

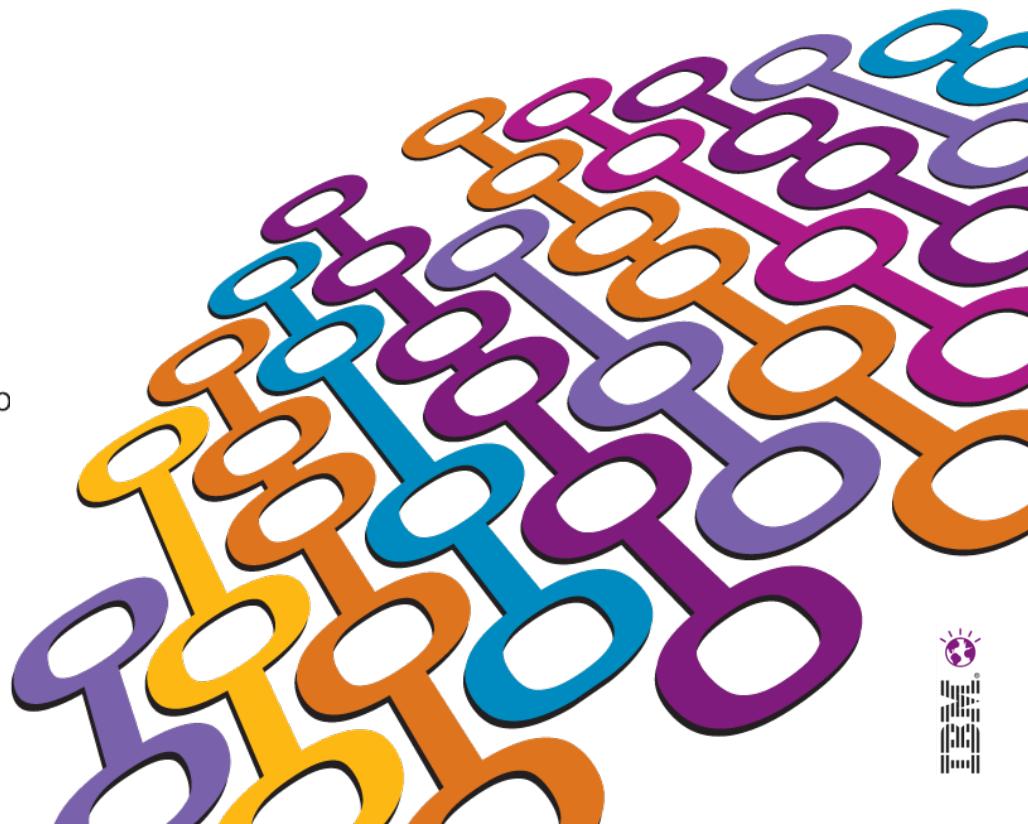
Introducing IBM WebSphere Application Server v8.5

The Future Is Now

Impact2012

The Premier Conference for Business and IT Leadership

Innovate. Transform. Grow.





Agenda for BOC August 13, 2012

- **Agenda for BOC Data Center(Aug. 13th)**

- 09:30 - 10:00 Overview of BOC current WAS production environment (presented by client)
- 10:00 - 11:00 WAS V8/V8.5 Technical Overview
- 11:00 - 12:00 WAS V8/V8.5 Advanced Clustering / High Availability
- 12:00 -13:30 Lunch Time
- 13:30 – 14:30 IWD Appliance / HV Edition
- 14:40 - 16:00 WVE, WXS, Compute Grid QoS
- 16:00 – 17:00 BOC Internet Banking Architecture Review
- 17:00 - 17:30 Q&A





Agenda for BOC August 14, 2012

- **Agenda for BOC SWDC (Aug. 14th)**

- 09:00 - 10:00 WAS V8/V8.5 Technical Overview
- 10:00 - 10:30 WAS V8/V8.5 Advanced Clustering / High Availability
- 10:30 - 12:00 WAS V8/V8.5 Developer enhancement
- 12:00 -13:30 Lunch Time
- 13:30 –14:30 IWD Appliance / HV Edition
- 14:40 - 15:40 WVE, WXS, Compute Grid QoS
- 15:40 – 16:00 Q&A

Application Infrastructure Trends

Rapid application development and delivery driving simplified, integrated and automated development and operations lifecycles

Explosion of mobile, social and cloud applications driving new demands on middleware infrastructures

