



# JBoss Enterprise Application Platform

JBoss Technology

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## Sumar

- Red Hat, Jboss
- Jboss.org - Jboss Enterprise
- Jboss Subscription
- Jboss Enterprise Middleware (platforme / tools / JON)
  - Technology Outline
- Application Platform
  - Components
- Enterprise Portal Platform
- Data Services Platform
- Application Platform
  - Jboss Application Server
  - Hibernate
  - Jboss SEAM
- JBoss Portal
- MetaMatrix
- Red Hat Studio

- Red Hat, Jboss
- Jboss.org vs Jboss Enterprise

### •Jboss.org

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- Peste 30 proiecte, fiecare cu ciclu de dezvoltare si dependinte diferite
- Suport din partea comunitatii
- Wiki
- Issue trackers
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### •JBoss Enterprise

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- Distributii cu proiecte integrate, certificate
- Proces de asigurare a calitatii
- Documentatie
- Siguranta
- Configuratii gata pentru exploatare in productie
- Release-uri anuale, update-uri lunare si service packs trimestriale

# Jboss.org – Jboss Enterprise

|                   | <b>Jboss.org</b>  | <b>JBoss Enterprise</b>  |
|-------------------|---|--|
| Target / Audienta | Software disponibil gratuit pentru utilizatori cu nevoi limitate sau cu pregatirea necesara | Software bazat pe subscriptie, pentru clientii care doresc solutii stabile, certificate si de cea mai inalta calitate. |
| Filosofie         | Platforma construita din proiecte Jboss, poate include facilitati expreimentale             | Platforma pre integrata sub forma unei distributii cu cele mai actuale si stabile versiuni                             |
| Suport            | Indisponibil  | 24x7, Servicii complete de suport  |
| Update            | La latitudinea leaderului proiectului, in general de 2 ori pe an                            | Release-uri anuale, update-uri lunare si service pack trimestrial  |
| Fix-uri rapide    | Indisponibil  | Disponibil la cerere   |
| Securitate        | Best Effort'  | Patch-uri via Redhat Security Response   |

# Diferente Jboss.org - JbossEnterprise

|   | <b>JBoss.org</b> | <b>Jboss Enterprise</b> |
|---|------------------|-------------------------|
| Open Source   | x                | x                       |
| Beneficiaza din partea testelor comunitatii               | x                | x                       |
| Release-uri   | Experimental     | Matur                   |
| Program pentru actualizari lunare                         |                  | x                       |
| Program service-packs trimestriale                        |                  | x                       |
| Program pentru fixuri rapide                              |                  | x                       |
| Servicii de alertare privind update-uri disponibile       |                  | x                       |
| Bug Escalation Process                                    |                  | x                       |
| 24x7 Suport   |                  | x                       |
| Certificari si cursuri                                    |                  | x                       |
| Defineste reguli pentru suport (SLA & End-Of-Life Policy) |                  | x                       |
| Configurat de la inceput production-ready                 |                  | x                       |
| Include JBoss Operations Network (JON)                    |                  | x                       |
| Disponibilitate JON Monitoring                            |                  | x                       |
| Testare extensiva, coordonata, interna si externa         |                  | x                       |

# Suport JBoss

|       | Developer Professional | Developer Enterprise | Production Standard | Production Enterprise |
|-------|------------------------|----------------------|---------------------|-----------------------|
| Ore   | L-V, 9:17              | 24x7                 | L-v 9:17            | 24x7                  |
| SLA   | 2 Zile                 | 4 Ore                | 4 ore               | 1 ora                 |
| Acces | Web + Tel              | Web + Tel            | Web + Tel           | Web + Tel             |

- Inginerii de la Jboss support sunt **experti Java EE**
- Echipa de dezvoltare Jboss ofera in mod regulat support
- Subscriptiile developer acopera toate ofertele Middleware Jboss, RHEL si alte produse Red Hat

