

SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT

**LEARN. NETWORK.
EXPERIENCE OPEN SOURCE.**

www.theredhatsummit.com

AS7 Overview

Jason T. Greene
EAP Platform Architect
AS Project Lead

May 4, 2011

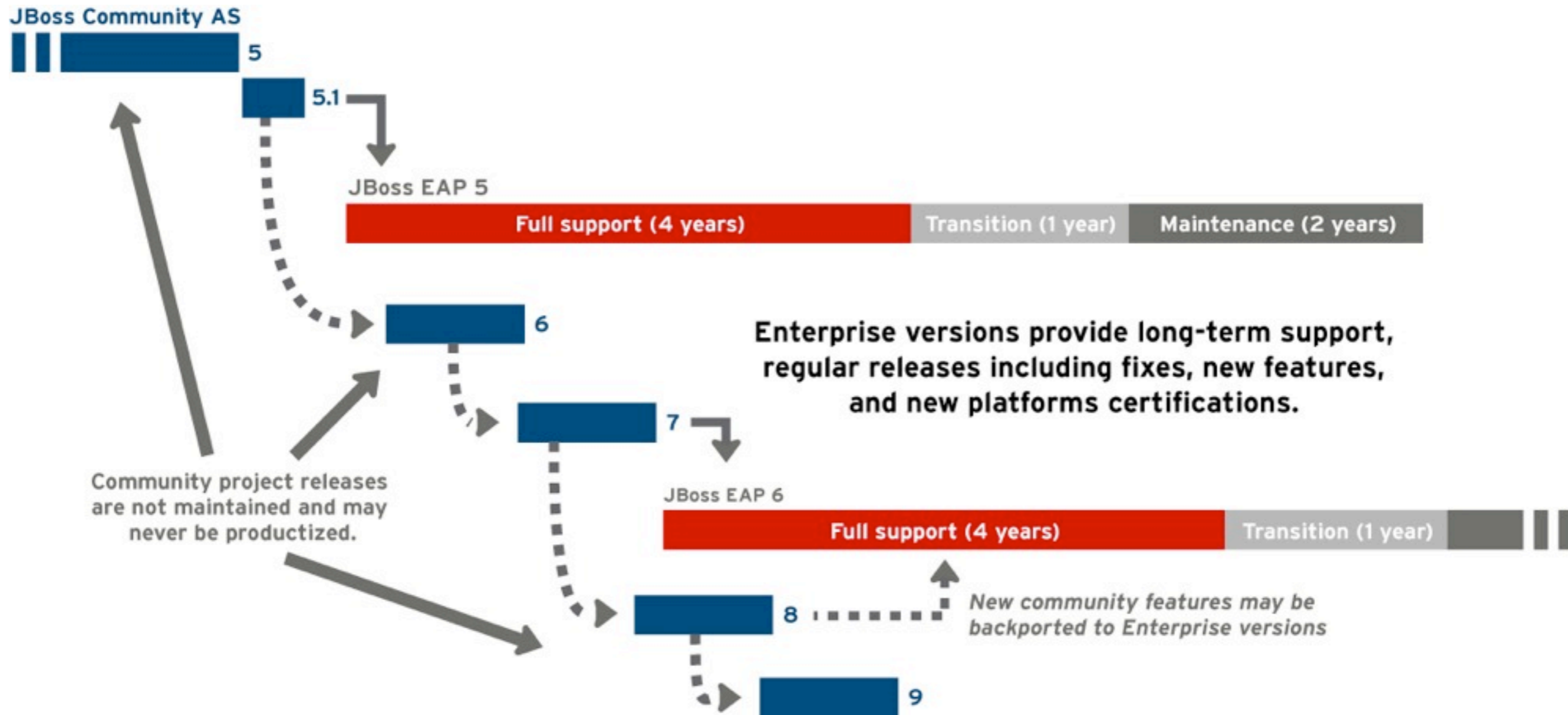
SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



JBoss AS vs JBoss EAP



SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



AS7 Key Features

- Fast and Lightweight (More later)
- Supports domain (multi-node) management
- Multiple consistent management interfaces
 - CLI, Java API, HTTP API, Console
- Unified, user focused configuration
 - No more intermixing of internal wiring and config
- Modular
 - Only APIs, no AS implementation exposure
 - True isolation (users can finally use their own XML parsers)

SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



Two Operational Modes

Standalone

- Traditional JBoss single JVM server
- Management facilities IN-VM
- No lifecycle management (only shutdown)

Domain

- Multi-JVM, multi-server model
- Management coordinated by Domain Controller Process
- Multiple server instances (JVMs) per Host
- Full lifecycle managed by Process Controller

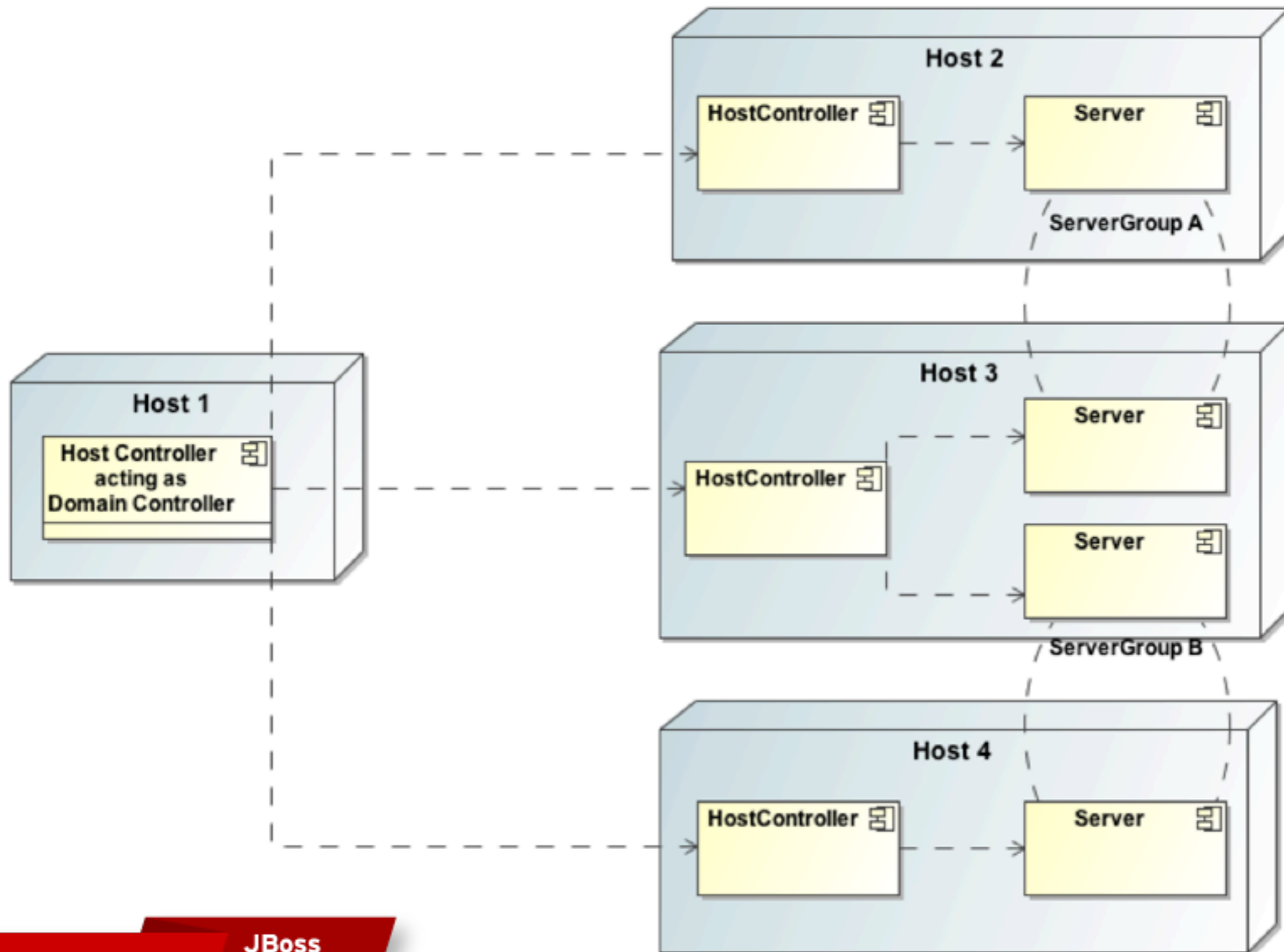
SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



