

Most enterprises have multiple applications implemented in different languages and platforms and have business processes that require these applications to work together. Executing these business processes manually is slow, error-prone, expensive and very likely to adversely impact customer satisfaction and organization effectiveness. Enterprises with legacy systems/applications need a better way of integrating applications in a way that will allow their internal, non-expert, IT and business users to maintain and evolve existing integrations rapidly and cost-effectively. IT infrastructure in enterprises needs to be agile in adapting to evolving requirements.

SOA Overview and Benefits

Service Oriented Architecture (SOA) empowers enterprises to achieve rapid and cost-effective integration, business process automation and increased agility in their businesses by leveraging existing software resources. Existing applications are exposed as services and these services are orchestrated to build a composite application to achieve enterprise integration and business process automation.

SOA adoption is over 70% in Fortune 500 companies and over 55% in the SMB space. SOA is no longer a choice but an imperative.
- Source :IDC

“By 2008, SOA will provide the basis for 80 percent of development projects. By 2008, more than 60 percent of the \$527 billion IT professional services market will be based on the exploitation of Web services standards and technology.”

- Gartner on the Five Hottest IT Topics and Trends, May, 2006

SOAIntegrator

SOAIntegrator is a comprehensive integration product that has the following components:

- ▶ Enterprise Service Bus (ESB) for service integration, mediation and loose coupling
- ▶ Orchestration engine for process orchestration and integration
- ▶ Rules engine for flexibility and agility
- ▶ Business process automation and management

Typical Enterprise IT Infrastructure Challenges Include:

Heterogeneous Systems

- ▶ Integrate and interoperate across incompatible platforms, schemas, interaction models, protocols and formats

Rapid Change

- ▶ Incrementally update services, processes, business rules and infrastructure to changing requirements (functional and non-functional)

Business Process Automation

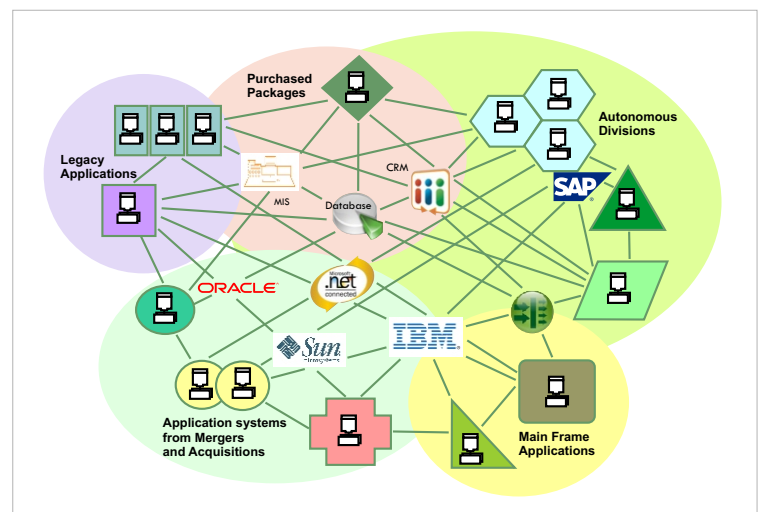
- ▶ Automate business processes and workflows in enterprise

Enterprise Capabilities

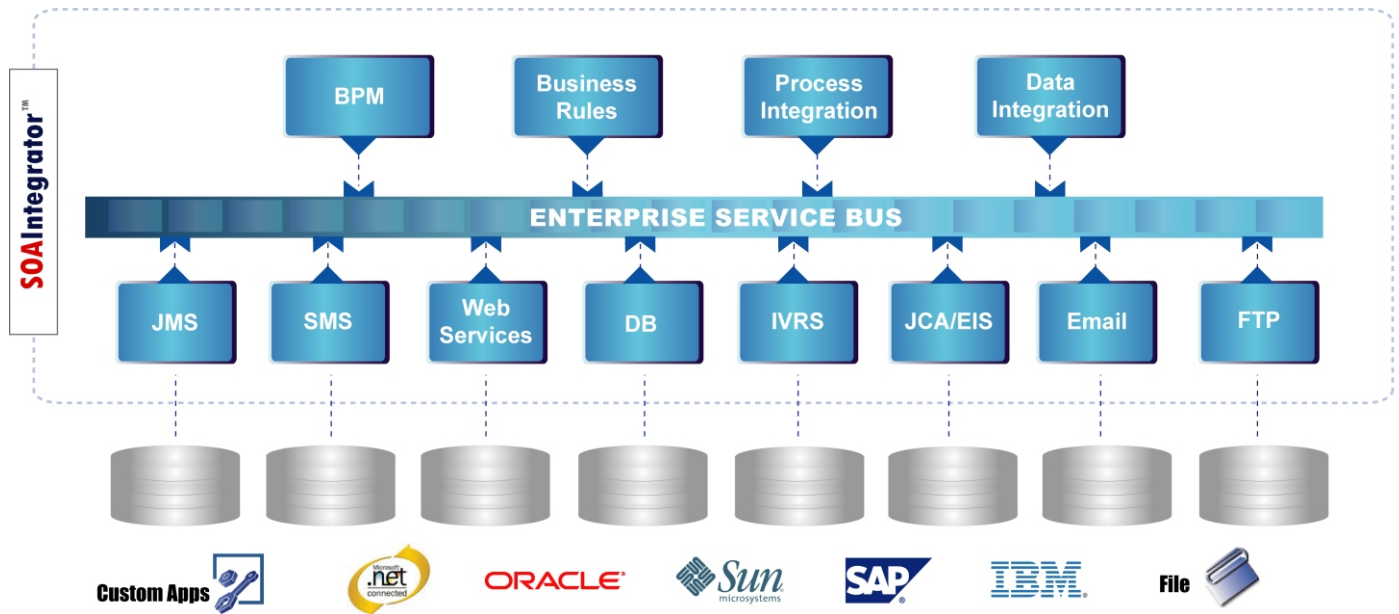
- ▶ Achieve enterprise capabilities such as distribution, security, reliability, scalability, persistence and performance with minimal effort and expertise

