

ActiveVOS Technologies

ActiveVOS Technologies

- ActiveVOS provides a revolutionary way to build, run, manage, and maintain your business applications
- ActiveVOS is a modern SOA stack designed from the top down using standard technologies
 - Starting with orchestration
 - System to System
 - People to System
 - System to People
 - People to People
 - Based on a standards
 - BPMN
 - WS-BPEL
 - BPEL4People and WS-HumanTask
 - SOA Centric
 - Easily fits into a heterogeneous environment leveraging what you have

ActiveVOS Technologies

- ActiveVOS supports a broad set of standards
 - Interface/Definition
 - WSDL, XML Schema, XPATH, XQUERY, XSLT, JavaScript
 - Modeling
 - BPMN
 - Protocols
 - SOAP over HTTP/HTTPS
 - SOAP/Plain XML over JMS
 - REST
 - JAVA
 - WS-Reliable Messaging
 - WS-I Basic Profile
 - Security/AAA
 - WS-Security
 - SAML
 - LDAP authentication and RDF/OWL-based identify mapping
 - Governance
 - WS-Policy
 - Management/Monitoring
 - WS-Distributed Management

■ Benefits of standard based technology

– Low risk in adoption

- No vendor lock-in – portability between standard compliant implementations is guaranteed
- No proprietary knowledge to learn - knowledge and skills gained is portable
- Excellent interoperability– support all important Web Service standards and transport protocols

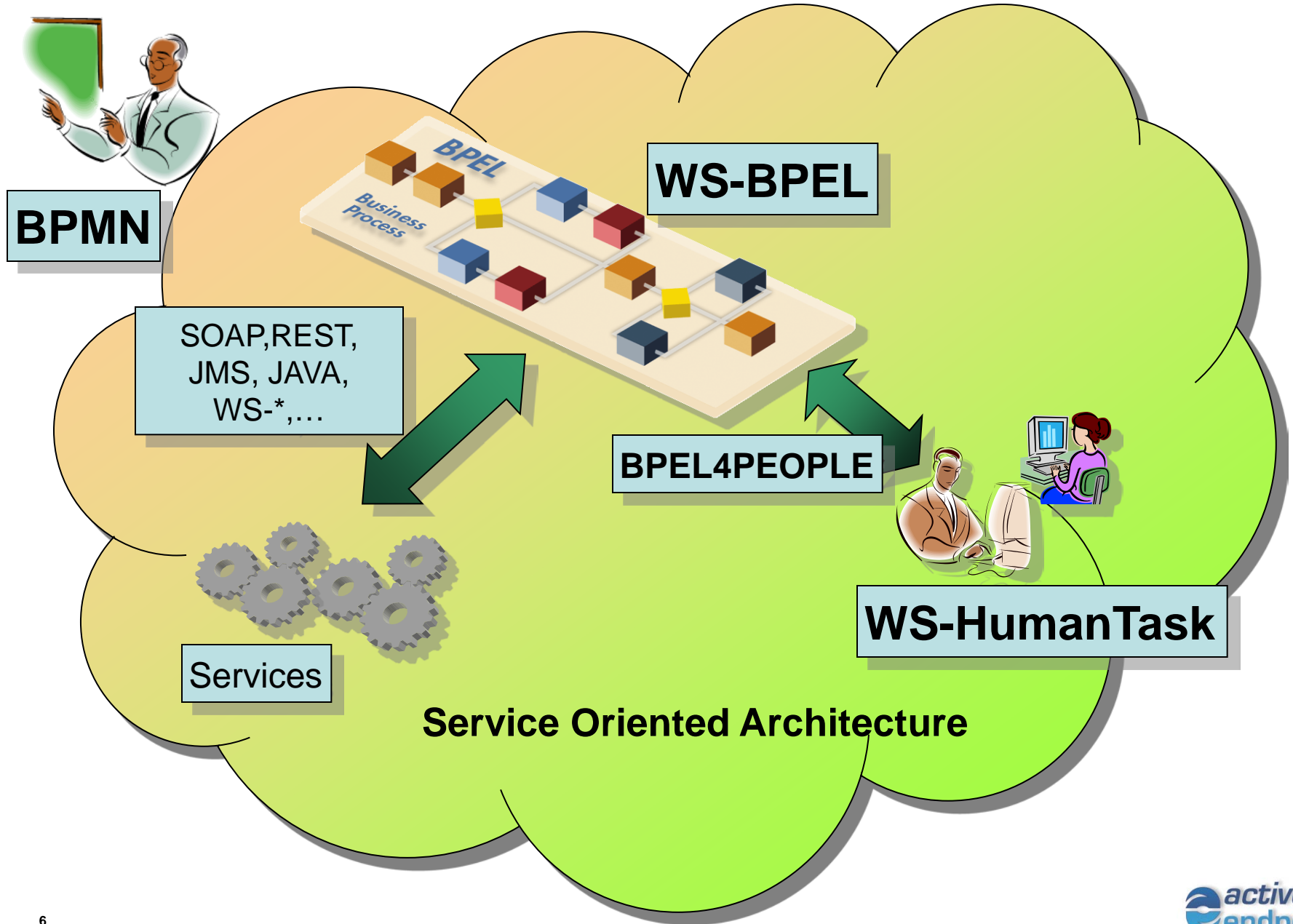
– Low implementation cost and better time-to-market