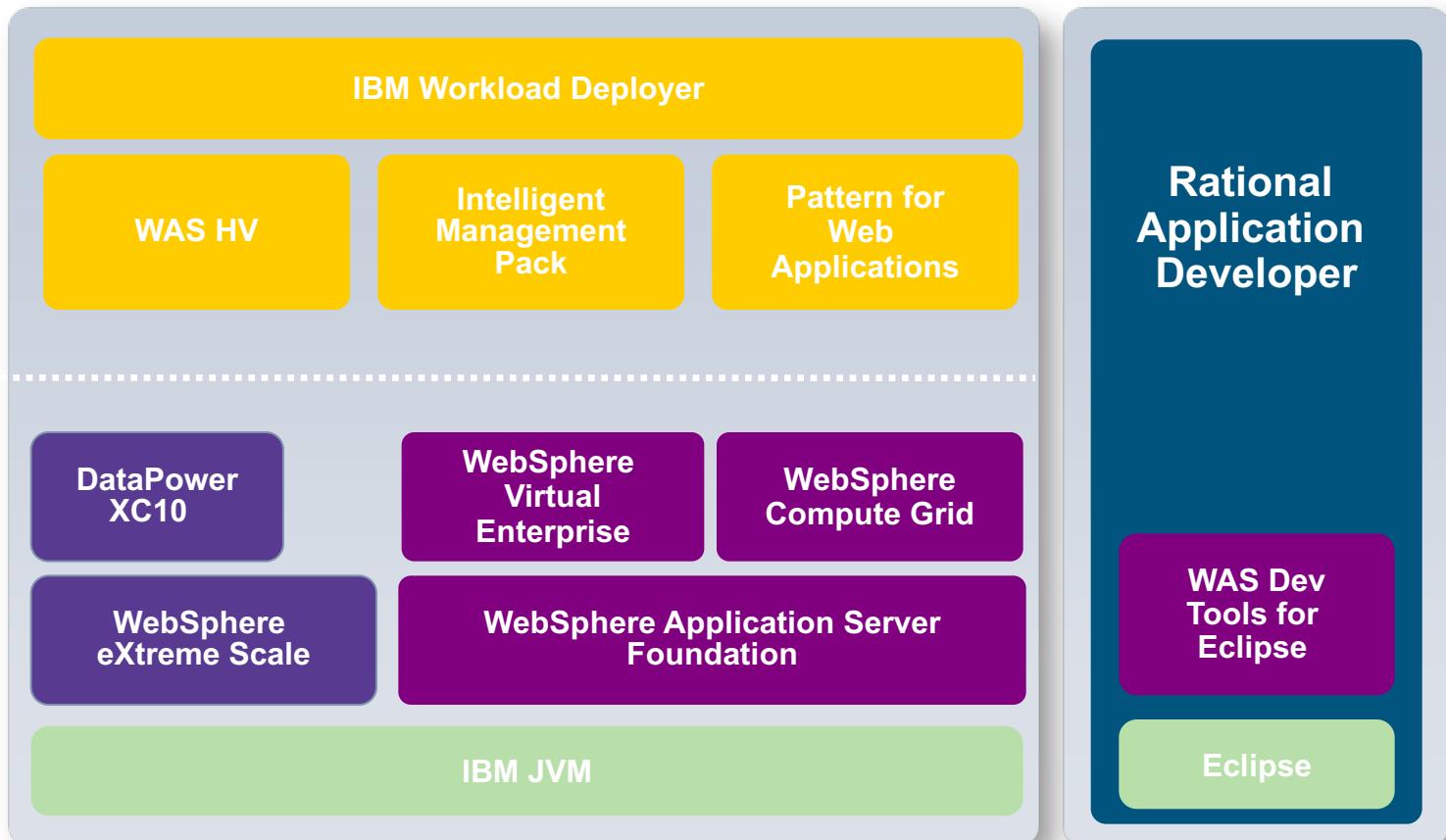
The combination of huge transaction volumes against massive amounts of data with little tolerance for delays is driving the need for ***elastic caching*** technologies

Use of ***cloud delivery models*** to provide elasticity, scale, multi-tenancy and context across different form factors and access methods



