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SOA Governance

Applying Governance to Ensure the
Long-term Benefits of SOA

June 2008

SECTION 11: Glossary

ACID (Atomicity, Consistency, Isolation, Durability)

A set of properties designed to ensure the consistent processing of transactions whereby either the entire transaction is correctly actioned or else the entire transaction is backed out to the system state that existed before it started.

ActiveX

Microsoft's suite of object-oriented programming tools and technologies.

Adapter

Integration software that is used to connect an application to an integration server or SOA platform.

API (Application Programming Interface)

The prescribed method by which an application program can make requests to an O/S or to another program.

Application Server

Layer of software that provides a scalable link between Web applications and back-end applications, and typically offers features such as security, clustering and failover, and load balancing.

ASIC (Application-Specific Integrated Circuit)

An ASIC is an integrated circuit that has been designed for a particular use, as opposed to a general-purpose integrated circuit that is subsequently programmed through software to carry out a particular task.

B2B (Business-to-Business)

The transaction of goods and/or services between two organisations. In the context of this Report, the assumption is that the transaction is conducted electronically.

BAM (Business Activity Monitoring)

A process that identifies the ways in which the provision of instant access to disparate data sources and applications within an organisation can optimise the speed and efficiency with which business decisions are made.

BI

Business Intelligence.

BPA (Business Process Automation)

The term is also used by BPM vendors to describe their Business Process Analysis functionality.

BPDM (Business Process Definition MetaModel)

Business Process Definition MetaModel (BPDM) standard, nearing ratification as a standard within the OMG. BPDM is a high-level standard – the metamodel element in the title indicates this – and it covers the specification of processes and their interactions.

BPEL

Business Process Execution Language.

BPEL4People

BPEL4People – is the agreed extension for WS-BPEL that includes human interaction.

BPELJ

BPEL for Java and PD4J (Process Definition for Java) were proposed to the Java Community Process under JSR207, with BPELJ emerging as the winner.

BPI (Business Process Integration)

The sharing of business information amongst disparate business systems, to enable companies to streamline their activities, reduce operational costs, and improve responsiveness to customer demands.

BPM (Business Process Management)

BPM is the set of activities for creating a managed environment for understanding, automating, monitoring, and improving repeatable business processes to better achieve the goals of the organisation.

BPMG

Business Process Management Group.

BPMI (Business Process Management Initiative)

An industry consortium that aims to standardise the management of business processes that span multiple applications, departments, and partnerships, both behind the firewall and over the Internet. Members include BEA Systems, Fujitsu, IBM, and Sun Microsystems.

BPML (Business Process Modelling Language)

The execution language corresponding to Business Process Modelling Notation (BPMN). This is no longer being taken forward by a standards body, but it is in use by a number of vendors.

BPMN (Business Process Modelling Notation)

A standard for graphically representing business processes in a workflow.

BPMS

Business Process Management System.

BPQL

Business Process Query Language.

BPR (Business Process Re-engineering)

The strategic analysis of business processes and the planning and implementation of improved business processes.

BRE

Business Rules Engine.

BRM

Business Rules Management.

BRMS (Business Rules Management System)

A Business Rules Management System provides a development environment for creating rules to be implemented by a Rules Engine. It also enables the deployment and management of those rules in a live environment, with both control, and a record of any changes, giving the ability to audit.

CEP

Complex Event Processing.

Certificate Authority (or Certification Authority)

A Certificate Authority is an organisation that acts as a trusted third party by issuing digital certificates that are used by other parties in the secure exchange of encrypted information.

CICS (Customer Information Control System)

An IBM mainframe transactional processing monitor technology.

COM (Component Object Model)

Microsoft's software architecture for assembling applications from binary software components. It provides the underlying foundation for higher-level services.

COM+

An extension to COM that adds a new set of system services for components during runtime. It can be seen as Microsoft's answer to EJBs.

CORBA (Common Object Request Broker Architecture)

A specification and architecture for creating, deploying, and managing distributed objects. Communication across different objects in a distributed network is carried out through an interface broker.