Domain Mode Physical Topology



SUMMIT

JBoss
WORLD





PRESENTED BY RED HAT



File Layout






jboss-7.0.0.Beta3

bin

 standalone.conf	Standalone Mode JVM Parameters
 standalone.sh	Standalone Mode
 domain.sh	Domain Mode
 jboss-admin.sh	Command Line Interface

modules Static JBoss Module Definitions

standalone

 configuration	
 standalone.xml	Standalone Unified Configuration
 deployments	File System Deployment
 logs	
 data	Internal Data (includes repository)


SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



File Layout (cont)

 jboss-7.0.0.Beta3

 domain

 configuration

 domain.xml

Domain Wide Unified Configuration

 host.xml

Host Controller Configuration

 servers

 server-one

Server "One" JVM instance data

 logs

 data

 server-two

Server "Two" JVM instance data

 logs

 data

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



User-focused Configuration

```
<bean name="TransactionManager"
class="com.arjuna.ats.jbossatx.jta.TransactionManagerService">
  <annotation>@org.jboss.aop.microcontainer.aspects.jmx.JMX
(name="jboss:service=TransactionManager",
exposedInterface=com.arjuna.ats.jbossatx.jta.TransactionManagerServiceMBean.class,
registerDirectly=true)</annotation>
  <annotation>@org.jboss.managed.api.annotation.ManagementObject
(name="TransactionManager", componentType=@org.jboss.managed.api.annotation.ManagementComponent(type = "MBean", subtype =
"JTA"), targetInterface=com.arjuna.ats.jbossatx.jta.TransactionManagerServiceMBean.class)
</annotation>

  <property name="transactionTimeout">300</property>
  <property name="objectStoreDir">${jboss.server.data.dir}/tx-object-store</property>
```

```
<subsystem xmlns="urn:jboss:domain:transactions:1.0">
  <recovery-environment socket-binding="txn-recovery-environment"
status-socket-binding="txn-status-manager"/>
  <core-environment socket-binding="txn-socket-process-id"/>
</subsystem>
```