WebSphere Application Infrastructure

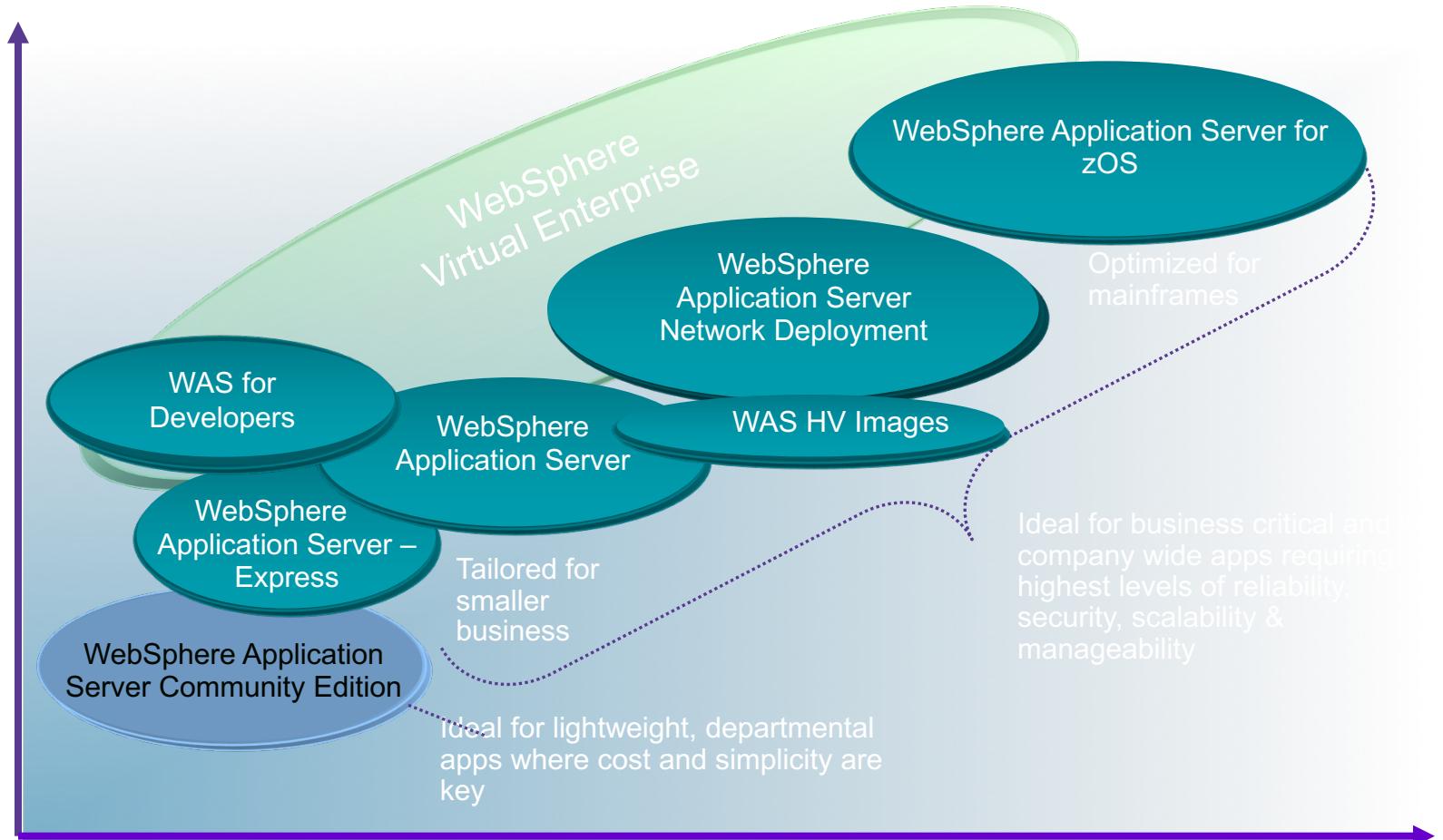
Current Offerings



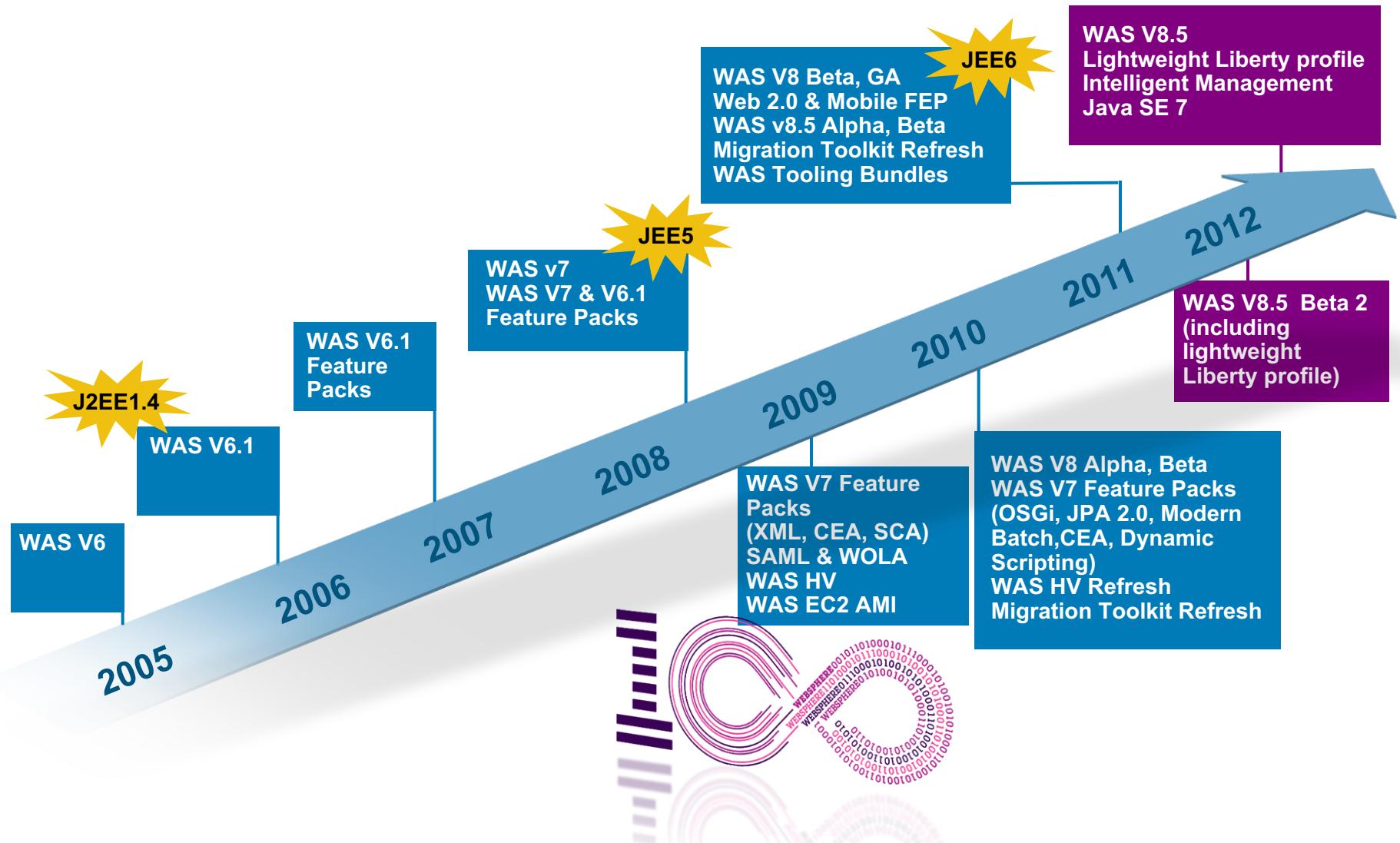


IBM WebSphere Application Server Family

Your Choice of Innovative Performance Based Application Foundations



WebSphere Application Server: Over 14 years of Leadership & Trusted Delivery





We've been listening

Users and Analysts have given us lots of feedback about the need for WAS improvements:

- Improved developer productivity
- Simpler “low-end” app environments
- Platform fidelity between “low-end” and “high-end” WAS environments
- Higher levels of resiliency for mission critical applications
- Improved operational control
- Constant improvements in end user satisfaction
- Lowered costs of application environments





WAS V8.5 Delivers

Unparalleled Application Development and Management Environment, Rich User Experiences...Faster

Developer Experience



Fast, flexible,
and simplified
application
development

- New Liberty Profile

Application Resiliency



Intelligent
Management
& Enhanced
Resiliency

- Enhanced WAS ND

Operations and Control



Improved
Operations,
Security, Control
& Integration

- Improved Operations



WAS V8.5 Delivers

Unparalleled Application Development and Management Environment, Rich User Experiences...Faster

Developer Experience



Fast, flexible, and simplified application development

- Liberty Profile
- Expanded Tooling and WAS Tooling Bundles
- OSGI programming model enhancements
- EJB support in OSGi apps
- JDK7 Support
- Migration toolkit
- Web 2.0 & Mobile Toolkit; IBM Worklight Integration
- SCA OASIS programming model

