AITS EAI Enterprise Services

Providing Infrastructure to Support Enterprise System Integrations
Who am I?

• Russell Chalfant, chalfant@uillinois.edu, SOA Operations Coordinator
• 10 years experience at AITS
• 5 years as Java developer
• 5 years providing operational support for EAI Enterprise Services
What are EAI Enterprise Services?

• Good Question!
• Wikipedia  (http://en.wikipedia.org/wiki/Enterprise_application_integration)
  – Enterprise Application Integration (EAI) is an integration framework composed of a collection of technologies and services which form a middleware to enable integration of systems and applications across the enterprise.
What are AITS EAI Enterprise Services?

- Infrastructure which provides for simplified, secure, reliable systems integrations
- Services designed/implemented by AITS ICC and Development teams
- Deployed and supported by AITS EAI/SOA Operations team
Service Layers

- **Application Layer**
  - Web, Batch, Messaging

- **Core Layer**
  - UC4 (Appworx), SonicMQ, Subversion, OpenEAR Services, XML

- **Base Layer**
  - LDAP, Servers, Databases, Web/Application Services
Base Layer

- **LDAP**
  - Stores configuration information
  - Highly available
  - Provides secure access

- **Servers**
  - Sun/Solaris; Dell/Linux; Dell/Windows

- **Databases**
  - Oracle; MS SQL Server
Base Layer

• Web/Application Servers
  – Apache, Tomcat, IIS
• Implemented supported by operational teams at AITS
• Work closely with the EAI/SOA Operations team
Service Layers

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Core Layer

• UC4 (Appworx)
  – Enterprise, cross platform workload automation tool
  – Java batch processes, SQL scripts, system scripts, report processing scripts, etc.
  – More Information: appworx@uillinois.edu
Core Layer

• SonicMQ
  – JMS Provider from Progress Software
  – Secure, scalable, reliable messaging services
  – Broker clusters for point-to-point and publish-subscribe messaging
  – Automated monitoring/alerting 24/7
  – Metrics tracked for capacity planning
  – More information: aitseairequests@uillinois.edu
Core Layer

• Subversion
  – Version control system
  – Security layer allows controlled access to directories within repositories
  – Rsync process synchronizes files to servers
  – More information: AITSSVNRequests@uillinois.edu
Core Layer

• OpenEAI Services
  – Routing Service
    • Configurable routing of synchronization messages to subscribers
  – Proxy Service
    • Configurable service to proxy requests for information
    • Available as either JMS or Web Service
Core Layer

• OpenEAI Services
  – Logging Service
    • Logging of synchronization messages and errors
    • Allows for republishing based on errors
  – More Information
    • aitseairequests@uillinois.edu
    • http://www.openeai.org
Core Layer

- XML
  - Application configuration
    - Stored in Subversion or LDAP
    - Pushed to multiple servers
  - Enterprise Objects (BasicPerson, InstitutionalIdentity, etc)
    - Stored in Subversion
    - Deployed on web site
    - Provides for enterprise data definition
Service Layers

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Application Layer

- Web
  - Java, ColdFusion and VB.NET based front ends developed by AITS
  - Department implemented systems
    - OBFS, CITES, HRIS, OAR
  - Web Services implemented by AITS
  - EAS authentication and authorization services
Application Layer

• Batch
  – Java based solutions implemented by AITS
  – Secure file transfer implementations
  – SQL script processes
  – Report generation and deployment processes
  – Many other solutions
Application Layer

• Messaging Services
  – Request services
    • Banner, EAS, I-Card, Vendor, etc.
  – Synchronization services
    • Banner, FAMIS, PRZM, CA USD, etc.
  – Event Applications
    • Banner, Vendor, EAS, I-Card, etc.
Summary of Key Concepts

• Deployment process
  – Subversion used for versioning configuration and application files
  – Rsync process pushes updated files to servers
  – Configuration information accessed securely from LDAP by systems outside of push process
Summary of Key Concepts

• OpenEAI Message Protocol
  – Messages in the OpenEAI protocol are named by messageCategory, messageObject, messageAction, and messageType.

```
com.any-erp-vendor.Person.BasicPerson.Create-Request
```

category  object  action  type
Summary of Key Concepts

• Publish-Subscribe Messaging
  – Event application detects change in authoritative system and publishes message object to the routing and logging service
  – The routing service reviews the configured endpoints to determine which have subscribed to receive the message object
  – The routing service publishes the message object to the subscribed endpoint and to the logging service
  – The endpoint receives the changed information and performs business logic
Summary of Key Concepts

• Point-To-Point Messaging
  – Services are implemented to provide actions on certain objects
  – Application requests an action – Query, Create, Update, Generate, Delete
  – Request is sent and application waits for a reply
  – Message objects provide for loose coupling
  – Proxy configured to allow access to actions by sender id
What does this mean to you?

• Access to data
  – If you don’t already have access, contact iccrequests@uillinois.edu
  – If you do already have access and need help with configuration, contact aitseairequests@uillinois.edu
What does this mean to you?

• Versioning
  – If you would like a Subversion repository for versioning of application files or source code, contact AITSSVNRequests@uillinois.edu

• Scheduling
  – For more information about using UC4 (Appworx) for scheduling process, contact appworx@uillinois.edu
Questions?

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