SOA, MDA and Web Services Workshop:  
*Integrating the Enterprise, and Beyond*  
Fairfax, VA, USA  -  March 27-30, 2006  

**Workshop Program**

**Monday – March 27, 2006**

**TUTORIALS:**

**0900-1230 Introduction to Web Services (WS) and Service-Oriented Architecture (SOA)**  
Eric Newcomer, CTO, IONA, and Sean Baker, Chief Corporate Scientist, IONA

This half-day tutorial starts with the basics of Service Oriented Architecture and its role in distributed enterprise computing, and then introduces Web Services, starting with XML basics, WSDL (Web Services Definition Language), and SOAP (Simple Object Access Protocol). A segment on the “big picture” suggests the types of applications that Web Services implement well, and how they fit into a representative enterprise architecture.

**1030-1045 Morning Refreshments**

**1230-1330 Lunch**

**1330-1700 Modeling Business Process for SOA Applications**  
Fred Cummins, EDS Fellow, EDS Technology Strategy & Architecture

This half-day tutorial will focus on current work on the development of a Business Process Definition Metamodel specification for OMG. This specification provides a unified representation of business process concepts to enable the transformation of various languages to this common form. BPDM will support the BPMN graphical notation, and as such, will provide a standard for exchange of BPMN process models. In addition, BPDM will provide an integrated representation of executable processes and the choreography that defines interactions between autonomous processes such as in web services B2B exchanges. Attendees will learn about BPDM, BPMN and their implications to enterprise architecture, web services and SOA.

**1500-1515 Afternoon Refreshments**
Tuesday – March 28, 2006

0900-1230  **Tutorial Track 1: Introduction to the MDA, Unified Modeling Language and their Applicability to SOA**

Jim Amsden, Senior Software Engineer, IBM

This half-day tutorial is an MDA case study in the context of UML and SOA. It starts with an introduction to OMG’s MDA and the foundation modeling specifications enabling transformations that support it. We'll discuss what MDA is, how it works, and the benefits to both the business and technical aspects of application development and integration. We’ll follow this with an overview of UML2 with particular emphasis new features and how they facilitate MDA. In the second half of the session we’ll see how to apply MDA to model business services in UML and transform them to Web Services using an SOA.

0900-1230  **Tutorial Track 2: Model Driven Architecture, Web Services, and Service-Oriented Architecture in the Enterprise**

Cory Casanave, CEO/President, Data Access Technologies

Service Oriented Architectures (SOA) and Web services provide the technical basis for messaging, but are only part of the solution. Making a SOA solution for integration, collaboration and supply chain automation requires that multiple technologies be used and integrated. It requires new and legacy applications to be integrated into a seamless, maintainable and robust solution. The Model Driven Architecture provides the basis for a high-level and full life-cycle approach to web services. By combining web services and MDA we are able to drive our SOA solution from high-level business semantics, making sure our solution meets requirements and also making it easier to develop and maintain. We are also able to integrate web service and other technologies, providing a more cohesive environment. The presentation will show how to apply MDA to SOA and web services to achieve business goals. The result of applying these techniques can result in the enterprise being more agile, more efficient and better able to collaborate inside and outside the corporate boundary.

1030-1045  Morning Refreshments

1230-1330  Lunch

1330-1340  **Welcome and Opening Remarks**

Program Committee Chair
Dr. Jon Siegel, Vice President, Technology Transfer, Object Management Group

