Zwischenbericht DA

Thema: „Dynamische Rekonfigurierung eines Application Servers“

Vortragsgliederung:

- Application Server JBoss
- Java Management Extensions (JMX)
- Dynamische Rekonfigurierung

Application Server **JBoss** v2.4.4

- Tomcat Servlet Container (v3.2.3)
- EJB 1.1 (zusätzlich Message Driven Beans)
- OpenSource Project
- JMX als Basis

Java **M**anagement e**X**tensions (JMX)

Wozu kann man JMX verwenden?

- Management zur Laufzeit:
  - Kontrolle (Monitor, Timer)
  - Konfiguration (setAttribute, getAttribute, invoke(methode))

Wer verwendet JMX bereits?

(http://java.sun.com/products/JavaManagement/jmxadoption.html)

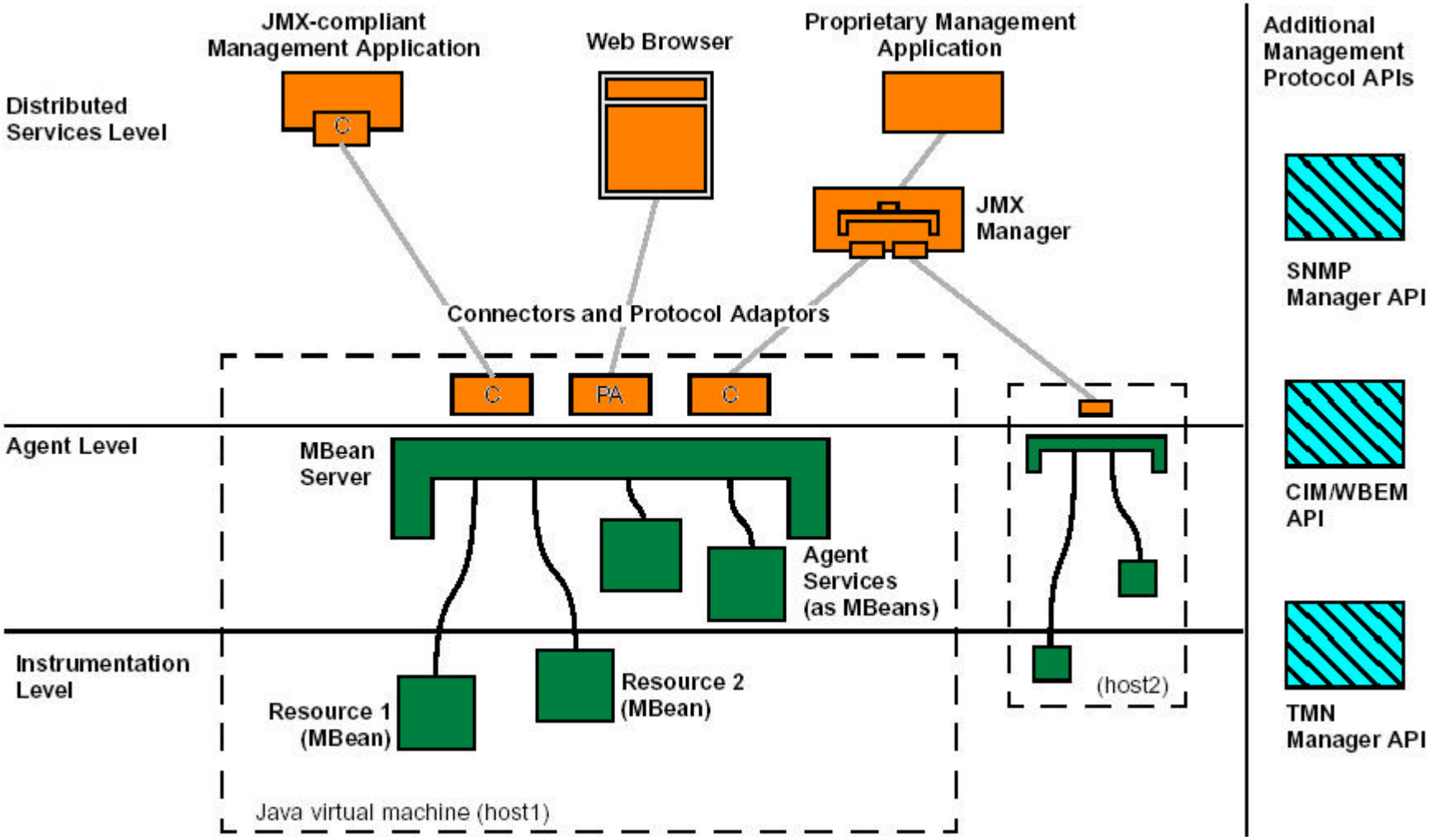
- JBoss, BEA Weblogic, iPlanet Application Server, ...