Application Resiliency



Intelligent Management & Enhanced Resiliency

- Application Edition Management
- Application Server Health Management
- Dynamic Clustering
- New Intelligent Routing capabilities
- Messaging infrastructure resiliency
- Memory leak detection & protection in WAS

Operations and Control



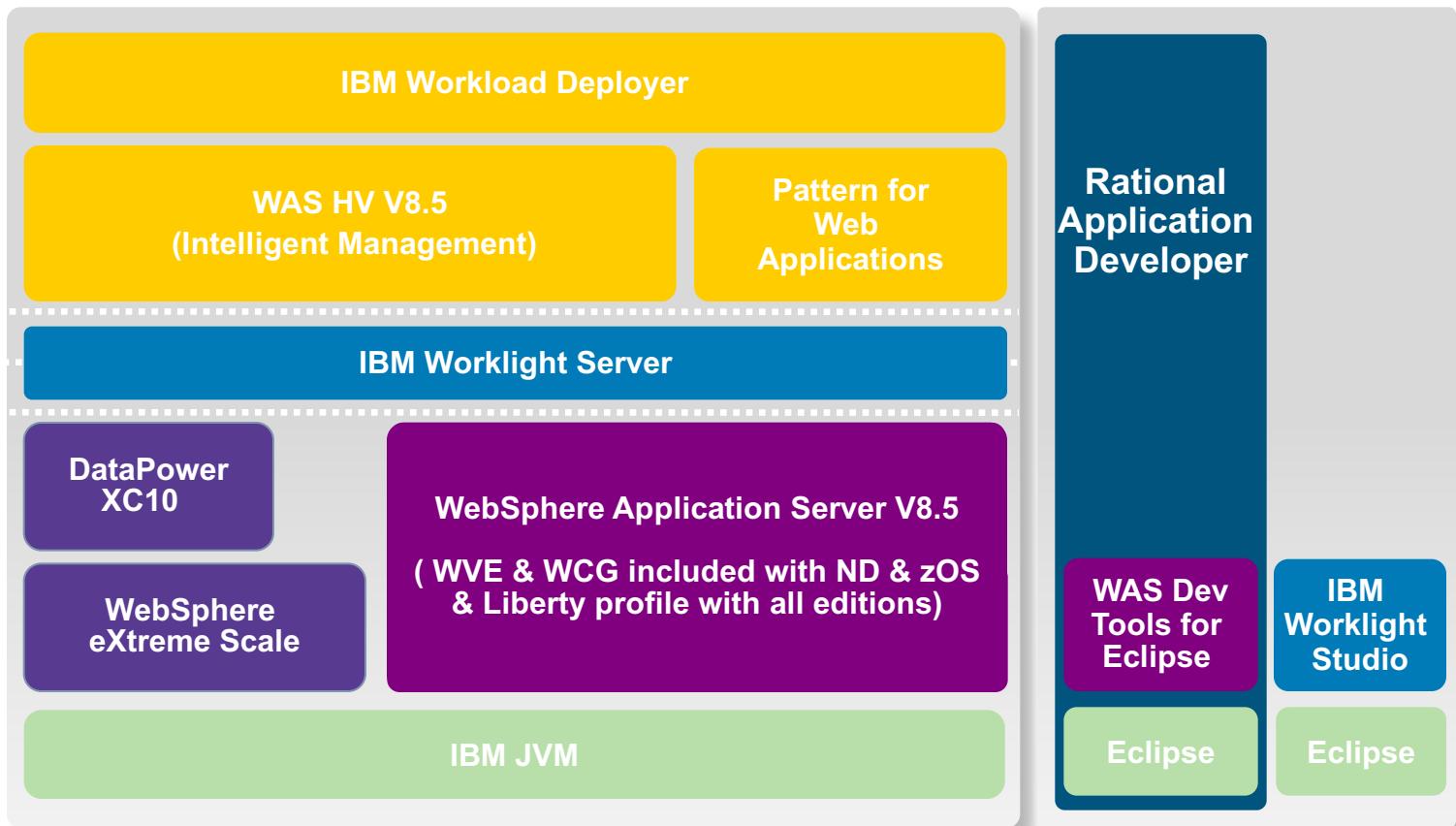
Improved Operations, Security, Control & Integration

- Selectable JDK
- WebSphere Batch enhancements
- Admin Security Audit
- OSGi Blueprint security improvements
- Cross Component Trace (XCT)
- Enhanced IBM Support Assistant
- Better log and trace filtering



WebSphere Application Infrastructure V8.5

What's Changed





WAS v8.5 with the Liberty Profile and Intelligent Mgmt. now looks like:

WAS for Developers 	WAS Hypervisor Edition 	WAS ND 	WAS for z/OS
Enables efficient development of innovative apps that will run on WAS in production	Optimized to instantly run in VMware and other server virtualization environments	Delivers near-continuous availability, with advanced performance and mgmt capabilities, for mission-critical apps	Takes full advantage of the z/OS Sysplex to deliver a highly secure, reliable, and resource efficient server experience
WAS 	Provides secure, high performance transaction engine for moderately sized configurations with web tier clustering and failover across up to five application server profiles		
WAS Express 	A lower-cost, ready-to-go solution to build dynamic Web sites & apps		WAS CE An open source-based, small footprint foundation with no up-front acquisition costs





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Developer Experience



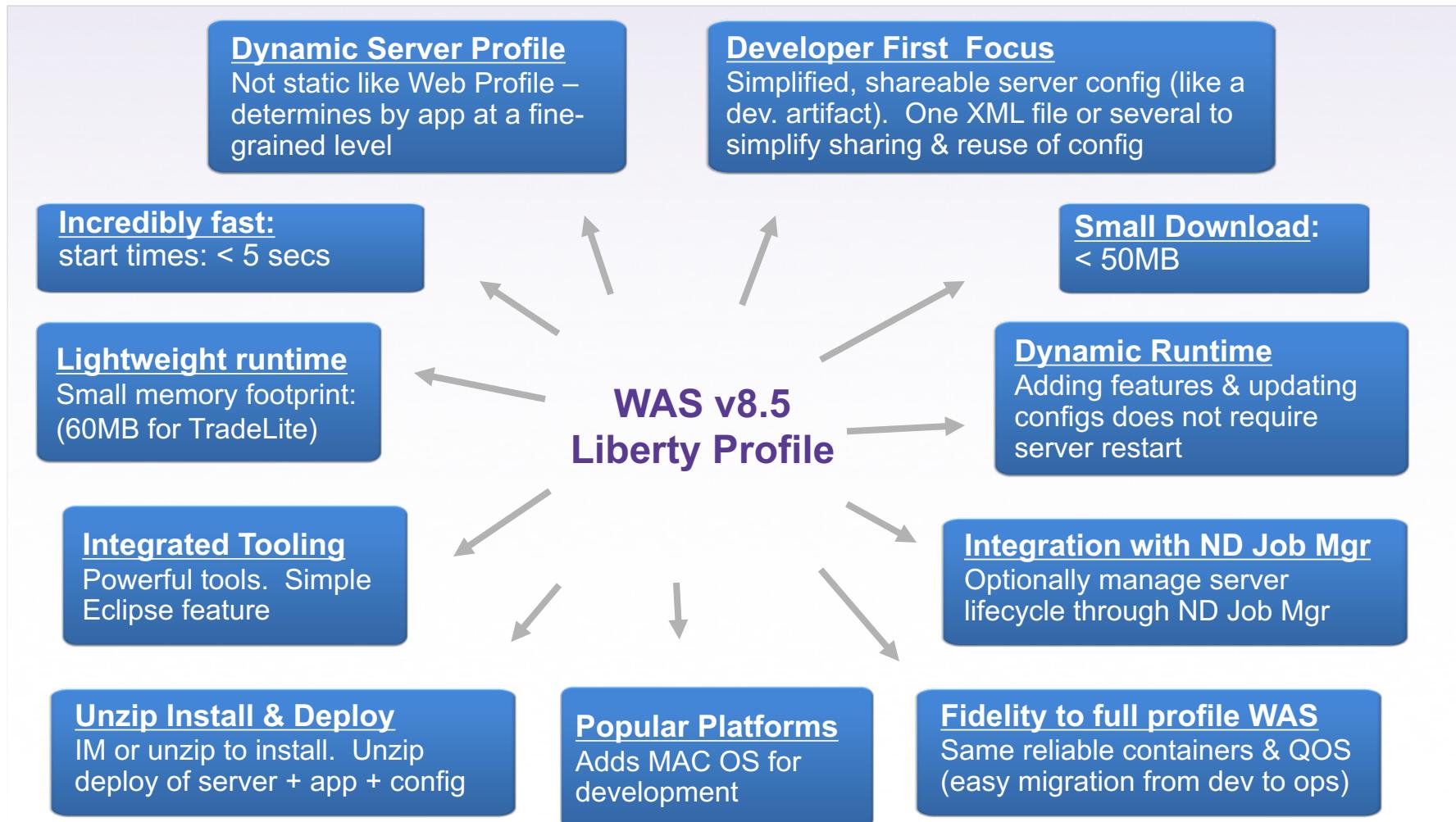
**Fast, flexible,
and simplified
application
development**