Standards

- ▶ Avoid vendor lock-in and ensure easy migration and interoperability across different vendor stacks



Integration Challenges



SOAIntegrator Architecture

SOAIntegrator is the integration product of SOAMatrix™, addressing various integration challenges in an enterprise.

Enterprise Service Bus (ESB)

SOAIntegrator ESB provides mediation, loose coupling, service enablement, service integration and security.

Following are the key features of **ESB**:

Service Enablement

- ▶ Existing resources, processes and applications can be exposed as web services enabling easy integration and composition

Loose Coupling

- ▶ Location and protocol transparency is provided allowing choice of different application and transport protocols and endpoints leading to decoupling of service consumers from service providers
- ▶ As a result, the location, protocol or interface of the service can be changed at run-time and existing clients can continue using services after simple configuration change and no accompanying code change. This ensures that the enterprise infrastructure is highly agile and adaptive

Configuration Based

- ▶ Configuration changes to endpoints, proxies, policies and mediators can be made at run time using an intuitive web interface without writing any code. This provides a high level of flexibility and agility to the enterprise

Multiple Transports, Connectivity and Protocol Switching

- ▶ Support for various transport protocols such as HTTP(S), File, Email, FTP, JMS, Application Protocols and APIs such as RMI, JDBC, JCA, SMS and POX to ease integration of existing applications into the SOA infrastructure without any changes
- ▶ The ESB automatically ensures protocol switching and any required transformation when the client and the service use different application and/or transport protocols

Mediation Features

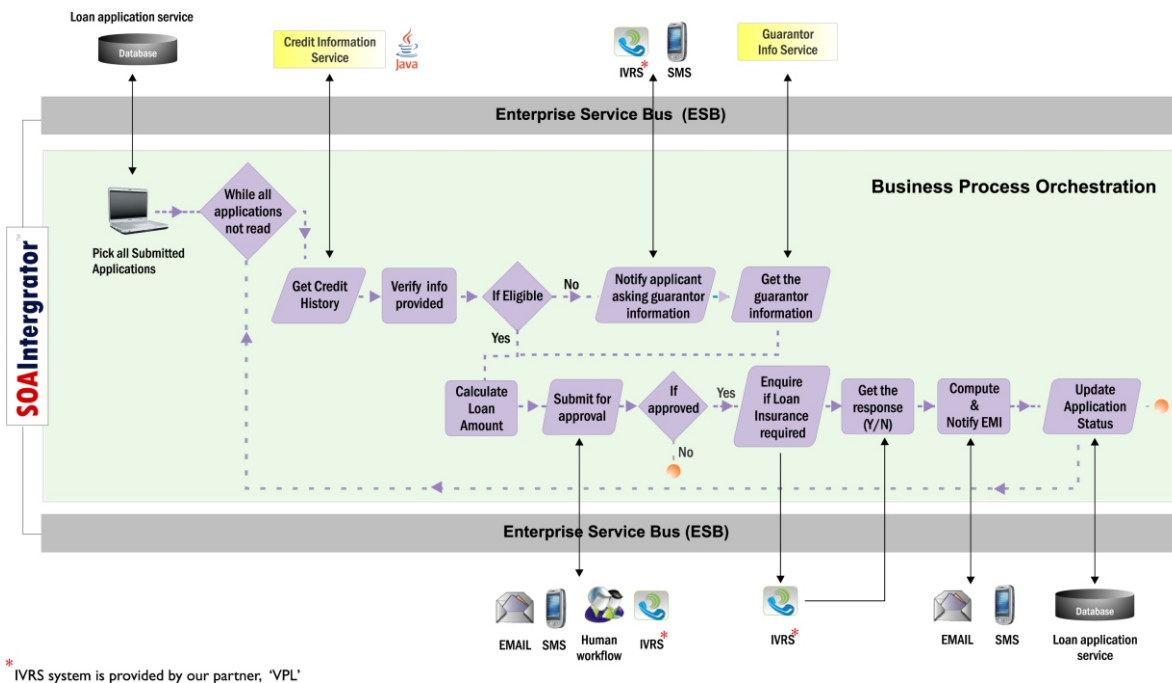
- ▶ Powerful and configurable mediators are provided for load balancing, throttling, security, content based routing and transformation

