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Where's the (Business) Beef?

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1 WHAT HAPPENED TO THE BUSINESS IN SOA?

"One area where SOA has been gaining ground is in its power as a mechanism for defining business services and operating models and thus provides a structure for IT to deliver against the actual business requirements and adapt in a similar way to the business. The purpose of using SOA as a business mapping tool is to ensure that the services created properly represent the business view and are not just what technologists think the business services should be." – http://en.wikipedia.org/wiki/Service-oriented_architecture

As I discussed in presenting the state of the art of SOA in 2006 (http://www.jot.fm/issues/issue_2006_11/column5), SOA has dug its heels into all aspects of software engineering and become entrenched as the main enabler of the holy grail of aligning IT to business, along with the ability to facilitate business innovation through a flexible and agile IT. Service Oriented Architecture facilitates business flexibility by exposing business functions, data and processes as business services. These business services may be hosted on disparate systems and many service providers may provide the underlying business functions. SOA provides the capabilities to wire these business services together in new and creative ways as service oriented business applications or composite business services. Composite business services are collections of business services that work together, along with existing applications, to provide a specific business solution. These composite business services deliver a semantically meaningful business capability by combining loosely coupled business functions with other existing or new applications. The business functions can be free standing components, derived from heritage applications, or provided by partners in the ecosystem. Service oriented business applications can be built by composing these composite business services with appropriate user interfaces and information sources.

Service oriented business applications can grow organically, allowing companies that publish standards-based service components and composite business services to participate in an industry-centric business service ecosystem. Figure 1 shows an example services ecosystem for Insurance. Within this ecosystem, participants (customers and business partners) can discover and provision these business services into their own business processes effortlessly. This potent combination of loosely coupled business

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services that can be published, discovered, and used fundamentally reduces the complexity, cost and risk associated with traditional, large-scale enterprise software projects.

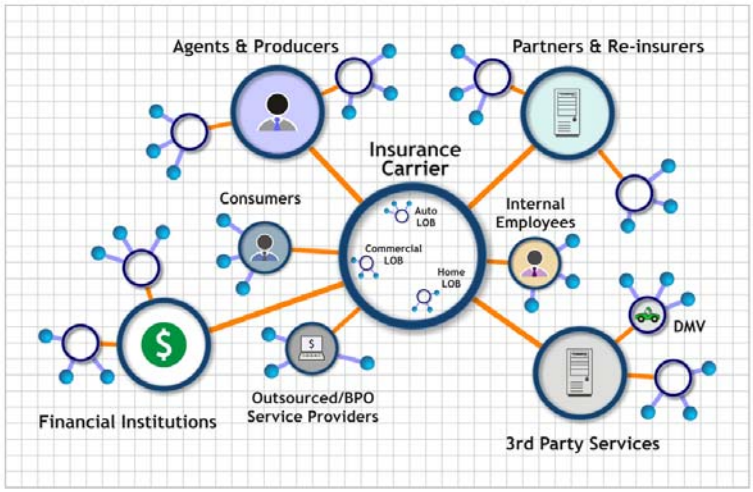

Figure 1: Sample Business Services in an Industry

A business service is defined by three primary elements:

- Business Metadata – business policy information used to dynamically tailor the execution of the specific business function for a single instance
- Canonical Data Model – a standardized representation of data required to dynamically select and tailor the execution of a business function
- Business Function – one or more services that are selected dynamically based on business policy information, and whose execution leverages a subset of the canonical data model associated with its function. A Business Function service implementation may range in complexity from simple atomic services to composite services, embodying business processes.

Note that the business service can be "dynamically" tailored at runtime based on business policy and user context.

For the rest of this paper, we present IBM's vision and approach for supporting composite business services on the SOA foundation to enable rapid, incremental development of composite business services and fully integrated composite applications that extend and integrate existing customer solutions. This approach reduces risk, improves ROI, and delivers the benefits of SOA-based composite applications while protecting existing investments.

2 SEMANTIC ALIGNMENT OF IT TO BUSINESS

A key SOA principle is that you can quickly create new applications through the composition of loosely coupled, encapsulated, and reusable services that implement specific tasks within business processes. Many of these services are adaptations of existing applications and data. New applications can be created by simply recomposing existing service components. Furthermore, SOA-based applications can be rapidly updated in response to changes in business design, market dynamics, and regulatory constraints.