- Leverage a common skill set and language because ActiveVOS is built on top of other widely adopted SOA standards – reduced learning curve and accelerated development process
- Fit naturally in the SOA stack
 - Consumes and produces Web Service artifacts that can be easily absorbed by other applications
 - Leverage existing SOA infrastructure such as SOA registry
- Provide a rich set of features out-of-box that enables quick development, testing, deploying and managing of SOA applications
 - Design, simulation, automated scenario test, integrated remote diagnosis, quick deployment, governance management and business activity management

ActiveVOS Core Technologies

- ActiveVOS exposes four core technologies
 - BPMN 2.0
 - WS-BPEL 2.0
 - WS-HumanTask 1.0
 - BPEL4PEOPLE 1.0

BPMN, BPEL, WS-HT and BPEL4PEOPLE in SOA



Business Process Modeling Notation (BPMN)

■ Goals:

- Formal notation for modeling business processes
- Standardized notation for executable processes that use WS-BPEL

■ History

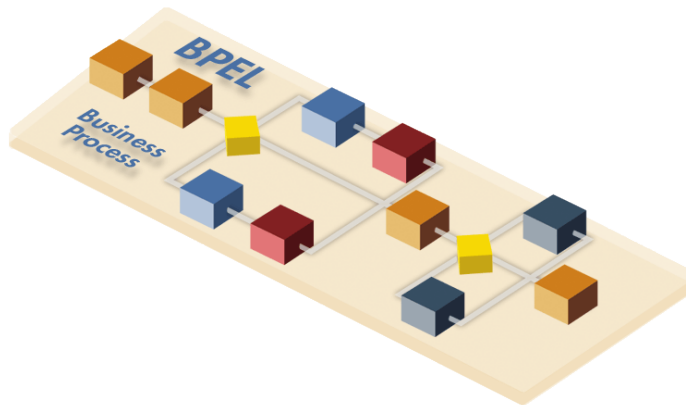
- June 2004: BPMN 1.0 developed by the BPM Initiative (BPMI)
- June 2005: BPMI merges into the OMG
- Jan 2008: BPMN 1.1
- Jan 2009: BPMN 1.2
- Aug 2009: BPMN 2.0 Beta 1
 - Highlights: better alignment with BPEL + optional new diagram types

The Value of BPMN

- To a business user
 - Understandable but precise description of processes
 - Executable without converting to code – or anything else (no problems with losing information in round-trip transformation)
- To IT
 - Improves productivity
 - Improves communication with the business user
- To both
 - When the process is running everyone can understand what is happening using the same notation as was used for analysis
 - Makes it easy to find and fix problems
 - Standardized
 - Easier to find people with the right skills
 - Protects investment in process models

What is BPEL?