# Jboss Enterprise Middleware

## Enterprise Platforms

SOA /  
Integration  
Platform

Aplication  
Platform for  
Portals

Data  
Services  
Platform

## Enterprise Frameworks

Jboss SEAM

Jboss Hibernate

Jboss jBPM

Jboss Rules

## Tools

Red Hat  
Developer  
Studio

Application Platform

Other

Sistem de operare Red Hat  
sau alt sistem de operare

Jboss  
Operations  
Network

# Tehnologii JBoss

## ■ Application Platform

- JBoss Application server
  - ✓ JBoss Cache
  - ✓ JGroups
  - ✓ JBoss Transactions
  - ✓ JBoss web
    - ✓ Apache Tomcat
  - ✓ JBoss WS
  - ✓ JBoss AOP
  - ✓ JBoss Remoting
- Hibernate
- JBoss SEAM

## ■ Enterprise Platform Portal

- JBoss Portal

## ■ Data Services Platform

- ✓ Metamatrix

## ■ SOA / Integration Platform

- JBoss ESB
- JBoss jBPM
- Jboss Rules

## ■ Administrare

- JBoss Operations Network

## ■ Instrumente de dezvoltare

- Red Hat Developer Studio

# Aplicatiune Platform

- **Compatibilitate intre componente**
  - Teste de integrare
  - RPM packaging (under development)
- **Suport pentru diferite sisteme de operare**
  - *RHEL* (Red Hat Enterprise Linux)
  - Linux (ex. SuSE, etc.)
  - UNIX (Solaris, HP/UX, AIX, etc.)
  - Windows
- **Suport pentru diferite masini virtuale java**
  - Sun, BEA JRockit, IBM, HP
  - 32 si 64-bit
- **Suport pentru diferite baze de date**
  - Orice baza de date care suporta JDBC

# Application Platform - Componente

- **JBoss Application Server 4.2**
  - servicii J2EE 1.4 inclusiv EJB, web services si JMS
  - JBoss cache (clusterizabil)
  - Tomcat – pentru Srvlets, JSP si JSF
- **Hibernate 3.2.4 SP1**
  - Scalabilitate inalta cu 2 niveluri de cache
  - ORM-ul cel mai folosit
  - Limbaj de interogare robust
- **JBoss Seam 1.2**
  - dezvoltare rapida a aplicatiilor JSF
  - ofera suport Spring
  - include JBOSS Rules si jBPM; editor vizual pentru fluxul de pagini

# JBoss AS 4.2

- **J2EE 1.4 Certified : Web Services, Messaging, etc.**
  - **100% Java**
    - **ruleaza pe orice platforma hardware si SO cu JVM compatibil**
- **JMX-Microkernel**
  - **customizable middleware footprint**
  - **enhanced performance via co-located services**
- **Administrare, Monitorizare si Management**
  - **consola web ofera grafice si alerte pe email in timp real**
  - **JBoss Operations Network pentru administrare enterprise-wide**
- **Managementul Transactiilor Distribuite**
  - **JBoss Transactions**
- **Enterprise-Ready Clustering**
  - **deployment usor in cluster**
  - **cluster dinamic**
  - **toleranta la erori**
    - **silent failover**
    - **fine-grained state replication (HttpSession, SFSB, JNDI)**
    - **buddy replication & data gravitation**

# Apache Tomcat 6.0

- **S-a dovedit:**
  - Cel mai popular JSP/Servlet engine de pe planeta!
  - Indeplineste Servlet/JSP Spec 2.5/2.1
  - Performant in mediile cu trafic intens
- **Flexibil**
  - Webservere statice cum ar fi Apache sau IIS se ataseaza
    - ✓ via mod\_jk 1.2 (AJP 1.3)
  - Procesare performanta HTTP nativa
    - ✓ via JBoss Native + Apache Portable Runtime (APR)
- **Avantajele Embedded Tomcat vs Standalone**
  - Clustering pentru o inalta disponibilitate si scalabilitate
  - Cluster-Wide Hot Deployment
  - Java Transaction API (JSR 907) via JBoss Transactions
  - J2EE Connector Architecture 1.5 (JSR 112)
  - Pool de conexiuni incorporat
  - Java Message Service 1.1 (JSR 914)
  - Java Persistence API 1.0 (JSR 220)
  - EJB 3.0 (JSR 220)
  - Transfer prin referinta pentru JSP -> EJB
  - Usor de upgradat la Portal si ESB

