Web-based Distributed EJB BugsTracker
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Outline
- Project Goal
- Overview of J2EE
- Overview of EJBs and its construct
- Overview of Struts Framework
- EJB BugsTracker demo
- Q & A

Project Goal
- Integration effort of 4-tier EJB component architecture:
  - Web browser
  - Web server – Apache Tomcat
  - Application server – JBoss
    - Enterprise Java Bean
    - Container-Managed Persistence
  - Database server – HyperSonic
- The application is designed and built for software managers, engineers and quality assurance staffs that keep track of the software defects which are produced during the software development life cycle.

Overview of J2EE
- Java Platform 2 Enterprise Edition (J2EE) helps to overcome distribution challenges.
- Application deployed with J2EE technologies are:
  - Standardized
  - Adherent to specification guidelines
  - Written to Java
  - Deployable in any compliant application server
- Framework is being widely adopted by vendors:
  - Bea WebLogic Application Server
  - IBM WebSphere
  - Oracle 9iAS Internet Application Server
  - JBoss Application Server

J2EE Architecture

J2EE Container

J2EE Server
J2EE Container

- JNDI
  - Namespaces, ldap
- J2C
- Database connectivity
- JAA
- Authentication
- JTA
- Transactions
- JMX
- Management & monitoring
- JavaMail
- Email
- EJB
- Business logic & data

- JMS
- Messaging
- CORBA
- Remote procedure calls
- SOAP
- web services
- RMI
- Remote method invocation
- Servlets
- Web logic
- JSP
- Web presentation
- XML
- portability

Enterprise JavaBeans

- Enterprise JavaBeans (EJBs) is a component architecture that defines the structure of beans, the structure of the container in which they operate, and the methods for interaction with their clients.

- The EJB specification defines relationships between:
  - The EJB and its container
  - The container and the application server
  - The container and the client


Containers’s Infrastructure

- Containers intercept communication between client and component, providing infrastructure services.

EJBs – Types of EJBs

- The EJB 2.0 specification discusses four types of components:
  - Stateless session beans
  - Stateful session beans
  - Entity beans
  - Message driven beans

EJB constructs

- [Diagram of EJB constructs](image)
EJB constructs

EJBs – Well-Defined Roles

Whole Picture

Jakarta Struts

Struts Model Components

Struts View Components

Struts Model Components

Provide ‘Model’ of the business logic or data.

Characteristics:

- Interface to EJB Beans / Databases
- Encode Business Logic & Calculations
- Interface to Remote Systems
Struts Controller Components

Control Program Flow.

Characteristics:

- Accept Input from Users
- Determine which Models to Update
- Determine which Views to Display
- Struts Tags simplify building Views

JBoss Architecture

Login Sequence

Access Paths

Database tables

Persistence Entity Beans
Annotated references

8. JBoss Application Server, "http://www.jboss.org"
11. The J2ee tutorial: http://java.sun.com/j2ee