- **BPEL (Business Process Execution Language) is the Web Services orchestration standard from OASIS**
- **Defines a portable execution format that relies exclusively on Web service resources and XML data**
- **BPEL is for creating composite business applications in SOA**



BPEL Historical Timeline

Dec 2000

Microsoft publishes XLANG

March 2001

IBM publishes WSFL

July 2002

IBM and Microsoft converge WSFL & XLANG into BPELWS 1.0

March 2003

BPEL4WS is submitted to OASIS

May 2003

OASIS publishes BPEL4WS 1.1

April 2007

WS-BPEL 2.0 official OASIS standard

What is BPEL?

- BPEL is layered on top of and extends the WSDL definition model
 - WSDL defines the specific service interfaces
 - BPEL defines how WSDL interfaces are composed to achieve a business goal
 - Also specifies extensions to WSDL in support of long-running asynchronous conversations
 - Utilizes other SOA related technologies and standards – XML Schema, XPATH, XSLT, etc.
 - BPEL consumes and produces WSDL defined services. It fits naturally in a service enabled infrastructure.



Why BPEL?

- **Low risk in adoption because the standard is widely accepted and has broad industry support**
 - No vendor lock-in and it is possible to create a well balanced solution using best-of-breed technologies
 - Knowledge gained during implementation is portable – no one time investment into proprietary technologies
- **Low implementation cost and better time-to-market**
 - Leverage a common skill set and language because BPEL is built on top of other SOA standards
 - Expressed entirely in XML
 - Uses and extends WSDL 1.1
 - Uses XML Schema 1.0 for the data model
 - Solution fits naturally into the Web Services stack – interoperability is built-in, not an afterthought
 - Leverage existing SOA infrastructure such as SOA registry

Why BPEL?

■ Rich and comprehensive orchestration semantics

- Support both synchronous and asynchronous interaction
- Structured compensation and fault handling capability suitable for long running loosely-coupled interaction pattern

What is WS-HumanTask and BPEL4PEOPLE?

- **Two key specs for Web service-based human interaction**
 - BPEL4People – WS-BPEL extension for people
 - WS-HumanTask – human task management for Web services
- **Co-authored by six leading SOA vendors**
 - including Active Endpoints
- **Went to OASIS Public Review Dec 2009**
 - Two editors of both specifications are from Active Endpoints