1340-1430  **Keynote Presentation – The Lever of Uncertainty**

Thomas Koulopoulos, CEO, Delphi Group

It's instinctive - Any certainty is better than uncertainty. But what if uncertainty is here to stay? What if the organizational, economic and geopolitical arrhythmias that we have experienced lately are symptomatic of a much deeper, underlying condition that will not go away? Dealing with uncertainty may drive us mad, but deal with it we must if we and our business are to thrive and endure. How will some of today's most visible technology trends such as SOA, Web Services, and Business Process Orchestration play into this new world order? How will government and industry survive in this new age by breeding adaptability in people, processes, and infrastructures? The answers may surprise you. Join Tom for a tour through this uncharted landscape as we discuss the tenets of technological and practical survival in the new world of uncertainty and build the foundation for agility and success.
The business environment is undergoing dramatic changes: fierce global competition and partnering, real security threats, a plethora of regulatory requirements, tremendous cost pressures and demands for more flexibility and agility. At the same time, growth is returning to the CEO’s agenda and most CEOs expect their enterprises to reach revenue growth by becoming more responsive. How will enterprises achieve new levels of responsiveness and agility? By rethinking industry structures, implementing new ideas of deconstruction of the corporation, and participating in emerging collaborating ecosystems - by becoming a Service-Oriented Enterprise.

The concept of service-oriented business is simple to understand, but the delivery is complex and requires innovation in many areas. This presentation will describe the changes necessary to bring about the service-oriented enterprise: business ecosystem evolution, componentization, organizational design and governance, and elevation of IT’s role. It will also compare and contrast characteristics of traditional vs. service-oriented businesses, and demonstrate on real client examples how these changes enable an enterprise to react quickly to marketplace needs.

Continuing the theme established in the keynote and featured presentation, this session addresses issues that come to the fore when systems grow large, and interactions include multiple organizations under separate management.

This presentation will focus on model driven, service-oriented, enterprise and networked enterprise contracts and contract systems. It will take a full-lifecycle systems approach to these systems showing how the synergy between the model driven approach and the service-oriented approach enables enterprises to maximize its value in constantly changing economic, legal, and technology environments. Topics for discussion will include:

- business and technology contracts / service level agreements;
- mapping business services to technology services;
- contract system services
- contract system infrastructure including trans-modal (inter-)enterprise service buses
- Web Services technology for contract systems
- contract system interoperability
- enterprise economic maneuverability, legal accountability and liability

Schlumberger and WesternGeco are oil and gas service companies that depend heavily upon information technology for differentiated service delivery. Delivering complete solutions for the acquisition, processing and interpretation of oilfield or seismic data requires extensive interoperability between very different systems running on heterogeneous platforms. These solutions involve tremendous amounts of raw data that is ultimately distilled into high-value interpretations, allowing our customers to make well-founded decisions regarding further reservoir development. While these solutions were traditionally viewed as an isolated technical computing domain, we have more recently adopted an Enterprise view. Service-oriented architectures enable cross-business-unit information flows. Model-driven development and architecture bring the promise of more productive development processes and more reliable maintenance of complex, long-lived applications and frameworks. In this talk, we present business cases for the application of SOA, challenges in modeling some aspects of complex domains using MDA, and pragmatics: performance, security, getting business support, and educating the developers.
Wednesday – March 29, 2006

0900-1130  Session 2: Best Practice in Design and Implementation of WS and SOA

In this session, experienced architects examine what it takes to design and deploy a large, multi-site, multi-organization WS/SOA system.

0900-0940  An Integrated Process and Technology Framework to Deliver Business Process in a Distributed, Scalable Execution Environment
Robert Carpenter and George Brown, Intel Corporation

In an earlier work, the authors explored the challenges of moving to a Service-Oriented Architecture from the perspective satisfying the primary business needs of enabling flexibility and agility to respond to changing business needs and to harness resources across global value chain partners. It was recognized that a business transformation framework was needed to accelerate implementation in a SOA environment. That transformation framework was chosen to be an integrated process and technology framework (IPTF). The key requirements of the layers in the SOA infrastructure stack were also defined.

In this work, the original vision is expanded and refined by examining two key aspects. First, what SOA standards are missing to facilitate support of business collaboration through implementation of loosely-coupled processes extending across a federated enterprise? Second, the infrastructure layer is examined in the context of: what does it mean to describe infrastructure as a service – i.e. a service oriented infrastructure [SOI]? To answer the first, IPTF has become the basis for proposed SOA standards intended to enable semantic integration at run time and to drive convergence of existing ebXML and Web Service standards. Further, collaborative process patterns defined through the IPTF methodology became the generators of runtime protocols. To answer the second, it is proposed that with SOI it is possible to “serve up” infrastructure execution capacity to meet business driven demand in a flexible, agile way. SOA within SOI facilitates the development of Service Oriented Management, SOM. Together, these explorations extend and refine the earlier work of the authors and define an agenda to advance the state of business process interoperability within a federation of enterprises and across the stack within the enterprise that supports it.