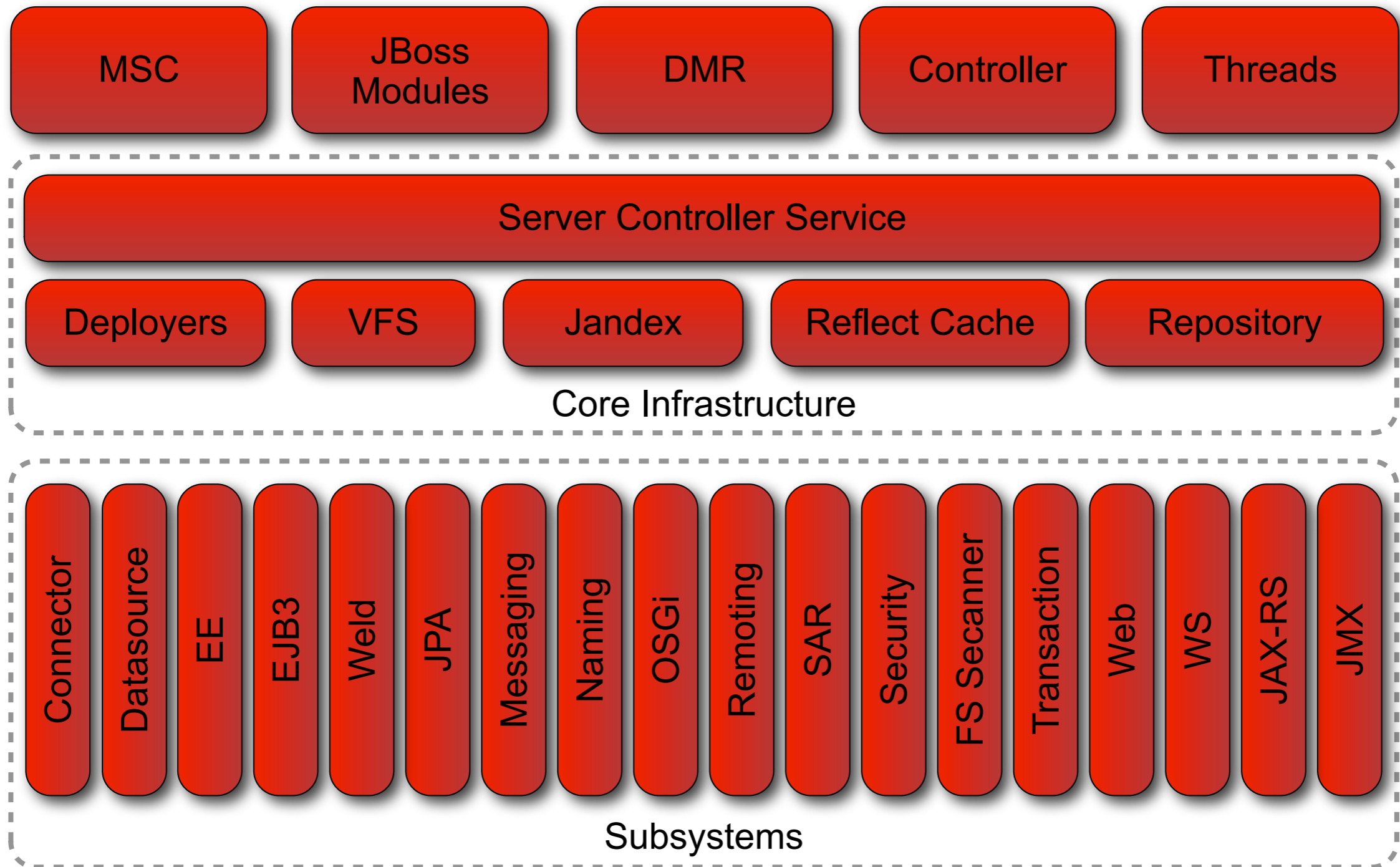
SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



AS7 Architecture



SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Key attributes of MSC

Small, lightweight, and efficient

- 216K JAR
- Tiny memory overhead

Highly concurrent & scalable state machine

- State transitions are “tasks”

Services are primarily interface based

- No reflection or XML required!

Only two non-error, non-transition states

- UP & DOWN
- N-State systems are implemented with N services

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Other notable features

Multiple startup modes

- Active, Passive, Lazy, On-Demand, Never

Strong typing

Listeners

- Capable of modeling advanced cases

Child services

Async start & stop

Advanced Cycle Detection and Error Detection

Immediate & Deferred resolution

SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



MSC Architecture

Service Builder

Service Registry

Service Controller

Service

Deps

Value

Listeners

Injectors

Concurrent Service Container

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



JBoss Modules

Small, lightweight, and efficient

- O(1) Dep resolution
- Concurrent class loading (lockless on most VMs)
- 207k JAR

“Pure” modular class loading

- Modules only see what they import (includes JDK classes!)

External module definitions

- Don't have to break open the JAR

Dynamic

- Modules can be redefined

Extensible

- JBoss OSGi implemented on modules

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Dynamic Model Representation (DMR)

Central Detyped Management API

- All management operations operate with/on DMR
- Strictly backwards compatible

Represents simple and complex types

- int, long, big int, double, big dec, boolean, string, bytes, list, object, property, expression

Auto-converts like dynamic languages

Self describing

Convertible to/from JSON

Also has a defined binary protocol (optionally b64)

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Subsystems

THE extensibility point for AS7

Defines management operations to represent all available configuration and runtime actions