JMX - Spezifikation v1.0

Spezifikation v.1.0

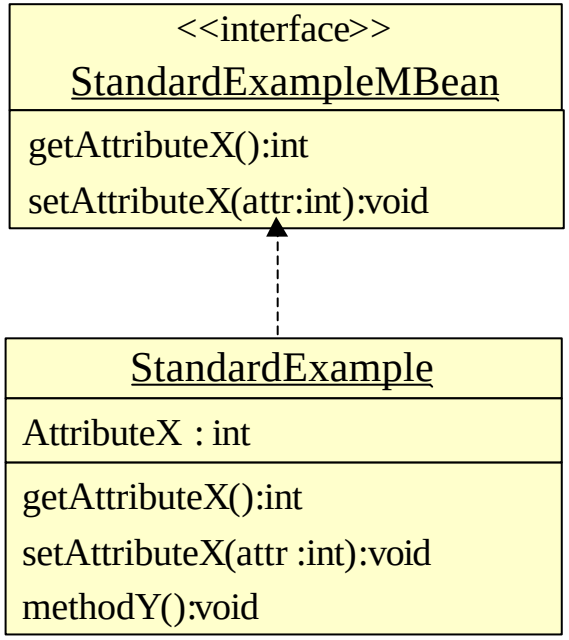
zukünftige Spezifik.