CRM (Customer Relationship Management)

An information-industry term for the methodologies, software, and (usually) Internet capabilities that help an organisation manage customer relationships in an organised manner.

DBMS (Database Management System)

Software to enable and optimise the shared use of data across a number of application programs or user interactions, providing at least the capability to selectively retrieve specific information from within a large set of data.

DCOM (Distributed Component Object Model)

Microsoft's set of program interfaces that give interoperability between client and server objects. It is conceptually equivalent to CORBA.

DMZ (De-Militarised Zone)

A DMZ refers to the part of an organisation's network that exposes the organisation's services to the untrusted world (usually through the Internet). (Note that the term 'services' is not necessarily restricted to the SOA context, but can refer to any applications made available to the outside world.) A DMZ is normally (but not necessarily) implemented between a pair of firewalls. The outer firewall allows through traffic from the outside world to the DMZ where components such as proxies and routers will reside, the inner firewall only allows verified network traffic to be passed to the sensitive internal network.

DTD (Document Type Definition)

A type of file associated with SGML and XML documents that define how the tags should be interpreted by the application presenting the document.

ebXML (electronic business XML)

Specifications that are intended to utilise XML as a means of securing data interchange between businesses. It is this utilisation, rather than XML itself, which would replace EDI.

EDI (Electronic Data Interchange)

A standard format for exchanging business data. Two main standards currently exist (ANSI X12 and EDIFACT) and these standards are gradually being merged.

EJB (Enterprise JavaBean)

A component architecture for developing and deploying distributed business applications. EJBs offer the advantage of being able to control change at the server, rather than having to update each individual computer with a client whenever a new program component is changed or added. They have the additional advantage of being reusable in multiple applications. To deploy an EJB component it must be part of a specific application, known as a container.

ERP (Enterprise Resource Planning)

A suite of software that aims to support all the core functions of an organisation, including areas such as: inventory control; accounting; production; logistics; and human resources, in an integrated whole, providing a tied-together enterprise.

ESB (Enterprise Service Bus)

A messaging structure that is an extension of the bus model. ESB undertakes content-based routing and transformations as part of a set of functionality previously undertaken by other elements in the technical infrastructure.

Governance

Governance is an umbrella term that relates to the creation of policies defining the aims and constraints of an organisation (or a particular part of an organisation), and the processes and means by which these policies are enabled and enforced.

Granularity

An expression of complexity of a process or service, codified in two terms: 'fine-grained' and 'coarse-grained'. The former would be used to represent, for example, a single call or action, whilst the latter would be used to represent a higher-level process such as the issuing of a purchase order. The term has no concept of division between the two uses, and is context sensitive.

HTML (HyperText Markup Language)

A markup language designed to display material in a browser. As with XML, it consists of a series of tags, but unlike XML it contains information about the way in which text is displayed and does not describe the data.

HTTP (HyperText Transfer Protocol)

The foundation of the Internet, it defines the format and transmission of messages and the actions to be taken by browsers and servers.

HTTPS (HTTP over SSL)

A Web protocol developed by Netscape, and implemented in its browser. It is, in effect, Netscape's implementation of SSL as a sub-layer under HTTP. It should not be confused with S-HTTP.

IDE (Integrated Development Environment)

An IT solution to enable IT developers and programmers to produce software. In the context of this Report, it is a shared software environment that permits people with different roles and skills to collaborate on the end-to-end development of a solution.

Identity and Access Management

Identity & Access Management – a broad functional administration system that deals with identifying systems users, and controlling their access to systems resources by associating each individual's user rights and restrictions with their established identity.

IP (Internet Protocol)

Most commonly seen with TCP as TCP/IP. IP specifies packet format and addressing schema.

ITIL (Infrastructure Technology Infrastructure Library)

A comprehensive, non-proprietary, and publicly available set of guidelines for 'best practice' IT services management. Each library module provides a code of practice intended to improve IT efficiencies, reduce risks, and increase the effectiveness and quality of IT services management, and infrastructure.