Parses a unique xml schema namespace

Converts xml configuration into management operations against the domain model

Serializes configuration back into XML

Defines services as needed to carry out runtime behavior

Installs deployment processors as needed

SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Service Driven Deployment

Every deployment unit has a service

DU service is a parent of its component services

Starting the service deploys the deployment

Stopping the service undeploys the deployment

Deployment processors fire in phases during start, stop, and failure

Resolution of errors result in activation of a DOWNS deployment

Deployment is concurrent

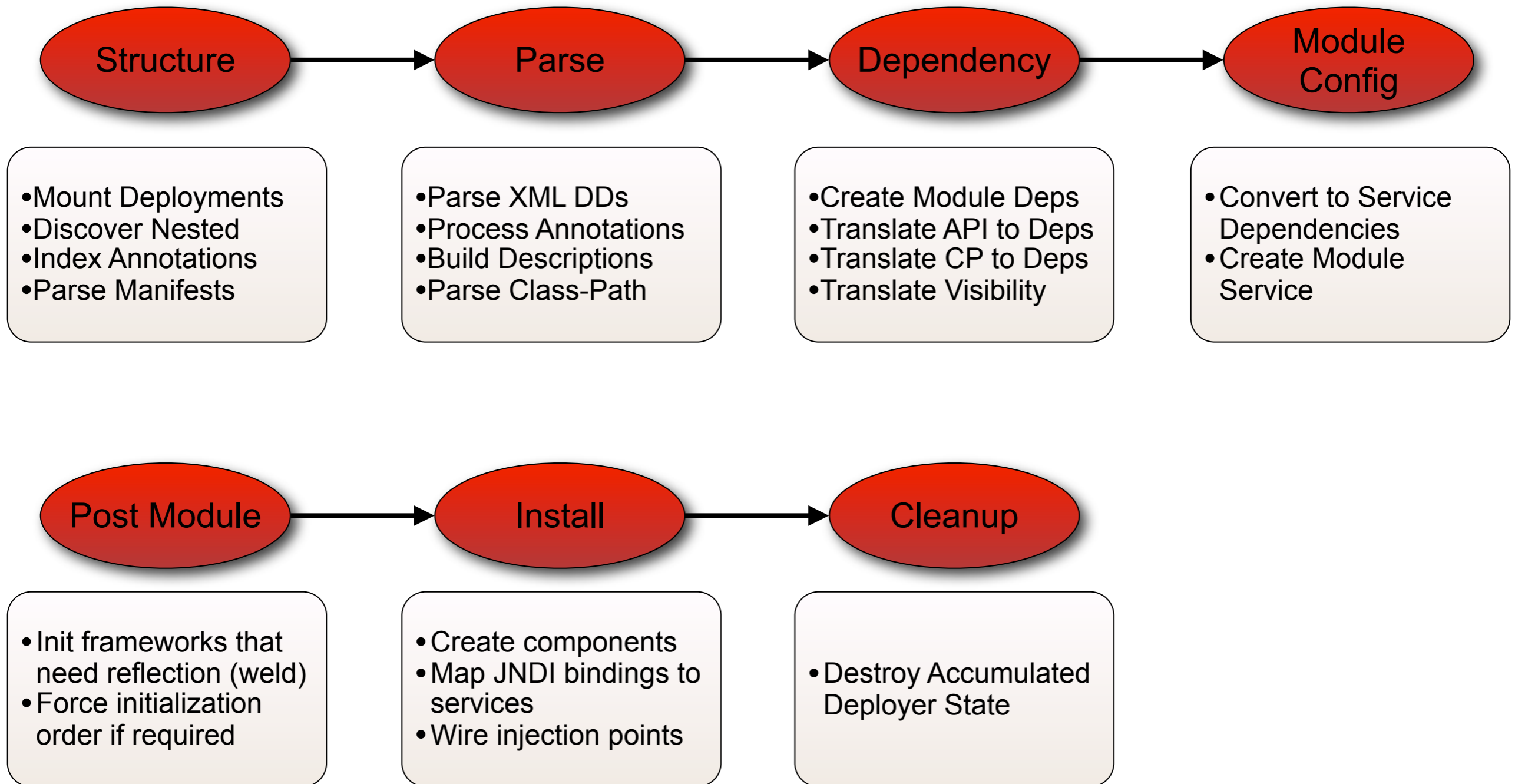
SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Deploy Phases