separate JSR

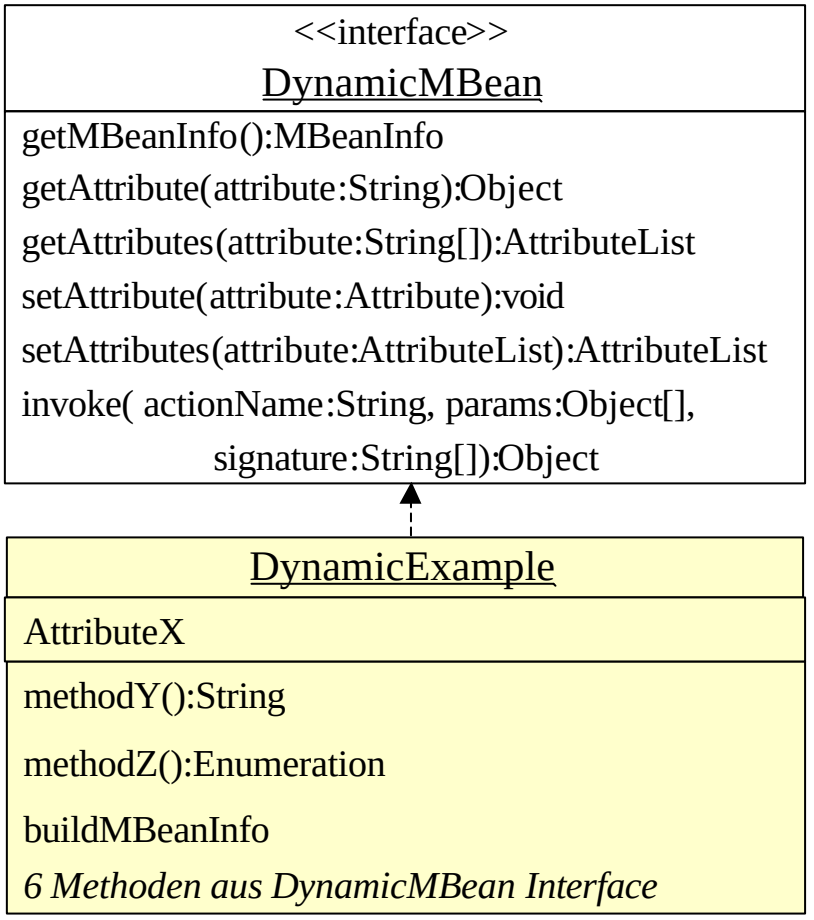


JMX - Standard MBean vs. Dynamic MBean

Standard MBean

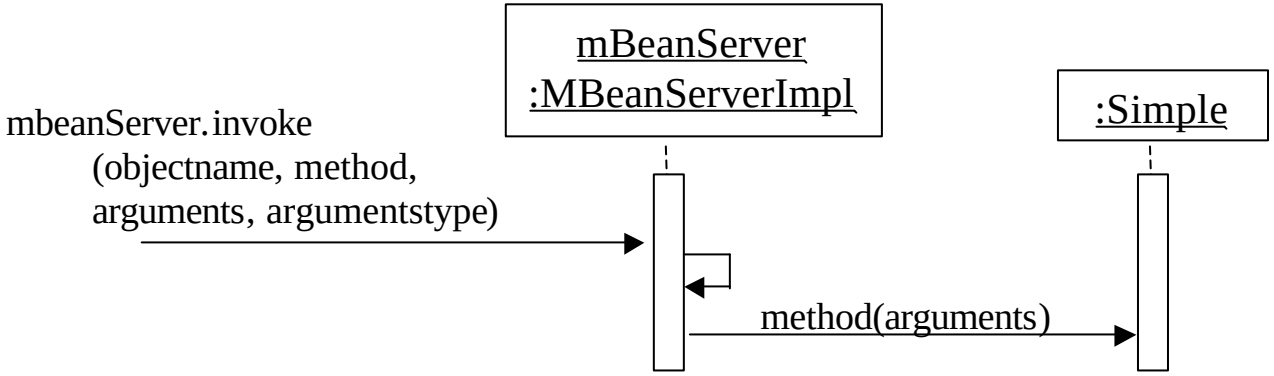


Dynamic MBean



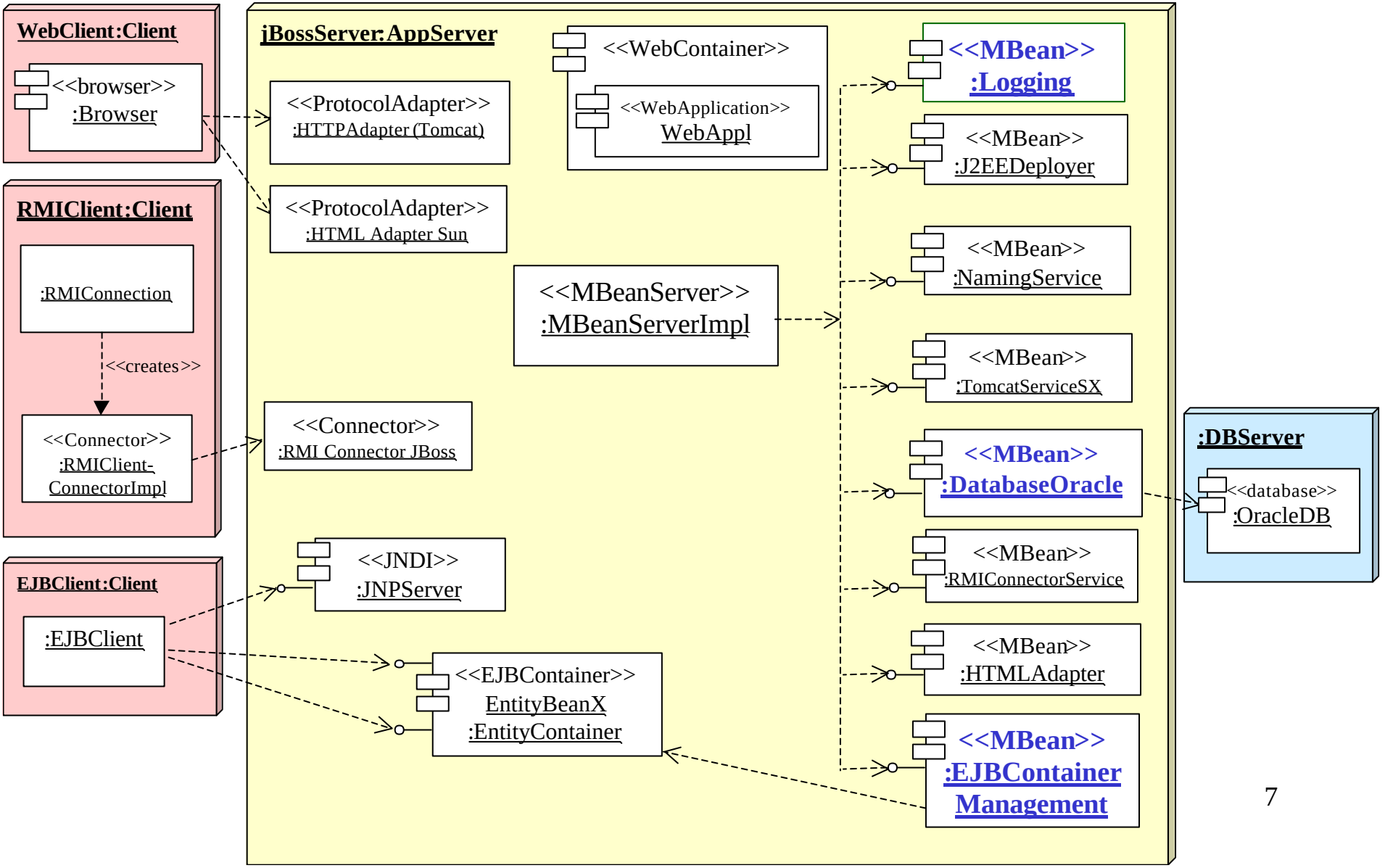