0940-1020  So You Want an SOA: Best Practices for Migrating to SOA in the Enterprise
Eric Newcomer, Chief Technology Officer, IONA Technologies

Everyone’s talking about SOA but the big question remains where to start and what to do. It’s becoming clear that SOA requires a change in thinking for IT but it also requires a change in thinking for vendors providing SOA infrastructure. This presentation includes conceptual information about SOA that will help you get started thinking in the right way about SOA, how to measure the effectiveness of your SOA, and how to evaluate the SOA infrastructure you need to deploy one.

1000-1500  Demonstration Area Open

1020-1050  Morning Refreshments in Demonstration Area
The primary SOA motivation for most enterprises is to establish a looser coupled architecture that allows business flexibility. However flexibility isn’t something that happens automatically just because the technical infrastructure is loose coupled or business functions are published as services. What’s required is an approach that allows business and technical level architecture to be expressed in a consistent manner that enables a structured approach to policy definition, communication and governance. This presentation provides an introduction to a methodology and classification system that facilitates policy development, which can govern decisions across the service life cycle.

Bring UML, BPMN, MDA and SOA together and improve collaboration, compliance, productivity and business processes: CIOs’ top concerns of 2006. BPMN is now an OMG standard and is being incorporated into UML. This union is promising for both technologies. BPMN is widely used by analysts that are not as technical as the typical UML practitioner. This will expand UML to BPMN users and will increase modeling activity throughout the enterprise. BPMN will become increasingly attractive as enterprises make widespread use of SOA. BPMN brings together the required human interactions with the necessary orchestration of services in an SOA to produce a complete specification of a business process. As part of UML, BPMN models can be transformed into implementations using MDA. The MDA target can implement a rich set of facilities allowing multi-channel application access, collaboration between business process constituents and detailed compliance reporting.

Making SOA work requires discovery of consistent collaborations among available services. We need to fit those collaborations into some hard-to-change business processes. Directory and location services at the technology level are no help if you don’t know how to harness consistent services to the real needs of the business. Where there is a gap in the inventory of available services, making SOA successful requires the ability to specify new services that are guaranteed to work in context. This presentation will show how to do that. In the MDA approach to making SOA work, business process modeling defines the platform independent requirements for consistent services. Most of the modeling we have seen recommended as best practices are inadequate. Then, QVT and Model-to-text transformation tools need to connect those adequate service-oriented models with platform specific SOA implementations.

Whether supporting employee collaboration, customer services, or engaging partners, documents are at the core of most business processes today. Even as organizations rely more on Web applications and expand the capabilities of Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and other systems, many key business processes are still dependent on paper and manual workflows. A growing number of enterprises are moving toward SOAs to meet their document challenges because this approach can automate document-centric processes in a faster, more secure, and cost-effective way. The session will review best practices for mapping document-centric processes to SOA for enhanced business processes, addressing performance concerns, relevant standards, and essential requirements such as security, creation, collaboration and workflow, storage, and archiving.
The U.S. General Services Administration has instituted the “OsEra” project to provide an open source reference implementation of “Model to Integrate”. Model to integrate brings together multiple MDA, SOA and Semantic Web technologies to provide architected solutions that encompass enterprise architecture, business models, technology models, acquisition planning and the Federal Enterprise Architecture (FEA). Components of OsEra include an Eclipse-based integrated modeling environment, tool integration, automated production of specifications, simulation, and provisioning to runtime components on a jBoss & BPEL based Enterprise Service Bus (ESB). The OsEra architecture provides for multiple open source and commercial components to be “plugged in” to the reference architecture using MDA techniques. This presentation will provide an overview of the OsEra project, its architecture, components and roadmap.

