Enterprise Application Integration (EAI) – Architectures, Technologies, and Best Practices

Give Your Business the Competitive Edge

IT managers have been under increasing pressure to migrate a portfolio of independent "stovepipe" applications to an integrated set of business services that can be aligned with changing business requirements and support new business processes faster and with reduced cost. Today, corporations have to choose from a number of integration products such as Integration Brokers, J2EE Application Servers, and Web Services tools – that have quite different capabilities, never mind different architectures and standards. However, these tools address only partially the challenges that corporate IT is facing: how to systematically and efficiently build and integrate applications using a unified approach, unified architecture and - where feasible – a single platform for application development and integration.

While new e-Business applications cannot operate as standalone entities and always require integration with existing systems, application integration almost always results in the development of new business logic, i.e. development of a new code. This explains the strong trend towards development of Composite Applications, which combine integration of existing application with development of new business functions to implement the new processes that the business requires.

From Technology to Business Solutions

Large scale EAI projects are different from most projects that organizations have undertaken in the past. They don't introduce change that is isolated to individual application areas or business areas. Instead, EAI projects force change upon many application and business areas and require a coordinated approach among groups in an enterprise that used to deal with their application and infrastructure needs in a mostly independent way.

This seminar will give you insight into approaches to Enterprise Architecture including Service Oriented Architecture (SOA) and Event Driven Architecture (EDA). It will bring you up to date on the standards and technologies that play a key role in today's EAI projects, such as Web Services, Integration Brokers and Enterprise Service Buses.

This seminar moves beyond just the technology discussion –our instructors will share their experience with setting up processes across an organization that provide lasting value and guarantee the long term success of large scale EAI initiatives.

Benefits of Attending

- Understand key EAI, B2B and Web Services standards and technologies.
- Define requirements, goals and organizational approaches for building and integrating Enterprise Applications.
- Identify the challenges and benefits of developing an Enterprise Architecture.
- Learn how to put a large scale EAI initiative on the right track by utilizing proven methodology and well-defined process.
- How to define practical guidelines on an enterprise level that can help different project teams make the best architecture and technology choices
- How to define models for Return on Investment (ROI) for integration technologies
- The rationale behind building or avoiding a Center of Excellence (COE) for integration
- How to define a process that promotes faster adoption of integration technology and foster re-use across different projects.
- Review examples of Fortune 500 companies that have benefited from the implementation of a common EAI architecture and unified approach to application development and integration.

Who Should Attend

- IT Managers that need to understand the management dynamics of EAI projects and how the EAI technologies, standards and products stack up
- Architects who want to define an Integration Architecture to facilitate successful integration projects
- IT professionals who need to see how Service Oriented Architecture can be applied to development as well as integration projects
- IT Managers and IT Strategists selecting new standards and products for enterprise integration architecture
- Architects and Application Developers and Integrators who want a detailed look at the different EAI technologies and platforms that can be used to implement EAI architecture and want to know how these technologies and platforms can be applied to both, A2A and B2B integration.
- Architects and Application Developers who need quickly to develop composite applications to support new business processes and initiatives
- Consultants who need to recommend different strategies for defining and implementing EAI architectures
- Anyone who is faced with the daunting task of integrating applications throughout the enterprise and across business partner organizations.

  Prerequisite: This class does not require attendees to posses detailed knowledge in any specific technology; however, an understanding of distributed applications and technologies will be beneficial

Seminar Outline

1) Introduction To Enterprise Application Integration
   a) Understanding the EAI problem
   b) The business drivers
   c) The technical drivers
   d) EAI and Middleware
      (1) Why a Middleware platform is required
      (2) Middleware platform evolution

2) Different Approaches and Architecture Choices For EAI
   a) Enterprise architecture
      (1) Definition
      (2) What drives the need for enterprise architecture?
      (3) Enterprise Reference Architectures
   b) Service Oriented Architecture (SOA)
   c) Event & Service Oriented Architecture (E-SOA)
   d) The role of standards
      (1) How Web Services facilitate integration
      (2) Java Business Integration (JBI)
   e) A2A vs. B2B integration: similarities and differences