# JBoss Cache 1.4

## Cache distribuit, tranzactional pentru POJO

- **Reduce incarcarea bazei de date si traficul pe retea**
  - **Obiectele Java folosite frecvent sunt cache-ate in memorie**
  - **Mai putine interogari ale bazei de date = Aplicatii mai rapide**
  
- **Simplificare**
  - **Fara implementare de interfete!**
  - **Se scriu <10 linii de cod**
  
- **Replicarea starii**
  - **Replicare locala sincrona/asincrona (Thread/Queue)**
  - **Modificari tranzactionale in cluster**
  - **TreeCacheAOP replica doar schimabarile atributelor si nu intregul obiect!**
  
- **Persistenta**
  - **Preincarcare din fisier, SleepyCat or JDBC**
  - **Definita prin 'eviction policies' (politici de eliminare) – timp /marime/ personalizate**
  
- **Fiabilitate**
  - **Construit pe tehnologie JGroups**

# JBoss Messaging 1.2

- **Certificat JMS 1.1**
  - **Topics si queues suportate**
    - **Publish / Subscribe**
    - **Point to point**
  - **Livrare garantata a mesajelor**
    - **Persistent (RDBMS)**
    - **Tranzactional**
  
- **Performanta**
  - **Messaging core conceput pentru o performanta maxima**
  
- **Tranzactii distribuite via JBoss Transactions**
  
- **Suport complet pentru clustering**
  - **Topics/Queues replicate**
  - **Topics/Queues segmentate**
  - **Load balancer inteligent**

# JBoss Transactions 4.2

- **Tehnologie de renume**
  - Utilizata de aproape un deceniu
  
- **Bazata pe standarde – 100% Java pur**
  - JTA 1.0.1 (implementari locale & XA)
  - JTS 1.0 (OTS 1.4) (prima implementare pur java)
  - WS-Transaction (Interoperabilitate dovedita cu MSFT & IBM)
    - WS-Coordination
    - WS-Atomic Transaction
    - WS-Business Activity
  - Internationalizare (I18N) & Localizare (L10N)
  
- **Caracteristici**
  - Ruleaza intr-un container J2EE/JEE dar si exterior
  - Recuperare deplina (distribuita) in caz de
  - Portabila pe ORBs (e.g. Orbix 2k, JacORB, JDK ORB etc)
  - Inalt configurabila

# JBoss JGroups 2.4

comunicatii multicast

- **Fiabilitate pentru mesajele de grup**
  - De-Fragmentare
  - Re-transmisie
  - Ordonarea mesajelor
- **Nivel de transport configurabil (lan/wan)**
  - UDP, TCP, TCP\_NIO, TUNNEL, JMS, LOOPBACK
  - Configurat implicit pe IP-Multicast peste UDP
  - Suport IPv4 si IPv6
    - Suporta sisteme de operare pe 64 biti
  - Statistici JMX
- **Compunere dinamica a grupurilor**
  - Adaugare & Stergere
- **Securitate**
  - Incriptare disponibila via SSL
  - Autentificarea membrilor (Token, Certificate)
  - LDAP ( in viitorul apropiat )
- **Baza pentru JBoss Cache/Messaging/Clustering**

# JBoss AOP 1.3

- Isolate “plumbing code” from business logic
  - **@remote**
  - **@asynchronous**
  - **@transactional**
  - **@security**
  - **@logging**
  - **WRITE YOUR OWN!**
  
- Injectarea in pojo a comportamentelor via
  - **adnotari JDK 1.5**
  - **adnotari XDoclet**
  - **pointcut expressions**
  