1500-1645  **Session 4: Security, Scalability, Performance, and Other Challenges**

A system that extends over more than one enterprise differs in many ways from the systems we’re used to:

- It’s very large; it’s composed of multiple management domains with different policies and practices; and a workflow will have to successfully execute multiple services in these multiple domains in order to complete. How do we ensure that the systems we build can scale and perform to meet our requirements, and how do we establish and maintain security in such a system? In this session, we examine this family of challenges.

**1500-1535 Tackling with SOA when Scaling Up to Integrating Between Enterprises**

Pierfranco Ferronato, Chief Architect, Soluta.net

SOA has been designed and envisioned for inside Enterprise integration as a means to bridge systems and to create a governance layer on top of existing platforms as either legacy or assets. Now the industry is heavily moving to B2B environments where the parties are not single department applications but rather Enterprises. Inside Enterprises there are administration ability of the SOA infrastructure, ability to handle the network, gain control over resources and IP, and everything is reasonably under control. Between enterprise this is not true any more – IPs may change, protocols are subject to be replaced without notice, UDDI needs to be shared among parties, UDDI becomes vital for indexing and discovering services, and models need to change at a pace which is faster than any ability to maintains coherence and harmonization via a coordination process. The entire B2B becomes a very loosely coupled community, which brings news challenges in SOA architecture, and dealing with this reality requires re-thinking of the founding principles and technology of SOA.

This talk will address these and other issues facing the next generation of projects that are already ingoing. The presentation will delve into these issues, tackling SOA and proposing new techniques, and borrowing concepts from real industrial and research projects that are currently under development and that the speaker is leading as an Enterprise Architect. He will describe P2P based approaches for service registry, decentralized model repositories, scale free network, and additional references to cutting edge technologies in the Business Ecosystem arena.

**1535-1610 How SOA Changes Performance Management**

Daniel M. Foody, Chief Technology Officer, Actional

Managing performance in a traditional IT environment typically revolves around tools such as synthetic transactions, end user monitoring, and capture of application and service metrics. While these tools are important, they are not sufficient to successfully manage the performance of an SOA. This session will highlight what makes managing in an SOA environment different and, from this, how to build an SOA infrastructure which has predictable and reliable control over scalability and performance. This session will address questions such as:

- What metrics are important in an SOA environment
- How to ensure performance and availability in the event of changes
- How to capacity-plan in an SOA environment, and
- How to optimize in an SOA environment.
1610-1645 **WS Security Update**
Hal Lockhart, Principal Engineering Technologist, BEA Systems

The ability to provide message security with the same flexibility and generality as the SOAP processing model is vital to providing robust Web Services. WS-Security, which initially became an OASIS Standard in 2004, provides authentication, message integrity and confidentiality at the SOAP layer, using any of a variety of security infrastructure standards. Work on WS-Security and related standards, continues at OASIS and elsewhere. This talk will discuss the most recent developments in Web Services Security Standards. Subjects will include:

- OASIS WS-Security 1.1 - what's new,
- WS-I Basic Security Profile (including test tools and sample applications),
- WS-SecureConversation, WS-Trust and WS-SecurityPolicy, and
- the WS-Security Frameworks Project.

1645-1800 **Panel: Integrators’ and Tool Implementers’ Panel**
Moderator: Dr. Jon Siegel, Vice President, Technology Transfer, Object Management Group

In this panel, experienced integrators and tool designers/builders discuss the problems that they’ve encountered building large, multi-enterprise WS/SOA systems and the various ways to attack them.

Panelists:
- Cory Casanave, CEO/President, Data Access Technologies
- Fred Cummins, EDS Fellow, EDS Technology Strategy & Architecture
- Additional panelists TBA

1800-2000 **Workshop Reception, hosted by:**

[Images of logos: M1 Global and Everware]
0900-1115  **Session 5: Standards in WS, SOA, and MDA**

Standards, always important, come to the fore when systems extend out from one ownership/management domain to another.

