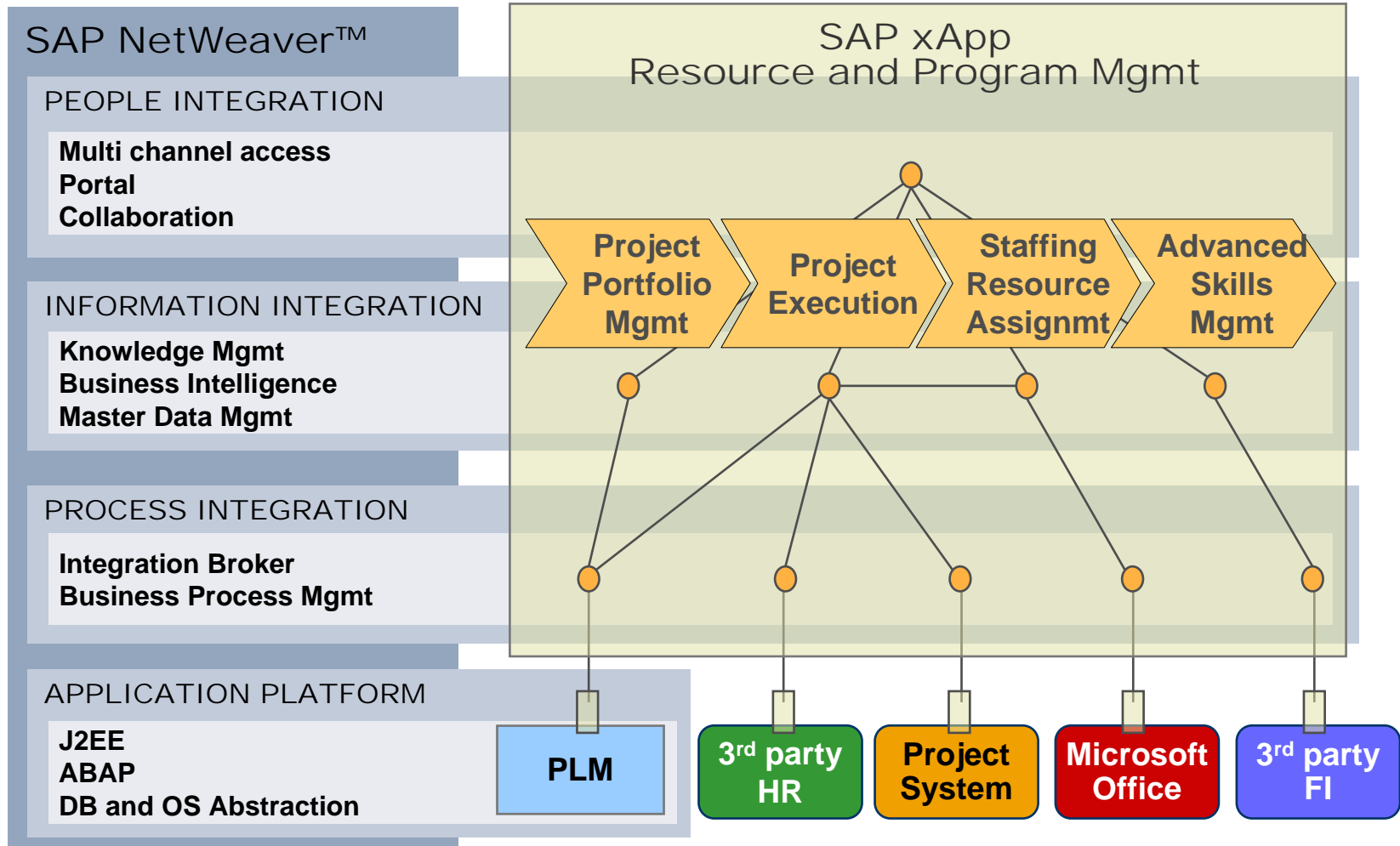
Create a homogeneous user experience

- ◆ **Encapsulate user interface from application data**
- ◆ **Implement consistent pattern-based user interface**