- **Simplifica dezvoltarea & mentenanta**
  
- **NU necesita extensii ale limbajului Java!**

# JBoss Remoting 2.0

- **Simplu**
  - **Extremely lightweight**
  - **No need for generated client “stubs” (de-typed invocation)**
  - **URL-based invocations**
    - **transport://host:port/parameter1=value1&paramN=valueN**
  
- **Flexibil**
  - **Pluggable transport**
    - **RMI, HTTP, IIOP, raw socket, invocari locale optimize (refernta), etc.**
  - **Synchronous/Asynchronous invocation**
    - **Push/Pull Callbacks**
  - **Data marshalling customizabil**
  - **Paseaza obiecte proxies peste retea**
  
- **Fiabil**
  - **Clustered Invocations**
  - **Serializare de inalta performanta**
  - **Arhitectura folosita pentru invocari la distanta in JEMS**

# JBoss WS 1.0.3

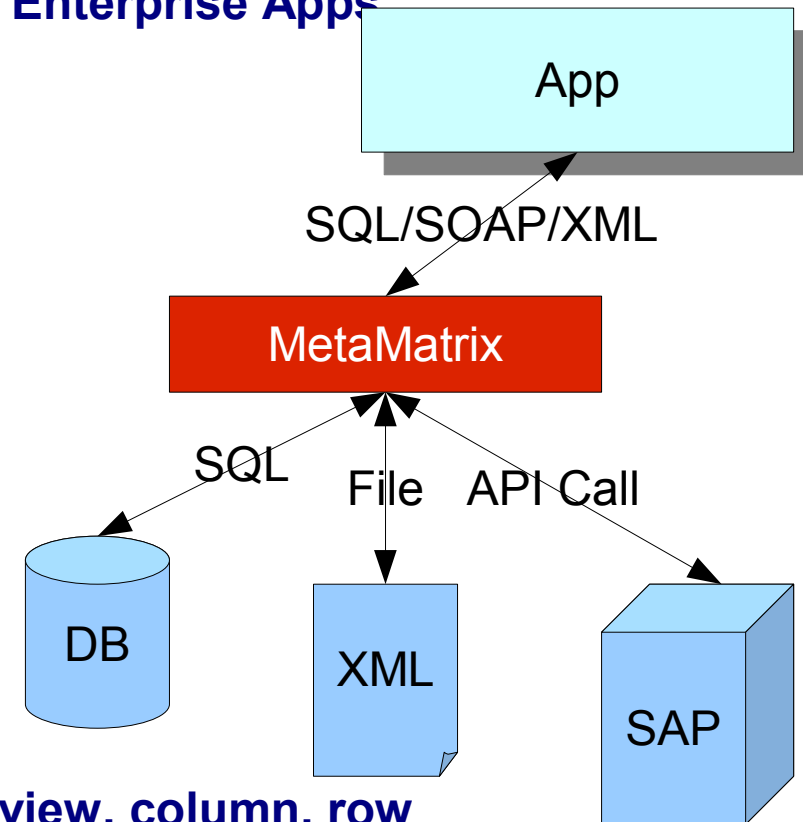
- **WS4EE-1.1 - Enterprise Web Services for Java**
  - **WS-I Basic Profile 1.0 (independent de platforme/limbaje)**
    - **SOAP-1.1 - Simple Object Access Protocol**
    - **WSDL-1.1 - Web Services Description Language**
    - **XML 1.0 - eXtensible Markup Language**
    - **UDDI 2.0 – Universal Description, Discovery, and Integration**
  - **JAXP-1.2 – Java API for XML Parsing (DOM & SAX)**
  - **JAXR-1.0 - Java API for XML Registries (UDDI)**
  - **SAAJ-1.2 - SOAP Attachments API for Java (SwA)**
  - **JAXRPC-1.1 - Java API for XML-based RPC**
    - **Client access via Generated Stub, Dynamic Proxy, & DII**
  