3) Preparing Your Enterprise for EAI – IT Culture vs. Business Alignment
   a) Techniques and approaches for EAI
      (1) Systematic vs. opportunistic
      (2) EAI vs. Application Integration (AI)
   b) Different approaches to EAI
      (1) Data-level integration
      (2) Interface-level integration
      (3) Portal-level integration
      (4) Process-level integration
   c) Enabling the Real Time Enterprise through Business Service Management (BSM) & Business Activity Monitoring (BAM)

4) Guiding Principles for Enterprise Application Integration
   a) Integration requirements in application projects
   b) Multi-step Process vs. Composite Application
   c) Loosely coupled architectures
      (1) Interface style
      (2) Interaction mode
      (3) Process flow
      (4) Synchronous vs. asynchronous SOA
      (5) Classification of the degrees of coupling
      (6) Use case example: change of address
   d) Integration pattern reuse
   e) Integration with the data architecture
      (1) Canonical message formats
      (2) Enterprise Name Space (ENS)

f) Enterprise Application Integration or Application Integration?

5) Introduction to the Key Integration Platforms

a) What are the requirements for an integration platform
   (1) Connectivity, transformation, routing, workflow, transactions, B2B, etc.
   (2) General platform requirements
b) Overview of integration technologies
   (1) Message-Oriented Middleware (MOM)
   (2) Integration Brokers
   (3) Enterprise Service Buses (ESB)
   (4) Standalone adapter suites
   (5) J2EE Application Servers
   (6) Microsoft BizTalk
   (7) Enterprise Information Integration (EII)

6) Using MOMs, Integration Brokers and Enterprise Service Buses (ESB) For EAI

a) Message Oriented Middleware (MOM)
   (1) Publish/subscribe vs. Message Queuing
   (2) Quality of Service
   (3) MOM standards: Java Messaging Services (JMS)
b) Integration Brokers
   (1) The rationale behind Integration Brokers
   (2) Integration Broker functionality
   (3) A framework-based approach to EAI
c) Enterprise Service Buses
   (1) ESB vs. monolithic architectures
   (2) How standards can enable plug-and-play integration
   (3) Federated Domain Integration Model
d) How to select integration middleware

7) Integration with J2EE and .NET

a) J2EE
   (1) J2EE Architecture
   (2) Web Services in J2EE
   (3) J2EE Connector Architecture (J2CA)
   (4) Product examples
b) .NET
   (1) .NET Overview
   (2) Web Services in .NET
   (3) BizTalk Server
c) Comparing the integration capabilities of J2EE and .NET
d) Integrating J2EE and .NET

8) Web Services – A New Paradigm For Integration

a) Overview of standards bodies
b) Services vs. data
c) Web Services – a new approach to integration
   (1) Establishing connectivity through Simple Object Access Protocol (SOAP)

(2) Web Services Definition Language (WSDL)
(3) Security
(4) Transactions
(5) Notification
(6) Reliable messaging
(7) Business Processes Management
(8) Universal Description, Discovery and Integration (UDDI)

9) Using a Well-Defined Methodology for EAI Projects

a) Requirements for an EAI methodology and why it's needed
b) Organizational impact of EAI projects
   (1) Roles and responsibilities within the organization
   (2) Building the Integration Competence Center (ICC)
   (3) Governance
c) Approaches on how to calculate Return On Investment (ROI)
d) Overview of ISG's EAI Methodology

10) From Theory to Practice – Selected Case Studies

a) How to determine the best approach based on high-level integration use cases
b) Select case studies

11) EAI Outlook and Conclusions

a) Future technology convergence?
   (1) Development vs. Integration
   (2) The future of Application Servers
   (3) The future of Integration Brokers
   (4) Enterprise Service Buses
   (5) Microsoft's role
   (6) The future of Web Services
b) First things first: EAI Architecture Blueprint
c) Summary and conclusions