- Liberty Profile
- Expanded Tooling and WAS Tooling Bundles
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- Migration toolkit
- Web 2.0 & Mobile Toolkit; IBM Worklight Integration
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WAS v8.5: Introduces the Lightweight “Liberty” Profile – For Web, OSGi and Mobile Apps

A highly composable, dynamic Server profile





No Hurdles to Install

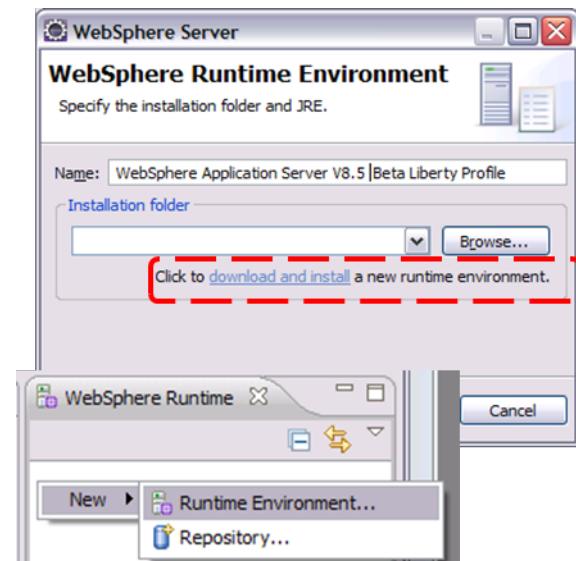
- Tools and runtime are **free** for development. No time limit
- Eclipse feature install for tools; 40MB zip download for server profile.
 - Installation Manager also supported → same installed result.

Two minutes from “Nothing” to “Done”:

1. Install WAS Developer Tools for Eclipse Feature



ile



Simplified Server Configuration

- Simplest case: 1 XML file for all server config
- Editable within the workspace
- Exportable, shareable, versionable

The screenshot shows the Rational Application Developer interface. At the top, there is a code editor window titled "server.xml" containing XML configuration for a new server. The XML includes sections for the server description, feature manager (with servlet-3.0), and an application named "BasicWeb". Below the code editor is a toolbar with tabs for "Design" and "Source", and icons for Markers, Properties, Servers, Snippets, and Console. The "Servers" icon is highlighted. Underneath the toolbar is the "Servers" view, which displays a tree structure. At the top level is "WAS V8.next Alpha at localhost at localhost [demoserver] [Started, Synchronized]". Underneath it are "BasicWeb [Started, Synchronized]" and "Server Configuration [server.xml] new server". The "new server" node has two children: "Feature Manager servlet-3.0" and "Application: BasicWeb location =BasicWeb.war name =BasicWeb type =war".

