David Blevins / Apache Software Foundation

Fun with EJB 3.1 // And OpenEJB

OpenEJB history

Timeline

- 1999 - Founded in Exoffice - EJB 1.1 level
- 2001 - Integrated in Apple's WebObjects
- 2002 - Moved to SourceForge
- 2003 - Integrated in Apache Geronimo
- 2004 - Moved to Codehaus
- 2006 - Moved to Apache Incubator
- 2007 - Graduated Apache OpenEJB
- 2011 - Integrated in Apache TomEE

Specification Involvement

Versions

- EJB 2.1 (Monson-Haefel)
- EJB 3.0 (Blevins)
- EJB 3.1 (Blevins)
- EJB 3.2* (Blevins)

3

OpenEJB history

Always an Embedded EJB Container

- Our downfall in early 2000 -- people weren't ready
- Our success after EJB 3.0

Always doing the Opposite

- EJB always had Inversion of Control
- Instead of Remote/Local beans, why not Remote/Local containers?
- Instead of putting the App in the Container, put the Container in the App.
- WARs the bottom of the food chain? Forget that, put everything in the WAR. EARs are WARs anyway.
- Don't blame EJB because your *server* isn't testable

Primer

Generic view of Containers

Components

- What "classes" of objects are there?

Lifecycle

- What "events" do objects want to know about?

Views

- How are they accessed internally or externally?

Services

- What "actions" will the container manage for you?

Environment

- What "resources" will be exposed to you?

Packaging

- How do you build & run this crazy thing?

6

EJB through 3.0

EJB through 3.0

Components

- @Stateless (1.0, 3.0)
- @Stateful (1.0, 3.0)
- @MessageDriven (2.0, 3.0)

Views

- @Local (3.0)
- @Remote (3.0)
- @WebService (2.1, 3.0)

EJB through 3.0

Lifecycle

- Dependency Injection (3.0)
- @PostConstruct (1.1, 3.0)
- @PreDestroy (1.1, 3.0)
- Stateful specific
  - @PrePassivate (1.1, 3.0)
  - @PostActivate (1.1, 3.0)
  - SessionSynchronization (1.1)

EJB through 3.0

Services

- @TransactionManagement (1.1, 3.0)
  - @TransactionAttribute (1.1, 3.0)
- Security (1.1, 3.0)
  - @PermitAll (1.1, 3.0)
  - @DenyAll (1.1, 3.0)
  - @RolesAllowed (1.1, 3.0)
- @Interceptors (3.0)
- TimerService (2.0)

EJB through 3.0

Environment

- @Resource (1.1, 2.0, 2.1, 3.0)
  - UserTransaction
  - DataSource
  - JMS ConnectionFactory/Topic/Queue
  - Much more..
- @EJB (1.1, 2.0, 3.0)
- @PersistenceContext (3.0)
- @PersistenceUnit (3.0)
- @WebServiceRef (2.1, 3.0)

EJB through 3.0

Packaging
- Java EE Server
    - Standalone EJB jar file
        - No standard mechanism for 3rd party libs
    - Combined in an EAR file

EJB 3.1

EJB 3.1

Components

- @Singleton

Views

- @LocalBean

- @Asynchronous

Environment

- Global JNDI Names

EJB 3.1

Lifecycle

- Singletons
    - @Startup
        - @DependsOn
- Stateful
    - @StatefulTimeout
    - @AfterBegin
    - @BeforeCompletion
    - @AfterCompletion

EJB 3.1

Services

- @ConcurrencyManagement
  - @Lock
  - @AccessTimeout
- @Interceptors
  - @AroundTimeout
- @Schedule

EJB 3.1

Packaging

- Java EE

  - EJB jars in WAR files

- Java SE VM

  - Embedded EJBContainer API

    - Jar scanning a plain classpath

    - Modules: File/File[]/String/String[]

Next Gen EJB

Next Gen EJB

Components

- @ManagedBean (plain cheese pizza, no toppings)

Services

- Split them out individually (the toppings)

Meta Annotations

- Rename the annotations to your liking
- Summarize complex config easily
- Reduce impact of change

Next Gen EJB

Interceptors

- Multiple, qualified, @AroundInvoke methods
- Middle ground between Loose & Strong typing
  - aka between Interceptor and Decorator
- Fix Invoke signature mismatch

ApplicationException

- Needs finer-grained control

Next Gen EJB

Message Driven 2.0

- Allow Connector annotations to be used
  - Eliminate loosely typed activation-config
- Allow No-Interface MDBs
  - Connector Annotations are all that is needed
- Psst, MDBs are really just Session beans
  - Why not allow @Singleton message consumers?

Non-AppClient injection

- Non-AppClient lookup, check. Where's injection?
- @LocalClient and @RemoteClient

21

Apache TomEE: Tomcat with a Kick
2:25 - 3:15 | Beatrice Suite 1
Wednesday

David Blevins & Jonathan Gallimore

Thank You!

openejb.apache.org

David Blevins
dblevins@apache.org
twitter.com/dblevins