Services can be reused across Lines of Business within an enterprise to support specific business processes. Services provided by business partners can be easily integrated to support business processes. These composite business processes can themselves be recursively composed to provide increasingly sophisticated reusable services. This layering of services is shown in Figure 2 in the context of the SOA reference architecture. Note how this layering of service components completely isolate and encapsulate the implementation details (technologies, languages, infrastructure, etc.) This allows an enterprise to leverage the advantages of the different technologies they used for developing existing applications.

Services can compose other services to produce composite business services. Composite business services that are integrated with user interface (interaction services), data (information services), adapters to legacy systems (access services), and partner processes (partner services); and deployed on an infrastructure that handles appropriate qualities of services and reliability, can be exposed as an SOA composite application. These service components and pre-defined compositions that capture the most common aspects of business applications for various industries can be packaged and made available for use by enterprises.

We expect that business partners will contribute a variety of industry solutions through the delivery of their own services, and service compositions. Many of these kinds of offerings are already being made available through the IBM SOA Business Catalog (http://catalog.lotus.com/wps/portal/soa)

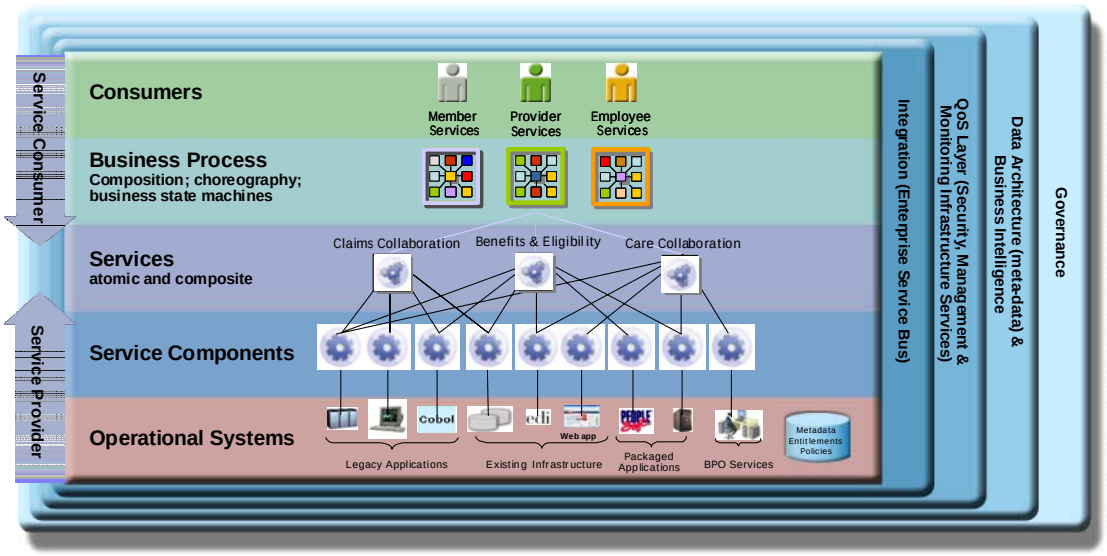

Figure 2: Composite Business Services in the SOA Reference Architecture

IBM provides the WebSphere Business Services Fabric (WBSF) for the composition and deployment of flexible, service-oriented business processes. It builds on the IBM SOA Foundation platform to provide the design-time tooling, run-time environment, industry reference models, and pre-built SOA assets to enable rapid development of loosely coupled composite business services.

As shown in Figure 3, the Fabric consists of two complementary software packs: the IBM Business Services Foundation Pack and the IBM Business Services Tools Pack. These packs provide the capabilities to support modeling, assembling, deploying and managing services in an SOA, along with the necessary support to handle non-functional requirements and governance.

In particular the Business Services Foundation Pack offering provides the integrated run-time and manage-time environment that includes the following components:

- Process Server — a comprehensive environment for SOA-based process automation.
- Business Services Dynamic Assembler — a runtime engine that enables dynamic service-assembly and service behavior adaptation based on the business context of the request, content of the message, and service subscriber contract through a scalable policy composition and semantic mediation engine.
- Business Services Repository — a standards-based, enterprise SOA metadata repository for business service descriptions, ontologies, subscribers and policies. It enables the rich description, discovery and federation of data across Universal Description, Discovery and Integration (UDDI) registries, the WebSphere Service Registry and Repository, and Lightweight Directory Access Protocol (LDAP) systems.