0900-0940  **The Service Component Architecture**
James Marino, and Ed Cobb, VP of Architecture and Standards, BEA Systems

Service Component Architecture (SCA) is a set of specifications that define a new model for the creation and assembly of service networks. First published in November 2005, the emphasis of SCA is on simplifying the experience for the developer while also supporting a wide range of technologies that can be used to build solutions based on a SOA. This talk provides an introduction to SCA and an overview of future directions the specifications may take.

0940-1020  **Standards in Business Modeling and Integration**
Jeanne Baker, Principal, Cedar Consulting

The fusion of Business Process Management with Service-Oriented Architecture to provide agile, business-driven applications is supported by a number of both ratified and newly emerging OMG standards. This talk introduces these standards, including the Business Process Modeling Notation (BPMN), the Semantics for Business Vocabulary and Rules (SBVR), Business Process Definition Metamodel (BPDM) and the Business Motivation Model (BMM). Learn where these standards fit, how they support BPM-focused SOA, and how you can help them progress through ratification and widespread adoption.

1020-1035  Morning Refreshments

1035-1115  **Applying MDA Standards to bring the A to SOA**
Pete Rivett, CTO, Adaptive

Too much work under the SOA banner has focused on the 'S' (technology for web services) and somewhat ignored the 'A' (Architecture), which is essential for meeting SOA's promise. This presentation will outline OMG's modeling standards as applied to achieving platform independence in SOA development, and will provide a roadmap of future work more specific to SOA, in particular the work of OMG's new SOA Working Group. Specific topics will include how OMG standards can represent architectural aspects of SOA such as: architectures and patterns, deployments, service contracts, services linked to application/component design, data management spanning data in transit and at rest, traceability to business models, support for reuse, and how these can all be integrated and transformed.

1115-1130  **Sponsor Presentation - Everware-CBDI**

**An SOA Roadmap**
John C. Butler, Chief Architect, Everware-CBDI

SOA adoption impacts the entire enterprise IT ecosystem. This presentation will introduce a practical approach to managing this change covering architecture, infrastructure, process, organization and projects with a mapping to the OMG specifications.

1130-1230  Lunch

1230-1430  **Session 6: Semantic Aspects and Ontologies**

Syntactic interoperability is not enough – applications must agree on semantic aspects as well, if our web services are going to interoperate successfully from one enterprise to another. In this session, we’ll examine the progress made in semantic interoperability since our last look at this a year ago.
1230-1310  **Semantic Data Modeling Within and Across the Firewall**  
Mark Crawford, SAP

In today’s web services and emerging SOA environment, true interoperability remains an elusive goal. Systems complexities are making existing interoperability approaches between data points within and across firewalls increasingly expensive to create and maintain. System inflexibility, interface requirements, and system integration costs driven by labor-intensive process and data model approaches exacerbate the problem. Hundreds of available competing standards, such as OWL-S, SWSF, WSMO, and WSML, fail to exactly support an organization’s context-specific requirements, making it difficult to achieve true interoperability. Fortunately, a new paradigm in standards development methodology exists that addresses these issues. This methodology, the ISO 15000-5 Core Component Technical Specification, focuses on defining semantic-based models that can be expressed in the specific context of the end user. These semantic-based models enable true interoperability across the firewall through complete data understanding by all users. CCTS based semantic data models also provide the basis for enabling forward and backward harmonization of enterprise architectures, process models, data models, and syntax-specific expressions behind the firewall. Standards bodies, solution providers, governments, and private companies recognize the value of this approach, and are adopting CCTS as the basis for their interoperability solutions. This presentation will discuss the concepts of CCTS and identify how CCTS is being used by UN/CEFACT, other standards bodies, and solutions providers to achieve true interoperability.