JAAS (Java Authentication and Authorisation Service)

An integral part of J2SDK 1.4, JAAS is a J2EE API for managing security, enabling services to authenticate and enforce access controls upon users.

Java EE (formerly J2EE: Java Platform, Enterprise Edition)

Defines the standard for developing multi-tier applications using Java. Java EE simplifies enterprise applications by basing them on standardised, modular components; by providing a complete set of services to those components; and by handling many details of application behaviour automatically without the need for complex programming.

JCA (Java Connector Architecture)

A specification for standardising the connectivity of Web-based applications on the Java EE platform.

JDBC (Java DataBase Connectivity)

A Java API allowing Java programs to execute SQL statements, giving connectivity to multiple data sources.

JMS (Java Message Service)

An API messaging standard that allows Java EE application components to create, send, receive, and read messages.

Kerberos

Kerberos is an authentication protocol which permits two parties communicating over a non-secure network to prove their identity to one another in a secure manner. It can be implemented through free software provided by the Massachusetts Institute of Technology (MIT).

KPI

Key Performance Indicator.

LDAP (Lightweight Directory Access Protocol)

A software protocol for enabling anyone to locate organisations, individuals, and other resources such as files and devices in a network, whether on the Internet or on a corporate Intranet.

MDA

Model Driven Architecture.

MDD

Model Driven Development.

MDM (Master Data Management)

An overarching information layer across multiple data sources, establishing a master data record that can be used to integrate and update information either in batch mode or in near real time.

Message Broker

A key component of EAI that directs the flow of data between applications whilst also providing services such as data transformation and message routing.

Message Queuing

An asynchronous form of communication between applications, whereby messages are delivered in batches.

Message Routing

An integration process that entails messages being routed to particular applications according to defined business rules.

Metadata

Data that describes or defines another piece or related pieces of data.

Metadata Repository

A store implemented through software that provides for the storage, organisation, and retrieval of metadata. It may be centralised or federated. In a SOA context, the metadata stored will generally include versioning information and dependencies between different versions of services and associated composite applications, processes, business rules, etc. The metadata repository might also be used to store information on policies and to make persistent audit information, performance statistics, etc.

Middleware

A general term for software that serves to mediate between two separate and usually already existing programs. Middleware can be used to mitigate the technology differences between the requestor of a service and the provider of a service.

MOM (Message Oriented Middleware)

Messaging middleware describing how requests are handled, typically through Publish/Subscribe or Queue.

OASIS

The Organisation for the Advancement of Structured Information Standards.

OMG (Object Management Group)

An early industry consortium that defined the original CORBA specifications.

Open Source

Open Source is a set of principles describing a means of developing and distributing software based around the open availability of the source code. It is not the same as free software – the use of open source software is governed by various types of license that may or may not be free of charge. The license will determine the type of use that can be made of the software, and may impose constraints on the distribution of software that embeds open source code.

PKI (Public Key Infrastructure)

The use of a public and private cryptographic key pair allows secure trading to be carried out over public networks with the use of a trusted authority.

Publish and Subscribe

An asynchronous messaging paradigm where senders (publishers) of messages are not programmed to send their messages to specific receivers (subscribers). Rather, published messages are characterised into topics, without knowledge of what (if any) subscribers there may be. Subscribers express interest in one or more topics, and only receive messages that are of interest, without knowledge of what (if any) publishers there are. This decoupling of publishers and subscribers can allow for greater scalability and a more dynamic network topology.

RDBMS (Relational DataBase Management System)

Software for managing data that is stored in related, two-dimensional tables.

Repository

In XML terms, a repository is a central location where schemas and vocabularies can be stored. The repository may be public, to allow any party to reference the information, or it may be private and restricted to a defined trading community. See also Metadata Repository.

ROI (Return On Investment)

A term used to describe how much of a return, usually profit or cost-saving, results from a completed business task, in relation to the original investment made.

RPC (Remote Procedure Call)

A protocol that allows a program to execute another program in a distributed environment. Classed as an early form of middleware.