- Business Services Subscriber Manager — a manager that controls and automates entitlement of business services for subscribers. It enables the creation, control and management of service portfolios for subscribers across a business ecosystem, and can integrate with leading security and identity management products.
- Business Services Governance Manager — a manager that provides governance of business services managed in the Business Services Repository.
- Business Services Performance Manager — a monitor that provides visibility and monitoring of composite business services. This module includes multi-perspective views and enables drill-down analysis of business-level events and exceptions.

The Business Services Tools Pack offering provides the design-time environment and tools, and includes:

- Integration Developer — a complete toolbox for assembling and integrating composite solutions.
- Business Services Composition Studio — a tool for domain-experienced software architects to model, assemble and manage industry-specific service metadata models and policies.

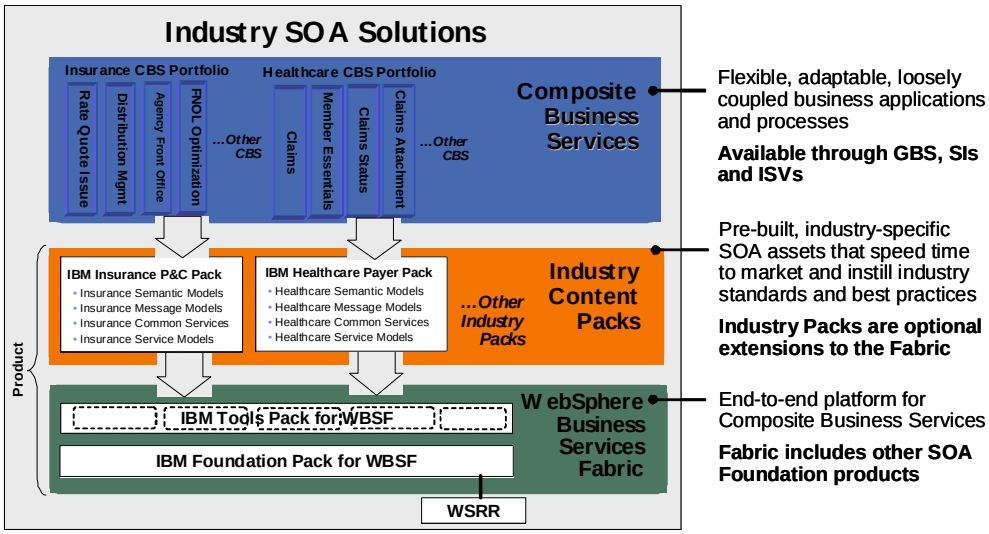

Figure 3: IBM WebSphere Business Services Fabric

The Business Services Fabric is available with optional Industry Content Packs that plug into the Fabric and are designed for specific industry participants to accelerate SOA solution assembly in the context of the particular industry. These Packs include reference information models and message sets that "speak the business language" of the industry out-of-the-box to facilitate interoperability and semantic mediation between disparate IT assets in an SOA. Industry Content Packs are currently available for Property and Casualty Insurers and Healthcare Insurers, with additional Industry Packs for Banking,

State and Local Government, Telecom, and other industries currently under development. In particular, these industry content packs provide the following components:

- Industry Semantic Models which define a common language, to simplify interoperability between disparate IT assets. These Pre-packaged industry specific vocabularies are expressed as an extensible ontology; e.g. ACORD, IAA, HIPAA, and HL-7.
- Industry Message Sets to meet regulatory compliance and simplify interoperability by standardizing the messages and transactions used to communicate between IT assets.
- Industry Common Services to speed time to market with pre-built, frequently reused horizontal infrastructure services. Includes interfaces to popular industry specific third-party and business process outsourcing services.
- Pre-built Policy Assertions to speed time to market, provide consistency and maintain standards compliance during the definition and development of business service policies.

Industry Content Packs are extensible for use within an enterprise, or within a broader services ecosystem.

3 WHAT'S NEXT

Composite business services will have a profound impact on all aspects of SOA. Updates need to be made to SOA maturity models (e.g. Service Integration Maturity Model), SOA methods (e.g. Service Oriented Modeling and Architecture), the capabilities needed to model, assemble, deploy and manage composite business services, as well as the governance and management of these business services. The software needed to support these capabilities must be updated as well as integrated with the other components of the SOA foundation. Get your forks out to feast on the (business) beef!

About the author

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