Enterprise Features

- ▶ Support for load balancing, failover, enterprise security, identity propagation, reliable messaging and transactions

Standards Supported

- ▶ Almost all relevant standards are supported such as JBI (for business integration) XSLT, XPath, XQuery, WS-Security, SAML, other WS-* standards such as WS-RM, WS-Addressing, WS-Policy leading to interoperability with other products and platforms



Sample Process Orchestration using BPEL

Following are the key features of **Process and Data Integration**:

Process Design

- ▶ Composite applications can be built using the intuitive designer based on Eclipse

Process Orchestration and Integration

- ▶ Helps automate business processes and integrate applications using interfaces at various tiers such as User Interface, Business Logic and Data

Monitoring, Management and Administration

- ▶ Processes and process instances can be monitored and administered using an easy-to-use web based console

Data Integration

- ▶ Access information from disparate sources such as XML, RDBMS, Web Services and EIS systems using standards like Service Data Objects (SDO) and XQuery

Standards

- ▶ Support for existing and emerging standards such as BPEL 1.1 & 2.0, SCA, SDO and XQuery, XSLT and XForms

Business Rules

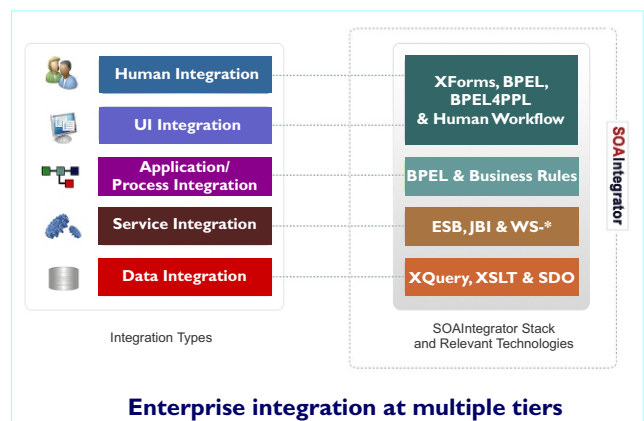
- ▶ Business processes often involve policies (such as interest rates, rate plans, tax rates and so on) that are likely to change. These policies can be captured using business rules thereby increasing their agility and insulating the business process from frequent changes. SOAIntegrator includes an enterprise class, standards based rules engine to provide support for business rules

Human Workflow

- ▶ Business processes frequently require human involvement or intervention such as approving (of loans, orders and leaves), reviewing, dealing with exceptional and/or erroneous conditions in the flow. SOAIntegrator supports all such human workflows and allows for easy generation of the required user interface and its seamless integration with the orchestrated process

- ▶ Visibility and audit of the actions taken through real time notification

- ▶ Workflow can be performed using Console, Email, SMS and IVRS



Enterprise integration at multiple tiers

Feature	SOAMatrix SOAIntegrator	BEA Aqualogic	IBM SOA Suite	Oracle SOA Suite	SAP Netweaver
Process Orchestration					
WVS-BPEL 1.1 and 2.0 process execution	✓	✗	✗	✗	✗
Process versioning	✓	✓	✓	✓	✗
Intuitive browser-based management consoles	✓	✓	✓	✓	✓
Human Workflow					
Human workflow integration	✓	✓	✓	✓	✗
Workflow using Email, IVRS and SMS	✓	✗	✗	✗	✗
Standards based UI rendering for multiple channels - web, rich client, mobile and handheld	✓	✓	✗	✗	✗
ESB					
Comprehensive security (authentication, authorization, digital signature federated identity using SAML and WVS- Security)	✓	✓	✓	✗	✗
Content based routing	✓	✓	✓	✓	✗
Transformation using XQuery & XSLT	✓	✓	✓	✓	✗
Transports/Connectors for Database, JCA, LDAP, SMS, EIS etc	✓	✗	✓	✓	✗
JB1 support (Business Integration Standard)	✓	✗	✗	✗	✗
SDK for adding custom transports and mediators	✓	✗	✓	✗	✗
Scripting support for JavaScript, Ruby, Perl, Groovy and Spring	✓	✗	✗	✗	✗
Support for web service standards such as WS-Addressing, WS-Policy, WS-Trust and WS-Reliable Messaging	✓	✓	✓	✗	✗
IDE					
Eclipse integration	✓	✓	✓	✗	✓
Miscellaneous					
Integration with enterprise repository	✓	✗	✗	✗	✗
SCA support	✓	✗	✓	✗	✗
Rules engine integration	✓	✗	✓	✓	✗
Data Integration as services - SDO, XQuery support	✓	✓	✓	✗	✗
Complex event processing (CEP) support	✓	✗	✓	✗	✗
Total cost of ownership (TCO)	Low	High	High	Medium	Medium