JMX - MBean Server

- **MBean Server:**
  - Registry für MBeans
  - ObjectName: [domainName]:property=value [, property=value]*



Deployment Diagramm (Auszug)

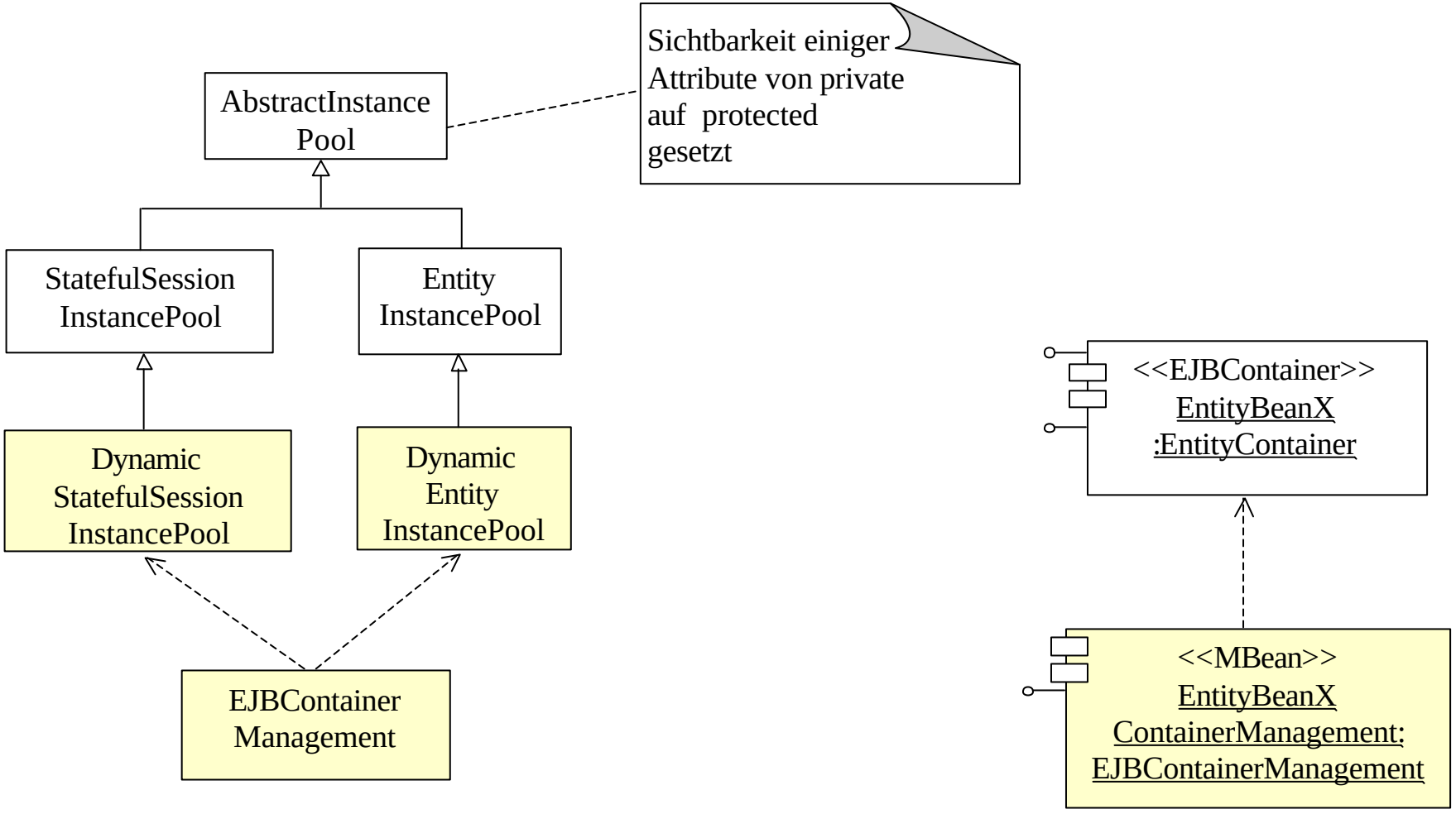
(JBoss, Clients, Datenbank)