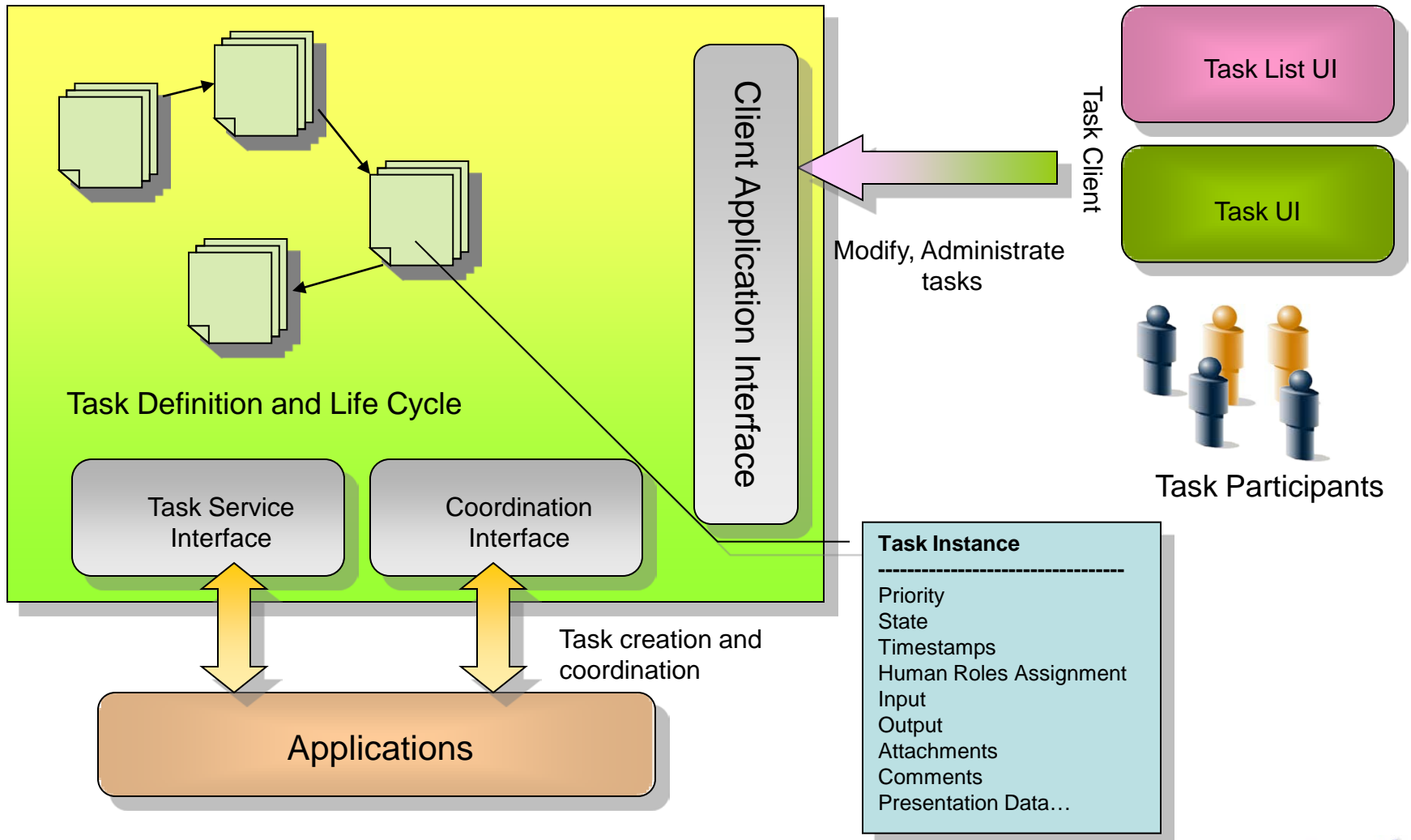


What is WS-HumanTask?

- Web Services Human Task is the proposed industry standard for defining and managing human based activities in a business process.
 - Specifies human task definition, attributes and life cycle
 - Defines standard programming interface to provide interoperability with task client applications
 - Defines a coordination protocol (WS-HT coordination) that can be used to create tight coupling between human task system and human task aware applications
 - Provides portability between vendor implementations through well-defined human task data structures
 - Provides interoperability between task system components and other applications with well defined messages and protocols

