The Approach: Service Oriented Architecture
SOA is essential but missing business semantics

WEB SERVICES - SOA
- Manually built
- Not guaranteed to work
- No governance

Chaos

ENTERPRISE SOA
- Business semantics
- Productized
- Unified repository

Integrity
End-to-end SOA Infrastructure - TODAY

User Interface

Enterprise SOA Consumption

SOA Interoperability

Enterprise SOA Provisioning

Service-enabled Applications

Service & Event Composition & Management

UI Composition

Service & Event Composition

Information Composition

Service Bus

SOA Management

SOA Design Governance

Connectivity & Integration

Business Partner

Process Components
- Order Mgmt.
- SAP Business Suite

Platform Services
- MDM
- BI
- ... SAP NetWeaver Components

Customer & Partner Applications

Non SAP & Legacy

MDM
BI
...
SAP's Platform Delivers a New Level of Governance to Ensure Enterprise Readiness

Enterprise Services Repository: The Basis for End-to-End Co-Innovation and Governance

- **Integration Scenarios**
- **Process Components**
- **Processes**
- **Service Interfaces**
- **Global Data Types**
- **Interface Mapping**

**Governance**

**Enterprise Services Repository**

- **Moving beyond service definitions**
  - Services, business objects, processes

- **Moving beyond development**
  - Business process expert, architect, developer

- **Moving beyond discovery**
  - UDDI based discovery, lifecycle management governance
Lifecycle of SOA-based Applications – SAP’s Approach

Enterprise Architects
- Analyze business requirements
- Discover available enterprise services in ESR for reuse
- Gap analysis

Providers
- Design and model services
- Implement new business logic
- Create new services reusing existing assets and publish to SR

Administrators
- Manage change
- Security
- Monitor service execution
  (e.g. performance, availability, process progress, events)

Consumers
- Compose views by reusing implemented services and BOs
- Compose and orchestrate services and views to form new business process
- Test and validate

Governance along all phases of the lifecycle
Enterprise Services Repository is ...

“… the central repository where service interfaces and enterprise services are modeled and their metadata is stored.”

ES Repository - The metadata repository of all service objects for enterprise SOA

Services Registry - UDDI V3 compliant registry that supports publishing, classifying and discovering services
# Key Usage Scenarios

## Process Visibility and Design Governance

**Focus:** Process Component architecture models in ES Repository, Drill down to standards based service interface design

**Value:** Enable SOA Governance

**Benefit:** Transparency into Business Semantics, Contextualization of Service metadata, Easy access to Enterprise services & gap analysis.

## Service Provisioning

**Focus:** Model Service Interface based on GDTs, Provide Service Metadata, Seamless Tool integration

**Value:** Manage service metadata in one central repository

**Benefit:** Enable reuse of design time artifacts, End to end modeling support, Governed definition of SOA assets.

## Process Integration

**Focus:** Use services defined in ES Repository for consumption in A2A and B2B scenarios

**Value:** Enable integration in heterogeneous landscape

**Benefit:** Collaboration knowledge of non-SAP systems, Support for defining Integration Scenarios

## Composition

**Focus:** Composition tools query Repository-Registry to discover services

**Value:** Composite Application Development

**Benefit:** Contract first development process, Easy discovery, consumption & composition.
Enterprise Services Repository plays a key role in all steps of the service lifecycle.
Reuse Existing assets
Enterprise Services provided by SAP

Enterprise Services

- Delivered with rich models to support discovery and Gap analysis
- One step import into the Enterprise Services Repository
- Simplified navigation of models and access to documentation
Reuse Existing assets
SOA content to kick start your implementation

Pre-delivered SOA content

- SAP-wide approved Global Data Types based on Governance methodology
  - Based on ISO 15000-5 and UN/CEFACT CCTS
  - Support for Industry extensions
- Standard Industry classifications
- Sample models and applications
- Support for reuse at all levels
- Enforces standardization of service metadata
Reuse Existing assets
End to end support for External services
Model Definition
End to end Modeling support
Model definition
Organization of content

- Organized by Software Component versions and Namespaces
- Naming conventions for better management
- Flexible organization into Folders
- Classification of services
- Integrated documentation for all SOA artifacts

Reuse
Existing assets

Model Definition

Implementation

Publishing

Consumption
Model definition
Support for controlled Modification

- Support for Versioning
- Impact analysis using where-used list for all artifacts
- Inbuilt support for extensibility
- Roles and Authorization support
- Upcoming: Customized Usage profiles to restrict access

Reuse
Existing assets
Model Definition
Implementation
Publishing
Consumption
Integration with Development Environment

- Native plugin implementations for widely used development environments
- Browse the list of services and create skeleton implementations
- Support for publishing services into the Services Registry
- Support for NetWeaver Developer Studio, ABAP Workbench and Microsoft Visual studio
Publishing
Enhanced UDDI registry

Enhanced UDDI Registry

- Discovery of services using keywords and semantics based search
- Delivered with pre-defined taxonomies to classify services
- Capabilities to define and manage custom taxonomies

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Registry Service (Library)

- SR Classification & Modeling
- SR Keyword Search service
- SR Classification Service
- Classification Systems
- UDDI v3 Server
- Publishing WSDL in UDDI

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Reuse Existing assets  Model Definition  Implementation  Publishing  Consumption
Consumption
Integrated tool support

Reuse
Existing assets

Model Definition

Implementation

Publishing

Consumption
Enterprise Services Repository and Registry

CONSUMER
TOOLS
(SAP NetWeaver Composition Environment)

CONSUMER
APPLICATION

PROVIDER
SERVICE IMPLEMENTATION

DIRECT CONNECTION

SERVICES
REGISTRY

SERVICE
MODEL
PUBLICATIONS

SERVICE ENDPOINT
PUBLICATIONS

PUBLISH

GENERATE

DISCOVER

CONSUMER
APPLICATION

ROUTING
MAPPING
BPM

Process integration

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Demo

Enterprise Services Repository in Action
Delivery Options
Process Integration and Composition Environment

Composition Environment
- Java EE 5 based modeling environment for rapid innovation
- Model-driven development tools for Business Process Experts
- Standards-based Eclipse-IDE* for developers

Enterprise Services Repository
- Central repository for enterprise services modeling
- Productized enterprise services
- Built-in SOA design governance

Process Integration
- SOA Middleware for SAP and nonSAP landscapes
- Based on open SOA standards
- SOA runtime governance
- Enterprise SOA provisioning

*IDE: Integrated Development Environment
Summary - Key Benefits and Value Proposition

- Enables the **governed definition of SOA assets** with contract first development process and end to end modeling support.

- Provides **transparency into the business semantics** exposed via enterprise services, for designers and developers.

- Provides out-of-the-box **SOA business content** built on SAP modeling principles and **support for asset reuse** to jumpstart your SOA implementation.

- Provides a **single source of truth** though openness & interoperability within a heterogeneous landscape.

- Enables higher developer productivity through **model-driven architecture** using an **integrated toolset** for defining, provisioning, and consumption of enterprise services.

- Supports a **comprehensive software lifecycle management** across the entire **enterprise service lifecycle** to reduce TCO.

- Enables **discovery** of SOA assets to build, modify, and run innovative and flexible **composite applications & Business processes**.
For more information

SAP NetWeaver 7.1 Learning Maps for Developers
https://sapneth3.wdf.sap.corp/rkt-netweaver

ESR on SDN
https://www.sdn.sap.com/irj/sdn/nw-esr

ESR on Help Portal

Download and install ESR
https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/webcontent/uuid/307e90ef-0a65-2a10-e48e-c5a888c81537