Wahl einer geeigneten Architektur

- Clientzugriff über Web (WebApplication) (Client/Server)
- Nutzung von JMX, da JMX bereits Basis der JBoss Serverarchitektur (MBeans)
- Erzeugung XML-Dateien als Konfigurationsdateien
- APIs: JMX, JBoss, Log4j, Java2, J2EE
- Zugriff relationale Datenbank
- => Schritt zur Automatisierung (Monitoring, Notification)

Modifizierung zu dynamischer Rekonfigurierbarkeit



Aktueller Stand der Web-Applikation

- **Nutzung existierender „dynamischer“ MBean-Funktionalitäten**
  - ✓ MBean registrieren (Erzeugen XML-Datei)
  - ✓ dynamisches Klassenladen
  - ✓ Deploy / undeploy
  - ...
- **Erweiterung / Modifizierung existierender MBean-Funktionalitäten**
  - ✓ EJBContainer (InstanceCache, InstancePool)
  - Logging (Jakarta Log4j 1.1.3)
  - JBoss DatenbankConnectionpool
- **Erzeugung neuer MBeans**
  - ✓ rekonfigurierbare Anwendung Connectionpool
  - (Erzeugung Pool, ModelMBean, Persistence, PoolRegistry)

Screenshots Web-Application

- EJBContainerManagement

- Logging

- **EJBContainerManagement**
  - jndiName=CartHome, ContainerType=org.jboss.ejb.StatefulSessionContainer
  - jndiName=NonOptimized, ContainerType=org.jboss.ejb.StatelessSessionContainer
  - jndiName=NumberGenerator, ContainerType=org.jboss.ejb.EntityContainer
  - jndiName=Optimized, ContainerType=org.jboss.ejb.StatelessSessionContainer
  - jndiName=cd/CD, ContainerType=org.jboss.ejb.EntityContainer
  - jndiName=cd/CDCollection, ContainerType=org.jboss.ejb.StatelessSessionContainer
  - jndiName=demo/Demo, ContainerType=org.jboss.ejb.StatelessSessionContainer
  - jndiName=hello/Hello, ContainerType=org.jboss.ejb.StatelessSessionContainer