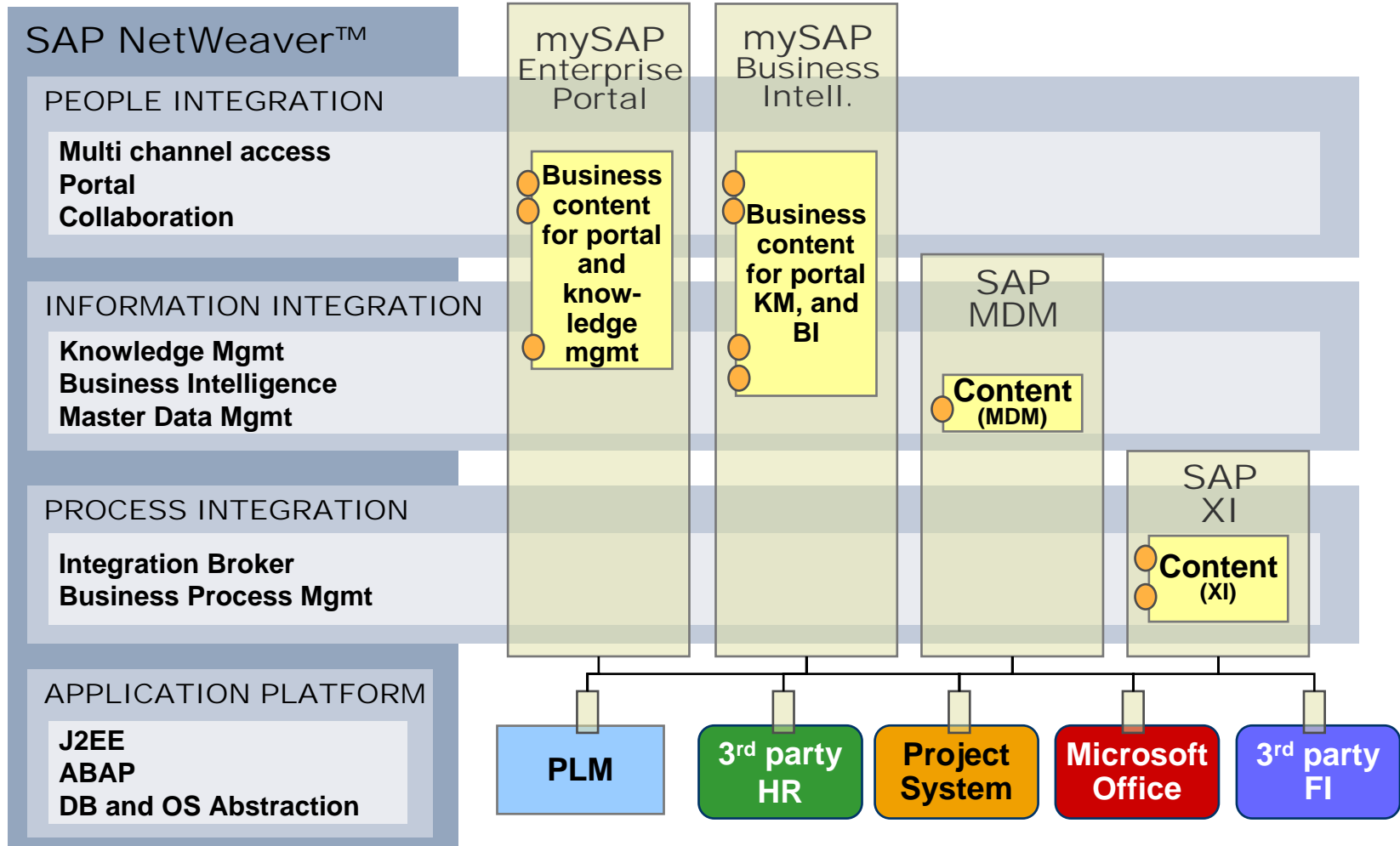
Allow easy configuration

- ◆ **Describe applications by rich set of metadata**
- ◆ **Develop tools for modeling applications**
- ◆ **Store metadata in a runtime repository**

CAF: Integrating System Landscape



CAF: Leveraging Generic NetWeaver Services



CAF: Providing Homogenous User Experience

The screenshot displays the SAP CAF user interface. At the top, there is a navigation bar with 'Welcome, Robin Huang', a search bar, and a 'Go' button. Below this is a menu with 'Control Center', 'Project Management', 'Resource Management', and 'M&A Tech Task Force'. The main content area is divided into two sections: 'Ongoing Procedures' and 'My Concepts'.