SaaS (Software-as-a-Service)

Software functionality provided by a third party is accessed over the Internet, as opposed to being installed within the user organisation. SaaS is firmly targeted at providing a business service to the users of the application, rather than an IT support service.

SAML (Security Assertion Markup Language)

An XML-based security standard that provides support for the exchange of user-authentication information and the use of single sign-on capabilities.

Scalability

The ability to expand a computing solution to support large numbers of users without impacting performance.

SDK (Software Development Kit)

A set of programs used by a developer to write application programs. Typically a SDK will comprise (at a minimum) an editor, a compiler, a linker, and a GUI builder.

Service Consumer

A service consumer is any individual, organisation, or other entity that is requesting a service. The service consumer may be anonymous or might provide an identity that may or may not be authenticated. Services may have security policies defined that will determine the consumer credentials that are required.

Service Registry

A service registry is a store that provides the system of record for information regarding the consumption of services. It will generally contain the URI address of the service, the functions that it can deliver, and the message types that it will accept and return. Most (but not all) service registries will conform to the UDDI standard for describing and discovering services, sometimes in addition to other proprietary interfaces.

S-HTTP (Secure HTTP)

An extension to HTTP that allows the secure exchange of files on the Web. S-HTTP is an alternative to SSL and is used when the user has to be authenticated. It should not be confused with HTTPS.

SLA (Service Level Agreement)

An agreement between the supplier of a service (departmental or external) and the receiver of the service (again, departmental or external) as to the levels of service that can be expected. This would typically include the amount of time a service is expected to be available (e.g. 6am-11pm, 24x7, etc.) and fix times for any issues.

SMTP (Simple Mail Transport Protocol)

A TCP/IP protocol used in sending and receiving e-mail. Most commonly, SMTP is used for sending, and either POP3 or IMAP is used for receiving.

SOA (Service Oriented Architecture)

An architectural concept that places process components delivered as consumable services at its heart. In its modern incarnation this architecture is chiefly based on Web services, providing a Services Platform layer that exposes business and operational services, and is typically a part of Enterprise Architecture.

SOA Framework

A SOA framework is a high-level map depicting the various components that contribute to a successful service-oriented modelling approach.

SOAP (Simple Object Access Protocol)

A lightweight XML-based protocol consisting of three parts: an envelope that contains a message and how it should be processed, rules for expressing instances of application-defined data types, and a convention for representing RPCs and responses.

SSL (Secure Sockets Layer)

A common protocol for managing the security of a message over the Internet. Typically only one end of the conversation is fully authenticated.

SSO

Single Sign On.

STS (Secure Token Service)

A Secure Token Service (STS) provides trusted third-party verification of the authenticity of a remote client. The STS verifies the credentials presented by a client, and then in response, it issues a security token that provides proof that the client has authenticated with the STS. The client presents the security token to the service provider, which then verifies that the token was issued by a trusted STS, which proves that the client has successfully authenticated with the STS.

TCP (Transmission and Control Protocol)

Most commonly seen with IP as TCP/IP, TCP guarantees sequential delivery of packets between two hosts.

TCO (Total Cost of Ownership)

TCO is a financial estimate of all the costs associated with acquiring, implementing, maintaining, and using a resource over a particular time. It is most useful as a way of comparing the costs of two or more means of achieving the same end result.

TQM

Total Quality Management.

UDDI (Universal Description, Discovery, and Integration)

A platform-agnostic initiative for describing and discovering the availability of Web services, along with details on how connections can be made.

UML (Unified Modelling Language)

An object modelling and specification language.

URL (Uniform Resource Locator)

A URL is the address of a file (resource) accessible on the Internet.

W3C (World Wide Web Consortium)

An industry consortium which seeks to promote standards for the evolution of the Web, and interoperability between WWW products by producing specifications and reference software. Although industry members fund the W3C, it is vendor-neutral, and its products are freely available to all.

Web Service

A broad definition that considers the delivery of application functionality over the Internet, without regard to platform or O/S specifics.

WfMC

Workflow Management Coalition.