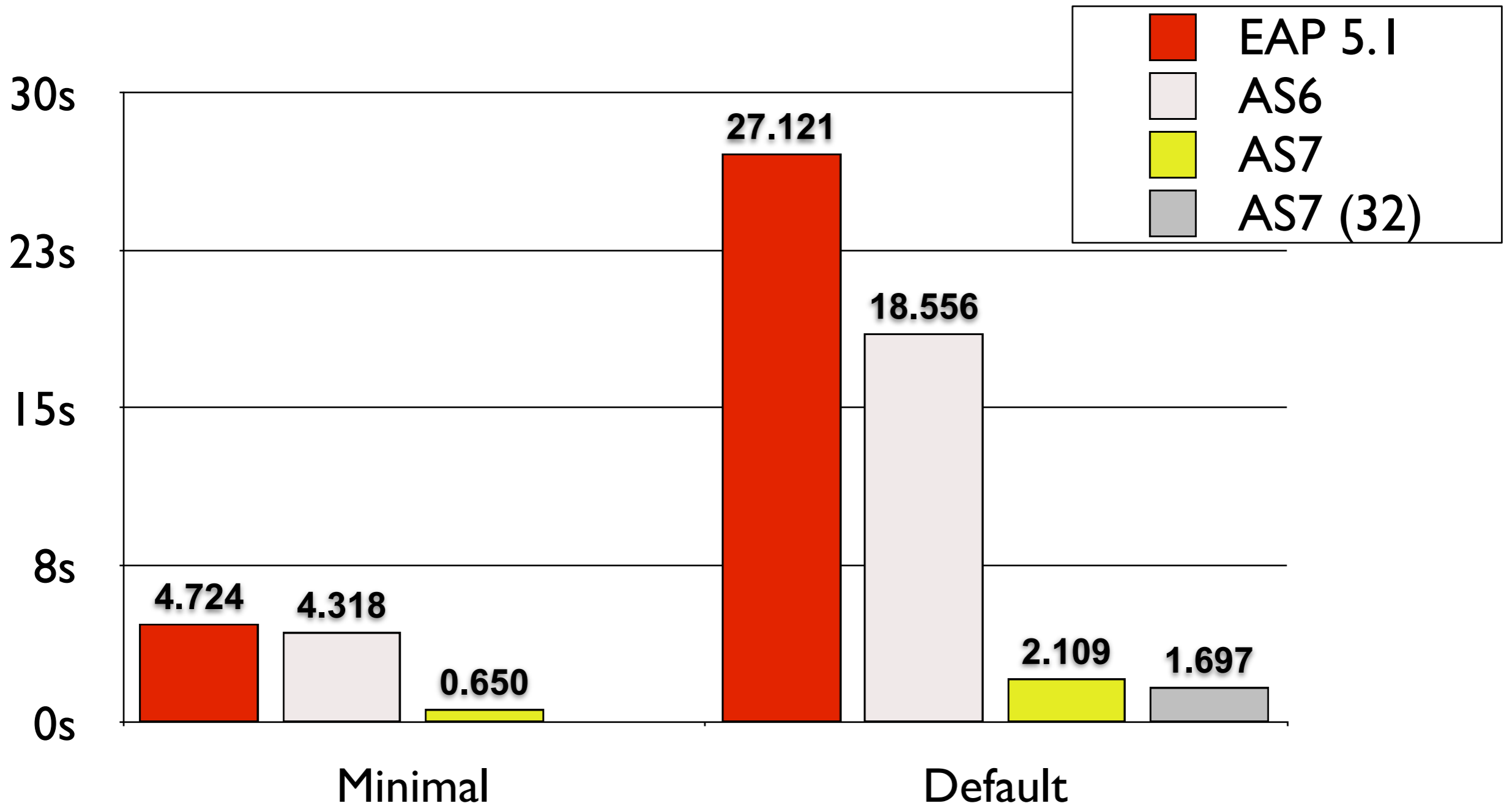
SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