Ongoing Procedures Section:

1-3 of 3

Procedure Name	Status	Due Date	Contributors	Progress
New Hire Provisioning for Jo Miller	Running	08/18/2003	3	<div style="width: 100%; height: 10px; background-color: green;"></div>
Organize "Collaboration Tools" Workshop	Running	08/19/2003	4	<div style="width: 100%; height: 10px; background-color: green;"></div>
Publish "10 Steps to Great Applications" Article	Started	08/25/2003	1	<div style="width: 100%; height: 10px; background-color: green;"></div>

Start New

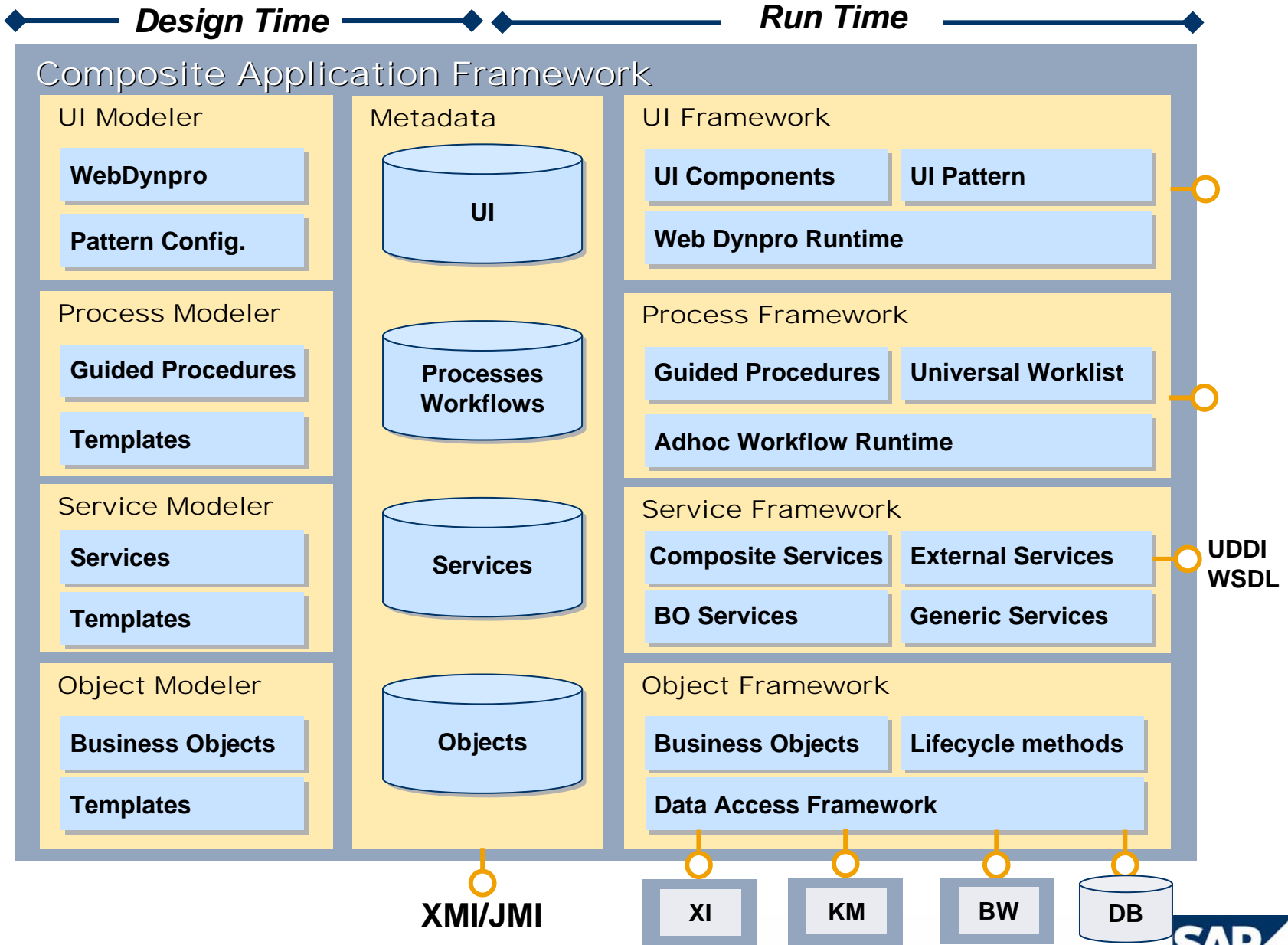
My Concepts Section:

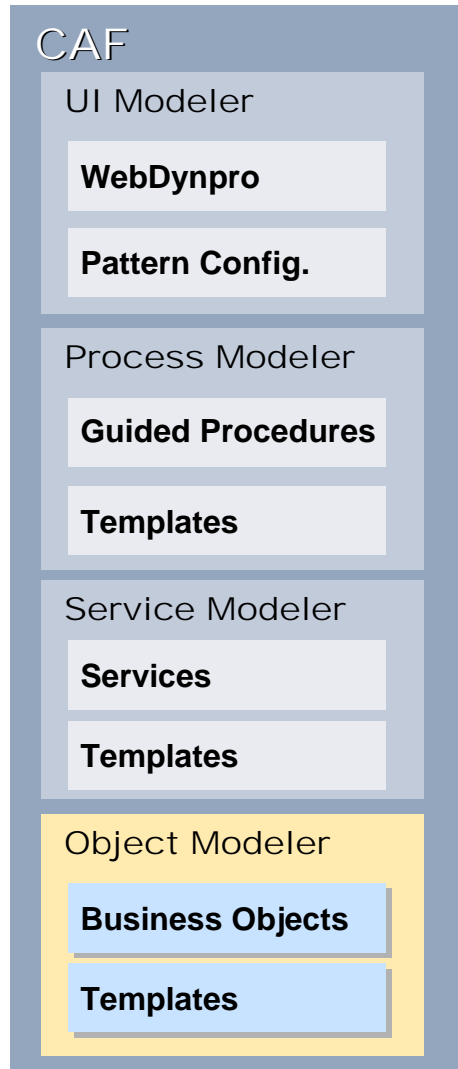
1-5 of 5

Concept Name	Rev	Profit	Risk	BC	FS	Eval	Progress	Status
Tissue with green tea scent	6	3	low	✓	✓		<div style="width: 100%; height: 10px; background-color: green;"></div>	In Progress
Cleaning Towels	7	4	high	✓	!		<div style="width: 100%; height: 10px; background-color: green;"></div>	In Progress
Disposable Washcloth	6	2	med	✓	✓	✓	<div style="width: 100%; height: 10px; background-color: green;"></div>	Approved
Nursing Pad	10	6	med	✓	✓	✓	<div style="width: 100%; height: 10px; background-color: green;"></div>	Rejected
Screen Wipe	1	0	med	✗			<div style="width: 100%; height: 10px; background-color: orange;"></div>	Cancelled

Start New

Anatomy of the Composite Application Framework



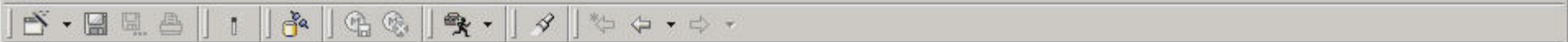


Object Access Layer Design Time

- **Business Object Modeler integrated in Eclipse**
- **Generation Framework integrated allows to generate**
 - ◆ **Business Objects as EJBs**
 - ◆ **Interfaces for application services**
 - ◆ **Default User Interfaces**
 - ◆ **Data access logic**
 - ◆ **Persistency**
- **Pattern templates used for generation**

RunTime Benefits:

- **Uniform interface for all Business Objects**
- **TREX-based search & retrieval services**
- **Dispatcher and access to data sources (local persistency, CM, BW, XI)**
- **Transaction support**
- **Metadata interface**
- **Data synchronization and replication service**



CA Navigator

- CORE
 - xPD
 - Business Processes
 - Objects
 - Business Objects
 - Concept
 - Project
 - Hierarchy Objects
 - Services

CA Navigator | Navigator

*Concept

Attribute Catalog

- Catalog
 - CORE
 - Business Objects
 - Hierarchy Objects
 - xPD
 - Business Objects
 - Concept
 - Project
 - Hierarchy Objects