Workflow

A term used to describe the tasks and procedural steps that organisations and or people get involved in. It covers the input and output information, and the functions needed for each step in a business process.

WS*

A generic reference to the group of Web Services standards.

WS-BPEL (Web Services Business Process Execution Language)

Formerly BPEL4WS, a specification for a programming language that enables the completion of a task to be achieved using a combination of Web services, which may have been provided by multiple companies. The standard was originally created by developers from BEA Systems, IBM, and Microsoft, but is now under the stewardship of the OASIS standards group. It combines and replaces IBM's Web Services Flow Language (WSFL) and Microsoft's XLANG, and is also commonly referred to in the industry as BPEL.

WSDL (Web Services Description Language)

An XML format for describing network services as a set of endpoints or ports operating on messages containing either document-oriented or procedure-oriented information.

WS-Federation

This is a standard that defines how identities and authentication can be shared across disparate security realms.

WS-I (Web Services Interoperability Organisation)

An organisation set up to promote and support Web services implementation and interoperability. At the time of writing, it included IBM, Microsoft, BEA Systems, Hewlett-Packard, Intel, and SAP, among others.

WS-I Basic Security Profile

A profile for the use of basic security standards, created by the Web Services Interoperability Organisation, which if implemented by different parties in a SOA conversation, provides a foundation for interoperable secure communications across heterogeneous technologies.

WS-Policy

A specification that allows Web services to describe their policies (on security, Quality of Service, etc.) and for Web service consumers to specify their policy requirements.

WS-SecureConversation

A standard that provides for two parties to engage in the exchange of multiple messages in an effective and secure manner (as opposed to a simple, request/reply model).

WSS (Web Services Security)

A communications protocol providing the ability to apply security to Web services. This is the basic security standard for Web services, upon which other standards are layered. This standard itself exploits the capabilities of other standards including SOAP, XML Encryption, and XML Signature.

WS-Security Policy

A standard that defines how to extend WS-Policy specifically for the definition of policies related to the security requirements of services.

WS-Trust

An extension to WSS that deals with the use of security tokens, including the mixed use of tokens from different secure token services (such as Kerberos and X509).

X509

A public key infrastructure standard that defines the format of public key certificates, among other things.

XACML

eXtensible Access Control Markup Language.

XDoS (XML Denial of Service)

An attempt (deliberate or as the result of a logic error) to cause a service to fail to respond by swamping it with messages, or by formatting a message in such a way (e.g. by including multiple digital signatures) that will cause all of the computing resources to be consumed.

XMI (XML Metadata Interchange)

XMI is a standard for model exchange, and is run-time platform independent.

XML (eXtensible Markup Language)

Markup language, derived from SGML, defined by the W3C as a Recommendation in 1998. Used as a metalanguage to describe data, it is now finding widespread application in areas such as application integration, content management, electronic data interchange, and wireless communications. XML is 'extensible' because, unlike HTML, the markup symbols are unlimited and self-defining. Using an XSL Stylesheet, XML can be transformed for display as HTML on a Web page, or to alternative formats for display on other types of client device.

XPDL (XML Process Definition Language)

XPDL is used to define the details of a business process, in a manner that is ready for execution.

XSL (eXtensible Stylesheet Language)

A language used for creating a stylesheet that describes how data sent using XML is presented to the recipient.

XSLT (eXtensible Stylesheet Language Transformation)

A template that describes how one XML document should be transformed into another XML document (usually with a different vocabulary). Used as a data transformation technique when transferring data between different applications.

This Report reveals:

- How SOA governance provides linkage between corporate governance and IT governance.
- Why people and processes are more critical to SOA governance than the supporting technology.
- How to ensure the service architecture is designed for the benefit of the whole organisation, not just the initial project.
- How to monitor the health of the runtime environment in a continuous fashion.
- Why business policies should be enforced dynamically through active runtime components.
- How to address the complexity of SOA change management.
- How leading companies have deployed SOA governance in their own organisations.
- Which vendor solutions can be deployed to support the different phases of SOA governance.

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