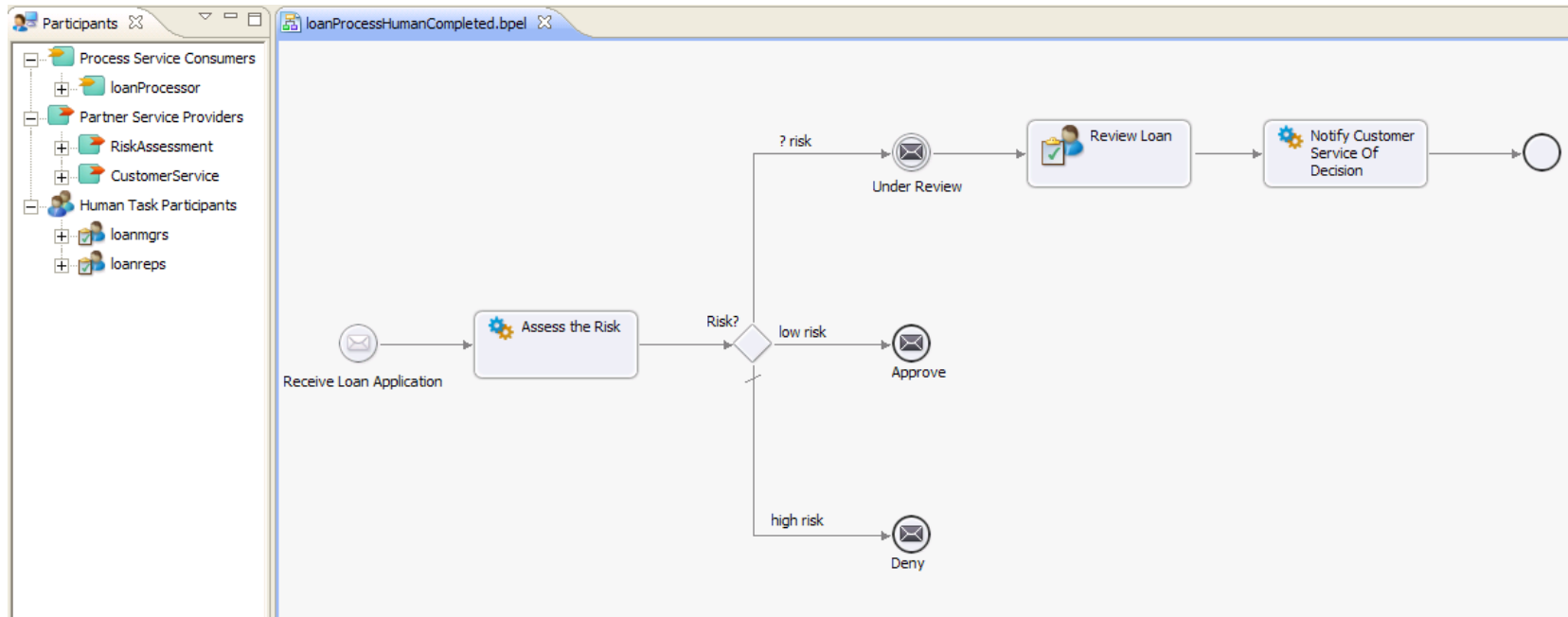
What is WS-HumanTask

■ WS-HumanTask System



What is BPEL4PEOPLE?

- BPEL4PEOPLE is a BPEL extension that provides the glue between BPEL and WS-HumanTask