Attributes

- Concept
 - createdAt
 - createdBy
 - lastChangedAt
 - lastChangedBy
 - Project

-> <-

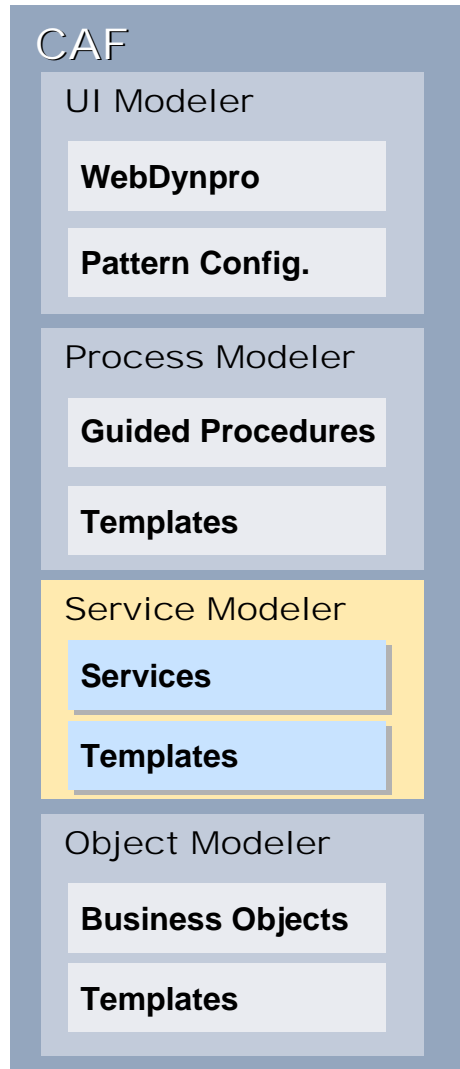
Outline

An outline is not available.

General | **Attributes** | Methods | Persistency | Proxy | Permissions | Implementation

Properties

Property	Value
Information	
Application	xPD
GUID	ABD7161CF7A82344AA0A786EAF504E5C
Key	
Key Type	
Metaclass	Attribute Metaclass
Object Type	Business Object
Properties	
_Name	Project
Data Type	
Description	Concept
Language Dependent	false
Mandatory	false
Multiplicity	0..0
Multiplicity Type	Association

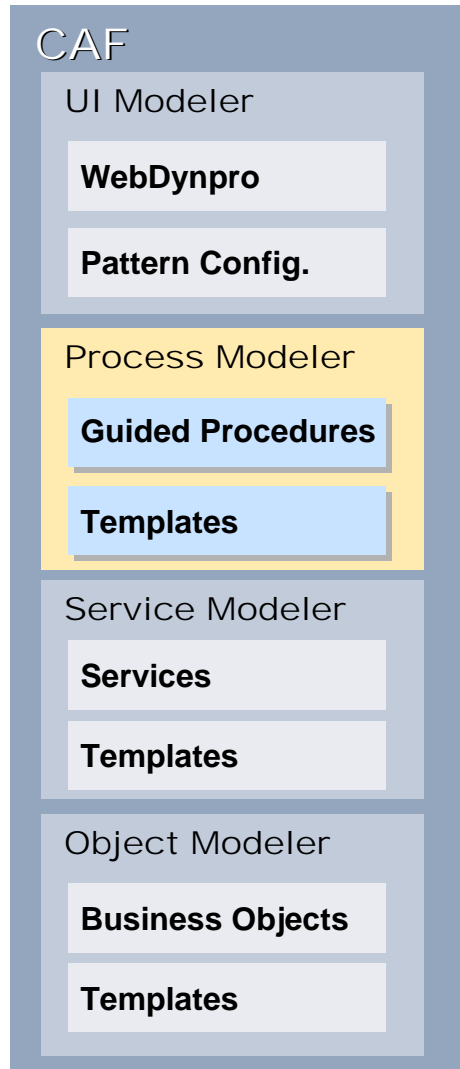


The SAP Web Application Server contains a comprehensive Web Service Infrastructure

- For creating Web Services and publishing them via UDDI
- For consuming external Web Services

The CAF adds the capability of modeling services to the WAS Web Service Infrastructure

- Easily create composite services out of existing services
- Automatically provide enhanced infrastructure services like authorization, tracing, transaction handling, etc. based on metadata information from the CAF Service Layer
- Integrates into the Business Object world of CAF



Guided Procedures Design Time

- Process workflow and context definition
- Collaborative Workflow patterns (e.g. Delegation, Approval)
- Business Object Availability
- Service Integration
- Context Mapping

Run Time Benefits:

- Process context instantiation
- Integration in Universal Worklist (UWL)
- Context mapping for building blocks
- User Profile automatically used and updated
- Ad-hoc modifications of running workflows supported
- Process monitoring and analysis

CAF: Leveraging NetWeaver Components

Portal 6.0 Header Prototype - Internet Explorer 5.5 - Microsoft Internet Explorer provided by SAP IT

Welcome, Robin Huang

Finder | Send Message | Search for: [Internal] Go

Home | My Staff | My Budget | Process Developer | Tools

My Day | **Ongoing Work** | My Inbox | Info Collections | My Profile

New Hire Procedure for Jo Miller

Click on a phase along the arrow and follow the listed steps. Once all steps of a phase are completed, the next phase will be available.