Boot Time Results



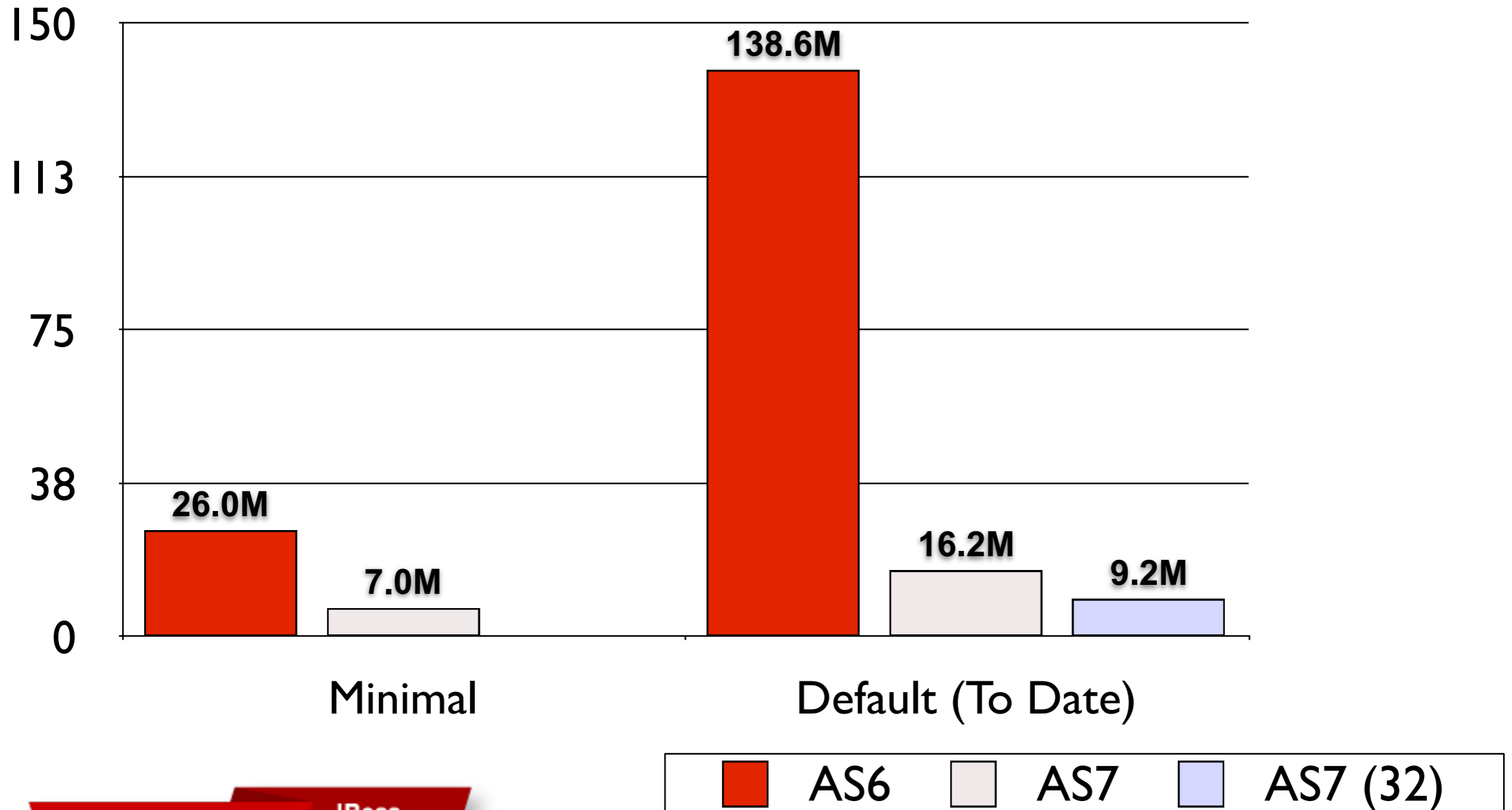
SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



Memory Comparison



SUMMIT

JBoss
WORLD

PRESENTED BY RED HAT



Current Status

Beta3 - Released Apr 19 2011

- Most EE Web Profile++ Capabilities
- Management Interfaces (CLI, Console, JSON, Native)
- Domain/Standalone

CR1 - End of May

- Remote Invocation
- Security
- Clustering
- IIOP

SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT



LIKE US ON FACEBOOK

www.facebook.com/redhatinc

FOLLOW US ON TWITTER

www.twitter.com/redhatsummit

TWEET ABOUT IT

#redhat

READ THE BLOG

summitblog.redhat.com

GIVE US FEEDBACK

www.redhat.com/summit/survey

SUMMIT

**JBoss
WORLD**

PRESENTED BY RED HAT