- **Caracteristici**
  - **Expune POJOs sau SLSBs ca WebServices**
  - **Securitatea asigurata prin web container (HTTPS, JAAS, HTTP-basic)**
  - **Suport document/literal pentru compatibilitatea cu Microsoft .Net**
  - **Servicii web Annotation-driven webservices via JSR-181**
  - **JBossWS Tools, WS-Security 1.0, WS-I Basic Profile 1.1**

# JBoss Portal 2.6

- **Caracteristici**
  - Agregarea si personalizarea content-ului
  - Portabilitatea Java Portlet via JSR-168
  - Java Content Repository (JSR-170) cu Approval Cycles
  - WSRP Complex Support
  - Single Sign-On across portlets (suport JAAS/JACC)
  - Clustering pentru o inalta disponibilitate
  - Suporta cele mai populare baze de date via Hibernate
    - Oracle, MySQL, MS SQL-Server, DB2, etc.
- **Runtime Administration GUI**
  - Creeaza/Sterge pagini de portal
  - Amplaseaza/Sterge un portlet pe o pagina de portal
  - Configureaza securitatea unui portlet
  - Gestioneaza teme
- **Portleti**
  - Inclusi: Content Mgt, User Mgt, RSS Readers etc.
  - Alti portleti disponibili prin comunitate la [www.portletswap.com](http://www.portletswap.com)
  - Parteneri la Red Hat Exchange (<http://rhx.redhat.com>)
- **In viitor**
  - Randare paralela cu suport AJAX

# MetaMatrix Enterprise

- **Integrarea in timp real a datelor**
  - Baze de date relationale, fisiere, servicii web, Enterprise Apps
  - Punct de acces unic
  - Leave Data in Place, or Consolidate
  - Meta Data Management, Data Lineage
- **Transformarea informatiei**
  - Scheme unificate
  - Imbogatirea datelor (Enrich Data)
- **Performanta inalta**
  - Advanced Query Optimizer
  - Caching
  - Distribuirea serviciilor catre multiple servere
- **Securitate**
  - Autorizare granularizata la nivel de: schema, view, column, row
  - Audited data access
  - Certified for US Intellegence and Financial Services applications
- **Eclipse based, graphical design tools**



# JBoss ESB 4.0

- **Message delivery**
  - JMS (JBossMQ, JBoss Messaging, ActiveMQ, MQSeries)
  - (S)FTP, HTTP, email, baza de date, shared file system
- **Transformarea continutului**
  - XSLT, Java, Groovy, StringTemplate
- **Content-based routing**
  - JBoss Rules, XPath DSL
- **Orchestration**
  - Light weight via XML configuration with hot deployment
  - BPM-based orchestration allows service and human interaction
- **Registry**
  - JAX-R based
  - UDDI support out-of-the-box (Scout and jUDDI)
- **Gateways**
- **Exemple si documentatie cuprinzatoare**

# JBoss Seam 1.2

- **EJB3 + JSF + AJAX**
  - Integrare usoara a acestor modele de componente
- **Managementul starilor declarativ**
  - Across multiple scopes
- **Subversion of Control**
  - Dinamic, Contextual si Bi-Directional
- **Integrare cu jBPM**
  - Task management
  - Controlul executiei proceselor
- **Securitate implementata declarativ**
  - Rules Based
  - IDM compatibil via JAAS
- **Simplificarea procesului de dezvoltare a aplicatiilor web complexe**
  - “Configuration by exception”
  - Adnotari
  - Page-flow definit grafic
  - Ofera interfata in linie de comanda independenta de IDE (seam-gen)
  - Testabil unitar (JUnit / Test NG)

# Hibernate 3.2

- **Persistententa transparenta**
  - Orice POJO poate fi o clasa persistenta
    - Nu trebuie implementata nici o interfata
    - Nu trebuie extinsa nici o super-clasa persistenta
  
- **Caracteristici**
  - Auto-generarea unei scheme din obiecte / vice versa
  - Suprascrierea cu SQL-uri de mana sau proceduri stocate
  - Suport pentru “detached objects”
    - Elimina DTOs (Data Transfer Objects)
  - JMX Management Interface
  
- **Independenta fata de baza de date folosita**
  - Genereaza dinamic SQL vendor-specific
  - Suporta majoritatea bazelor de date (Oracle, MS-SQL, DB2, Sybase, etc.)
  