- Proposed by industry leaders to OASIS
- Enable human task participating in process orchestration as first class citizen



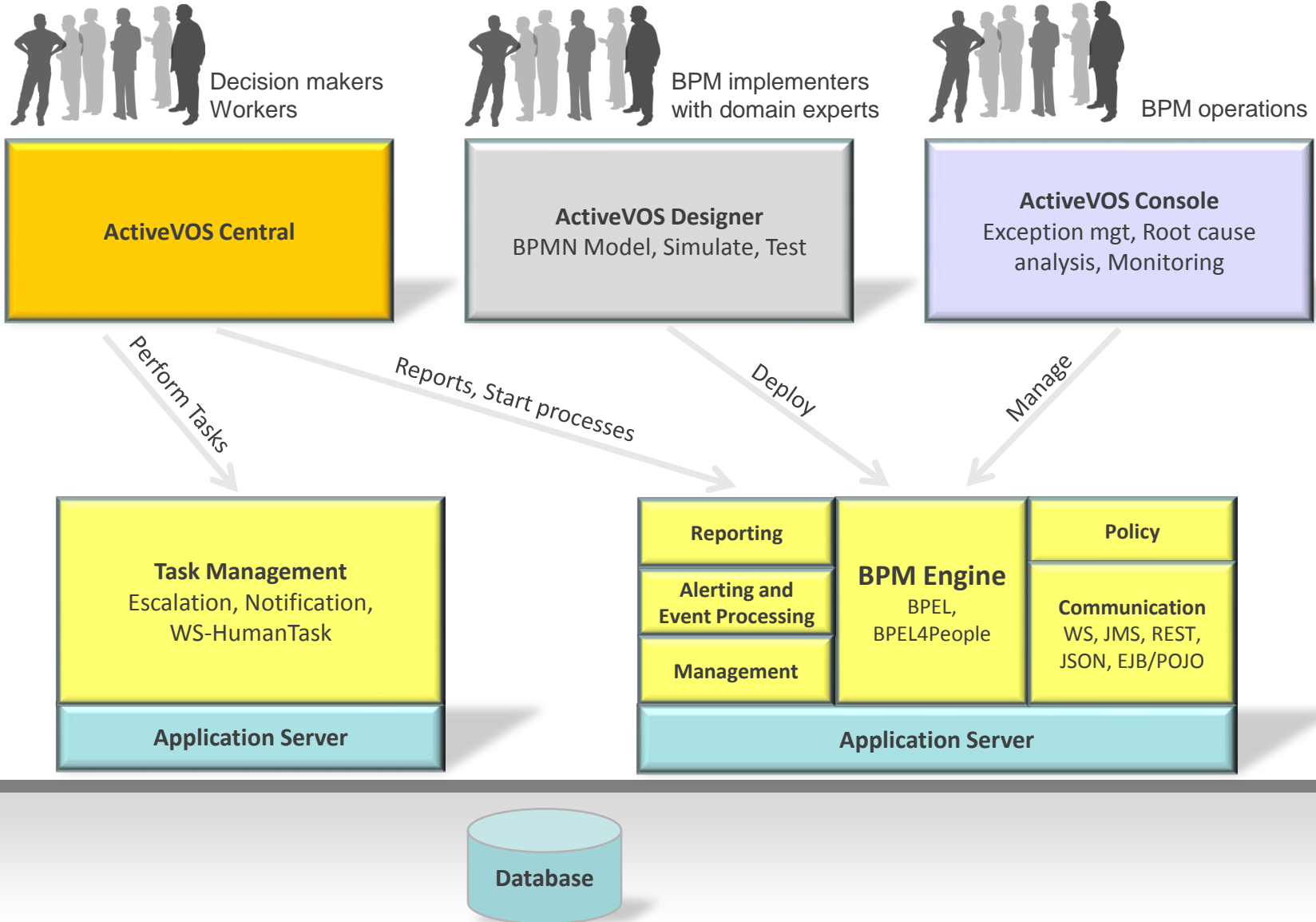
Why WS-HumanTask and BPEL4PEOPLE?