Initialization | **1. Contract of Employment** | 2. Prepare Work Environment | 3. Prepare Collaborative Environment

Follow these steps: [Due: 05.19.2003] Owner: Robin Huang [Delegate | Request contribution | Request approval | Undo]

- Enter new hire in the system
- Assign workspace
- Order from the catalog**
- Training...
- Schedule 1st - day orientation
- Check inventory
- Deliver equipment to workspace

Order Equipment

The default equipments for new hires are displayed. You may change this selection and quantity. If you need additional equipment, please contact the Employee Interaction Center (EIC).

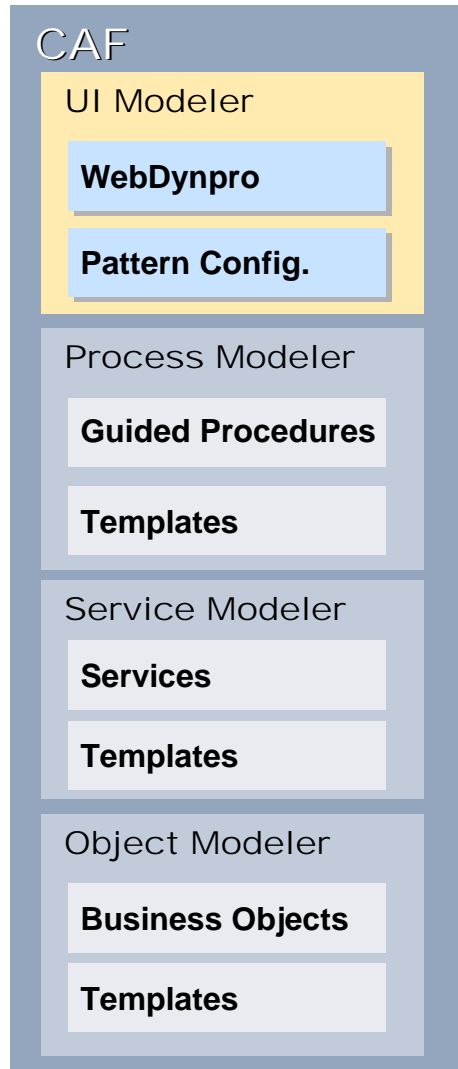
IT Equipment

	Equipment Name	Quantity	Amount (\$)	Notes
<input checked="" type="checkbox"/>	Dell Dimension 3x	1	0.00	
<input type="checkbox"/>	HP Omnibook 6000	0	0.00	
<input checked="" type="checkbox"/>	Philips 21" Monitor	1	0.00	
<input type="checkbox"/>	D-Link Router	0	0.00	
<input type="checkbox"/>	Palm Vll	0	0.00	
Total			0.00	

Facilities/Office Equipment

	Equipment Name	Quantity	Amount (\$)	Note
<input checked="" type="checkbox"/>	Desk (standard rectangular 5')	1	0.00	
<input checked="" type="checkbox"/>	Comfy Chair (standard)	1	0.00	
<input type="checkbox"/>	Document holder (10" clear)	0	0.00	
Total			0.00	

Submit order **Save**



WebDynpro

- Separation of visualization and application logic (MVC principle)
- Templates for recurring application patterns