1310-1350  **Semantic Web Progress and Directions**  
Deborah McGuinness, Co-Director and Senior Research Scientist, Knowledge Systems Laboratory, Stanford University

The Semantic Web has seen progress on many fronts this year. The Web Ontology Language (OWL) became a World Wide Web Consortium (W3C) Recommendation in 2004. Along with the recommendation status came increased activity and interest in many directions including open source and commercial tool development, wider adoption and utilization in industrial, government, and academic applications, a W3C best practices working group, and numerous submissions to W3C and other standards bodies on web services and rule languages. In this talk, Dr. McGuinness will highlight recent progress made in semantic web infrastructure including standards progress supporting Semantic Web applications and services. Her talk will highlight include an update on services language and framework submissions (e.g., OWL-S, SWSF, WSMO, WSML, …). These submissions provide W3C with input for a proposed new working group activity to develop formal recommendations for a semantic web services language. Additionally, a new working group has just started to develop a formal recommendation for a rule language. Highlights from the Best Practices working group will also be mentioned concerning semantic interoperability.

1350-1430  **MDA and Semantic Web Services: Integrating OWL-S & SWSF with the Ontology Definition Metamodel (ODM)**  
Elisa Kendall, CEO & Founder, Sandpiper Software

The Ontology Definition Metamodel (ODM) is an emerging standard from the Object Management Group that supports ontology development and conceptual modeling in several standard representation languages. It provides a coherent framework for visual ontology creation based on OMG’s Meta Object Facility (MOF™) and UML® (Unified Modeling Language™), bridging Model Driven Architecture® (MDA®)-based standards for automating the physical management and integration of metadata with Semantic Web technologies. The ODM is nearing finalization in the OMG, and has garnered tremendous support from the W3C Semantic Web best practices working group and the international metadata standards community (ISO JTC1/SC32) in addition to many OMG members.

1430-1445  Afternoon Refreshments
Session 7: Case Studies

Early adopters are at least partway through their first project; some have deployed and have experiences to report. In this session, we’ll hear their stories.

Case Study: Semantic Service Oriented Architecture
Sam Chance, Principal Engineer, Scientific Research Corporation

Presently, business processes are largely completed using Information Technology (IT). Unfortunately, a “gap” exists between IT and business analysts that results in fragmented, human-centric execution of end-to-end processes. The “IT gap” requires otherwise non-technical users to perform IT-intensive tasks to complete workflows. Further, awareness of available resources is often limited. The end result of this IT-driven, human centric model is fragmented, sub-optimal operations. Our approach to closing the IT gap is Semantic Service Oriented Architecture (SSOA). SSOA enables dynamic discovery of new data sources as they become available and provides resources for enabling semantic descriptions of those data sources. Embedded workflow and agent technologies leverage those semantic descriptions and data sources allowing end users to rapidly construct new “virtual” applications according to business needs. We present SSOA foundations and motivation, followed by detailed technical descriptions and architectural considerations. A Combat Search and Rescue use case is demonstrated, along with a tangible implementation plan using Jini™, JavaSpaces™ and other Java™ based solutions. We will explore the means by which workflow, semantics, and Jini are implemented and integrated to create SSOA.

Case Study - Leveraging Executable Enterprise Architecture for GSA's Financial Services Management Line of Business (FMLOB)
George Thomas, Chief Architect, GSA

GSA is continuing its MDA based “One GSA” initiative with a detailed business and systems architecture for government financial management. This financial architecture will provide specifications that help drive governance, acquisition, integration and systems development as the GSA positions itself to offer financial line of business services to GSA and other government agencies. The FMLOB architecture uses “Enterprise MDA” to bring together CIM level business models based on EDOC with PIM level application models in EDOC and UML and PSM level technology models using web services and BPEL. By embracing the full spectrum of architecture from business processes to technology interfaces, GSA hopes to streamline the transition from antiquated legacy systems to a modern SOA infrastructure. This presentation will provide an overview of FMEA, show how it was done and discuss the lessons learned from the project.

Panel: Case Studies Lessons Learned

In this panel, the early adopters from the previous session are joined by others as they discuss the lessons they’ve taken from their experiences, and point out the things they’d do the same way next time and the other things that they would not.

Panelists: Claude Baudoin, IT Advisor, Schlumberger
George Thomas, Chief Architect, GSA
Additional Panelists TBA