- **Low risk in adoption because the proposed standard has broad industry support**
 - WS-HumanTask defines standard data model and interface so compliant implementation has minimal interoperability issues
 - No vendor lock-in and it is possible to create a well balanced solution using best-of-breed technologies
 - Knowledge gained during implementation is portable – no one time investment into proprietary technologies
- **Low implementation cost and better time-to-market**
 - Leverage a common skill set and language because WS-HT and BPEL4PEOPLE is built on top of other SOA standards
 - Expressed entirely in XML
 - Uses WSDL 1.1 and extends BPEL 2.0
 - Uses XML Schema 1.0 for the data model
 - Solution fits naturally into the Web Services stack – interoperability is built-in, not an afterthought
 - Leverage existing SOA infrastructure such as SOA registry

■ Rich and comprehensive human task semantics

- Supports definition of tasks and attributes such as potential owners, deadlines, escalations, etc.
- Provides a comprehensive client API interface for manipulating tasks through its life cycle
- Provides WS-HT coordination protocol for advanced interaction with the human task system

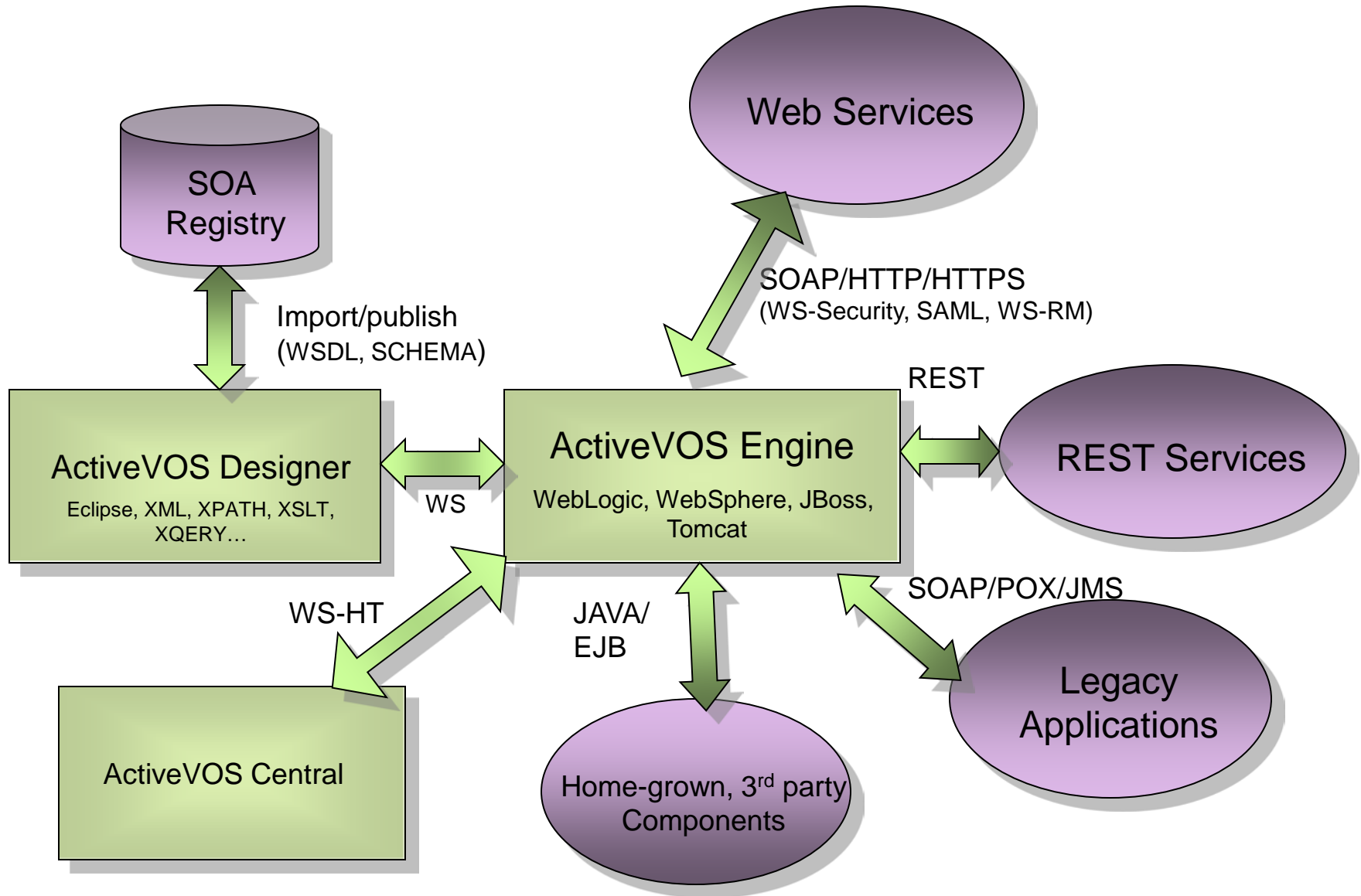
The ActiveVOS BPMS



ActiveVOS - Technologies for System Integration

- Heterogeneous system integration requires standards and open technologies
 - Standards-based approach lowers the cost and time to market
- ActiveVOS has built-in support for standards and open technologies and can be easily integrated with other component in SOA infrastructure
 - SOAP 1.1, SOAP 1.2
 - JMS 1.1
 - REST
 - Plain Old Java
 - WSDL 1.1/XML Schema 1.0
 - WS-Security 1.1
 - WS-Reliable Messaging 1.1
 - WS-Addressing 1.0
 - WS-Policy 1.2
 - WS-I Basic Profile 1.0

ActiveVOS – Supported Technologies for System Integration



Process Governance

- ActiveVOS provides important process governance features. This enables continuous deployment/evolution of business processes and incremental development
 - Supports continuous operation
 - Support dynamic deployment of BPEL and SOA artifacts
 - Support version management at multiple granular levels - policy can be specified at process level
 - Process persistence policy can be specified at multiple granular level
 - Registry integration – can import WSDL definitions and XML schemas from enterprise stores and publish new interfaces
 - Supports policy assertions for partner interaction
 - Supports WS-Policy assertions at multiple granular levels
 - Support Web Service invocation retry policy (policy can be programmatically asserted)
 - Support setting JMS messaging properties through WS-Policy assertions

Process Governance

- Supports auditing and logging for compliance
- Supports exception management
 - Process may be suspended on uncaught fault for examination and recovery
- Provides a (WS-Distributed Management) standard-based secure remote deployment and management interface

Extensibility through pluggable architecture

- ActiveVOS is designed with a pluggable architecture so that third party products and technologies can be integrated in an easy and consistent manner
 - Platform independent
 - Integration and extension points
 - Custom Invoke Handler
 - Custom Receive Handler
 - Custom Function

- Integrate easily with:
 - Business Rules
 - Content Management (via CMIS standard, for example)
 - Data services
 - ESB