- **Sta la baza specificatiilor pentru EJB3.0 entity beans**
  - (Specificatiile EJB3 au fost finalizate la 11 mai 2006)
  - Inovare & Standardizare

# JBoss jBPM 3.2

- **Definirea declarativa a proceselor de business**
  - Evita erorile de comunicare dintre business analyst si dezvoltator
  - Se pot adauga/sterge procese fara reproiectarea aplicatiei
  - Visual Process Designer in JBoss Eclipse IDE 1.5
  
- **Graph Oriented Programming**
  - Fara generare de cod!
  - Ataseaza cod de business nodurilor/tranzitiilor din diagrama procesului
  - Independenta fata de limbajul de definitie
    - BPEL (Beta) & JPDL sunt suportate astazi
  
- **State Management (Managementul starii)**
  - Reprezentarea persistenta a starii curente a procesului
  - Variabile de context asociate fiecarei instante a procesului
  - Independenta fata de baza de date via Hibernate
    - Acces usor la schema bazei de date relationale
  
- **Integrare**
  - Poate rula atat in cadrul cat si in afara unui Application Server J2EE
  - Web Services, JCA, JMS, Database, IIOP

# JBoss Rules 3.0.6

- **Reguli de Business implementate declarativ**
  - Evitarea hardcodarii regulilor de business pe nivelul de business al aplicatiei
  - Reguliile pot fi schimbate fara modificarea codului Java sau recompilare
  - Sistem expert care permite rezolvarea problemelor complexe
- **DRL (Drools Rule Language), DSL, CSV, XML (Drools 3.0) si Programatic Rules Definition**
  - Obiecte (facts) mixate cu condititii (rules) - similar cu HQL
  - Reference POJO model
  - Decision Tables generated from Excel/Open Office
  - DSL (Domain Specific Language) – extensii specifice, limbaj natural
- **Working Memory Based Repository**
  - repository de cunostinte in-memory
  - Forward chaining: Based on Rete Algorithm
- **Arhitectura si integrare**
  - 100% Java, poate rula in afara unui Application Server J2EE
  - Integrabil cu J2EE, JSP, Web Services, jBPM, Seam
  - Bazat pe standarde: compatibil cu JSR-94
- **In viitor**
  - Backward chaining, suport extins pentru limbaje naturale

# JBoss Rules IDE

- **Suport Eclipse pentru formatul DRL “1st Class Citizen”**
  - **colorarea sintaxei**
  - **validare**
  - **intellisense**
  - **outline view**
  
- **Debug views**
  - **WorkingMemory**
  - **Globals**
  - **Agenda**
  - **Execution Audit**
  
- **Rete network view**
  
- **New project and rule wizard**
  
- **Testabil unitar via JUnit/TestNG direct in IDE**

# Red Hat Developer Studio

- **Istoric**
  - **Achizitia Exadel Enterprise Developer Studio 4.0.3**
  - **Se adauga pluginurile-cheie JBossIDE**
  - **Prezentat la EclipseCon (Martie 2007)**
  
- **Caracteristici**
  - **Suport JSF – Incluzand Facelets**
  - **Instrumente Hibernate**
  - **Struts si Spring**
  - **JBoss si alte servere**
  - **Database Explorer**
  - **Seam, bazat pe seam-gen (nou)**
  - **jBPM process designer**
  - **JBoss Rules designer/debugger**
  
- **In viitor**
  - **Eclipse update site for Open Source Plugins**
  - **Portlet Wizard**

# Intrebari

- [http://www.esolutions.ro/redhat/jboss\\_technology/](http://www.esolutions.ro/redhat/jboss_technology/)