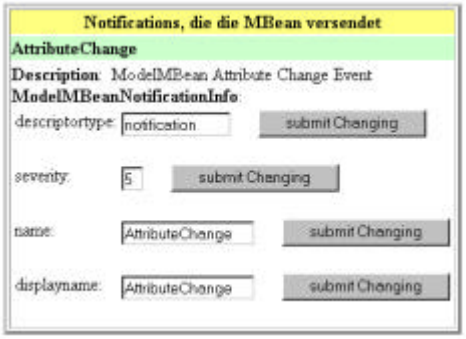
ContainerInterceptor	org.jboss.ejb.plugins.LogInterceptor@46eb1539
ContainerInvoker	org.jboss.ejb.plugins.jrmp.server.JRMPContainerInvoker
ContainerType	org.jboss.ejb.EntityContainer
InstanceCacheCurrentCapacity	50
InstanceCacheCurrentNumberOfInstances	0
InstanceCachePolicyType	org.jboss.ejb.plugins.LRUEnterpriseContextCachePolicy@a791539
InstanceCacheType	org.jboss.ejb.plugins.EntityInstanceCache
InstancePoolCurrentNumberOfInstances	0
InstancePoolMaxSize	0
InstancePoolSizeStrictMaximum	○ True ◉ False
InstancePoolType	dynamicReconfiguration.ejbcontainer.DynamicEntityInstancePool

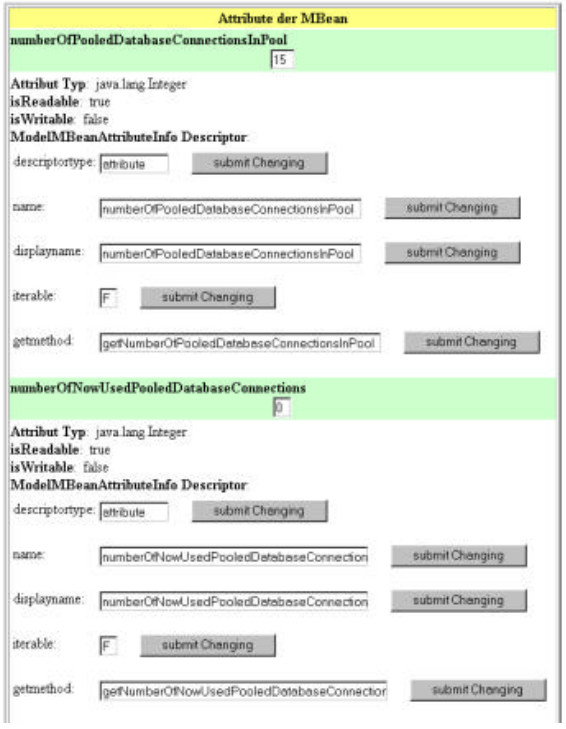
Appender

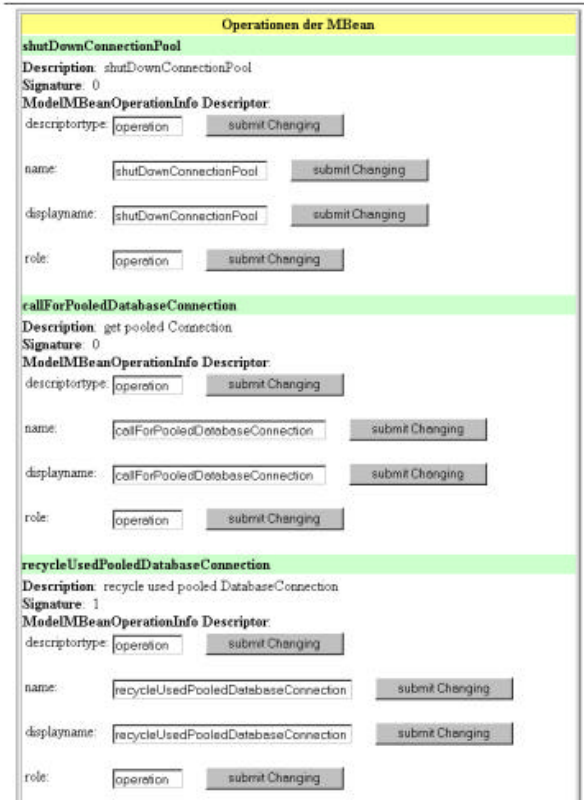
AppenderName: **Default**	
Threshold	DEBUG
File	../log/server6.log
Class	org.apache.log4j.RollingI
MaxBackupIndex	1
Layout	org.apache.log4j.PatternI
MaximumFileSize (Bytes)	512000
AppenderName: **Console**	
Threshold	DEBUG
Class	org.jboss.logging.log4j.C
Layout	org.apache.log4j.PatternI

Screenshots Web-Application

- Änderung des Management-Interfaces







Performance-Tests

- ????