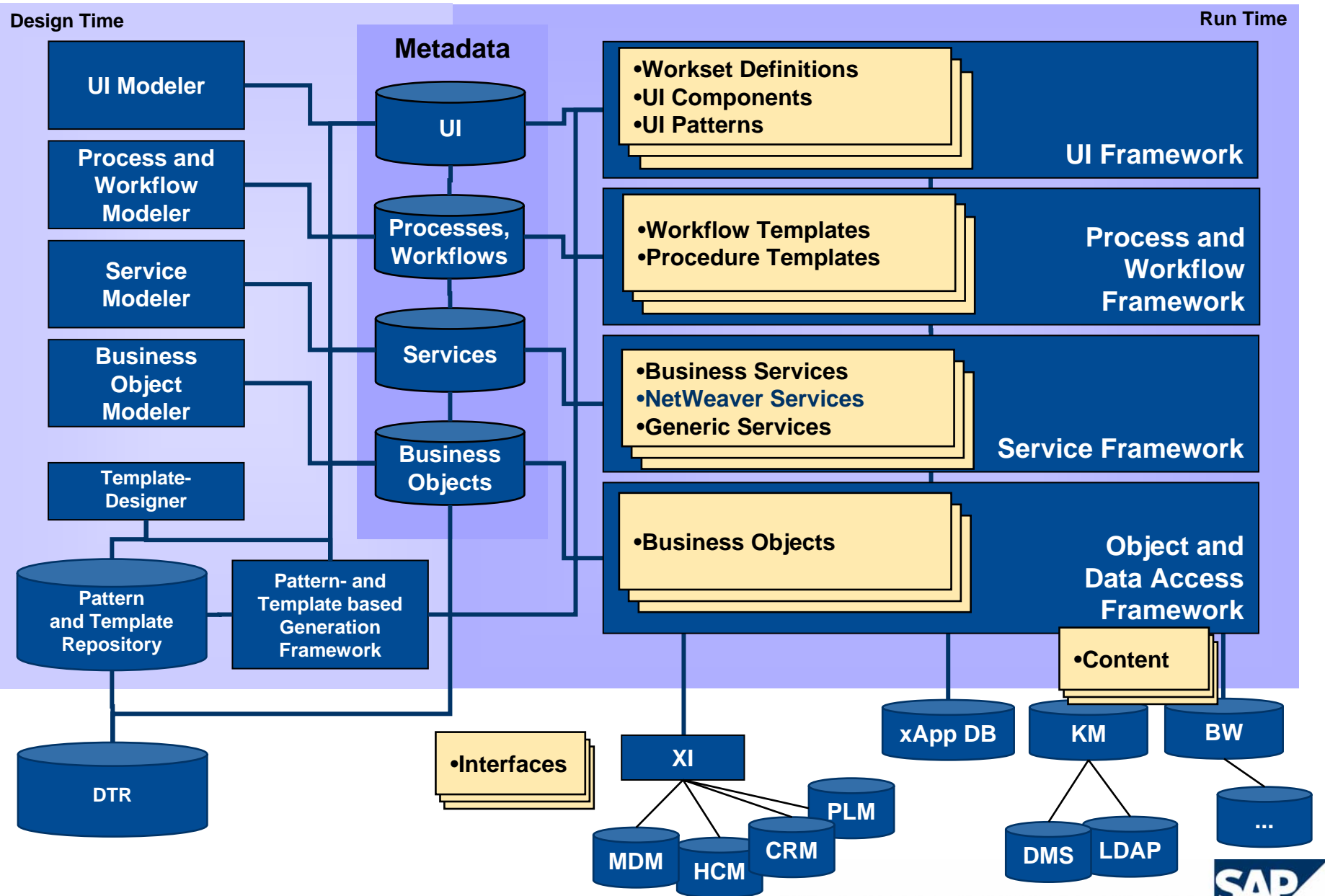
UI Patterns

- Re-usable composite controls
- Pre-configured data binding
- Standard object views
- Guided Procedures UI framework

Cross-App Integration

- Universal Inbox (UWL)
- Work Monitoring
- Time-Management

Packaging a Composite Application



SAP NetWeaver Components

- **SAP Web Application Server 6.30**
 - ◆ SAP WebDynpro
 - ◆ SAP IDE
- **SAP Enterprise Portal 6.0 (incl. KM)**
- **SAP Exchange Infrastructure 2.0**
- **SAP BW 3.3**

General Development Environment

- **Java (SDK 1.3.1)**
 - ◆ EJB 2.0
 - ◆ JDO
- **ABAP**
- **Web Services Framework**

Model-driven Development

- Repository-based object model
- Metadata-driven generation of default UI, Object Access Interface, data access methods, persistency, mappings

Service-oriented Architecture

- Application logic and Object Access Interface implemented as services
- Web Services can be easily implemented

Pattern-based User Interface and Applications

- Separation of visualization and application logic (MVC principle)
- Templates for recurring application patterns

Decoupling from Underlying Transaction Systems

- Business Transaction System agnostic object model
- Data transfer and mapping via Exchange Infrastructure

Standardized Object Access

- Metadata-driven generation of Objects Access Interface
- Set of standard services implemented for all Business Objects
- Uniform treatment of objects across all platform components (KM, BW, XI, Web AS)

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