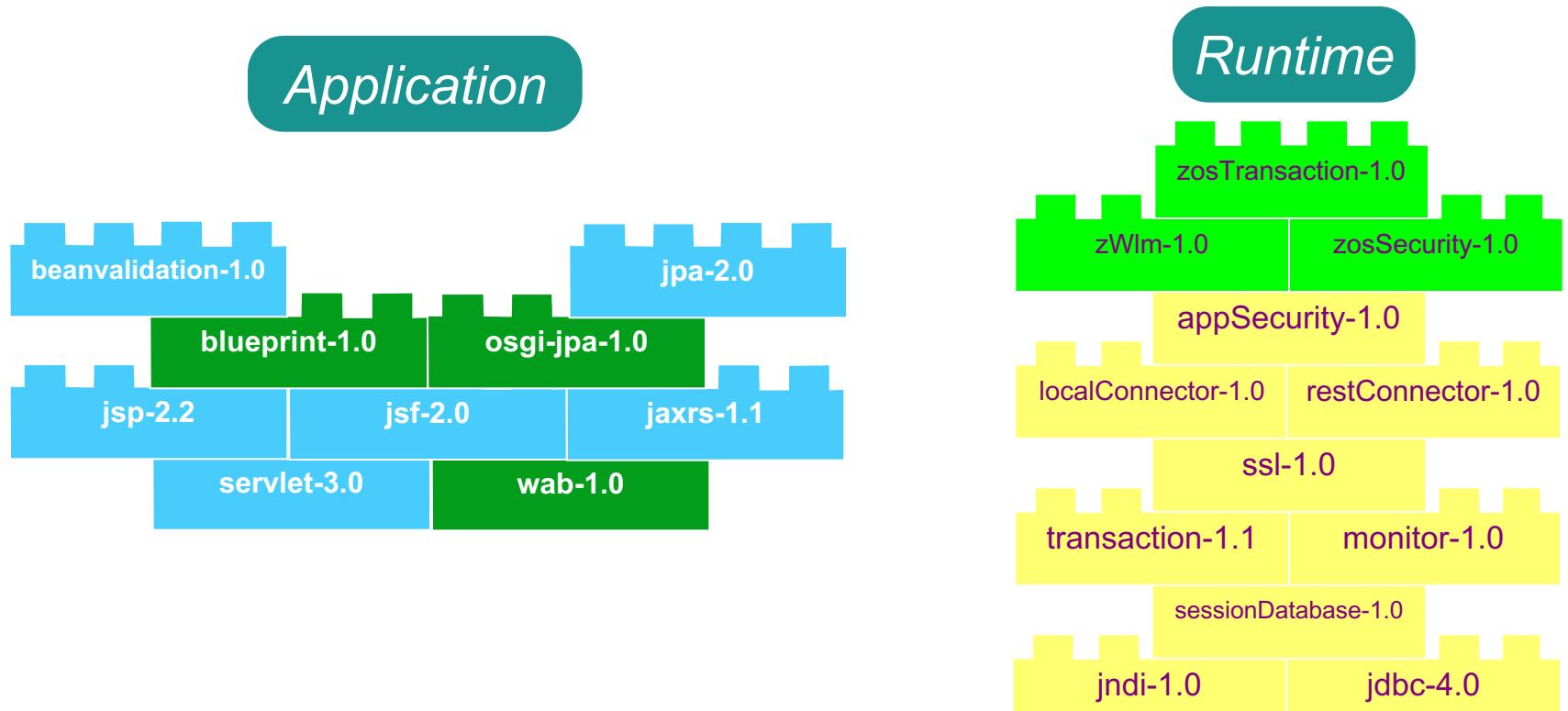
```
<server description="new server">
  <featureManager>
    <feature>servlet-3.0</feature>
  </featureManager>

  <application id="BasicWeb" location=
    "BasicWeb.war" name="BasicWeb" type="war"/>
</server>
```

No need for Admin Console, wsadmin, or extended EARs



Dynamic enablement of feature set in application



WAS v8.5
Liberty Profile



What This Means for Production

- An “Embedded Server” profile is a production instance of the configured Liberty server type
 - Think of zipping up the application, configuration and server type you just tested on
 - Application centric – the server is pre-configured for a specific application(s)
- **Deployment options:**
 - Unmanaged unzip install
 - WAS ND Job Manager creates ‘Liberty deployments’ by distributing and unzipping the embedded server package
 - “Light-touch” ND management: start and stop server
 - Server configuration remains via the same simplified XML config created in the development environment





Elastic Caching with Liberty!

- **WebSphere eXtreme Scale and WebSphere DataPower XC10**

- Integrates seamlessly with Liberty Runtime and its dynamic feature model
- WXS Container servers can now run on Liberty profile
- Standalone Liberty Servers can maintain HTTP Session failover and high availability by leveraging an WXS Grid
- Simple for customer to make use of WXS Use cases!

- **For Developers, easy to develop WXS applications using Liberty within Eclipse**

- Start up a WXS grid, start up a WXS client, & start up the Liberty server all within a single runtime environment!

- **Additional Tooling for WXS supported for Liberty**

- Very easy for customers to develop & configure WXS applications right in the Eclipse tool!

Elastic Cache



1 DataPower XC10 for simple data oriented scenarios

2 WebSphere. software
eXtreme Scale for maximum flexibility





Introducing the WAS Tools Edition Bundles

WAS ND – Tools Edition

- Like “WAS – Tools Edition” but for WAS ND production use

WAS – Tools Edition

- Solution: Production WAS + unlimited tools (RAD or WAS Developer Tools)
- Terms (runtime): Production use
- Terms (tools): Unlimited use of tools for developing applications to be deployed on WAS included with this bundle.

WAS for Developers – Tools Edition for Eclipse

- Solution: WAS for Developers + WAS Developer Tools
- Terms: Single user. Development use only
- Freely available, supported for a fee
- Easily obtained for rapid development to WAS v7, v8, v8.5 and Liberty

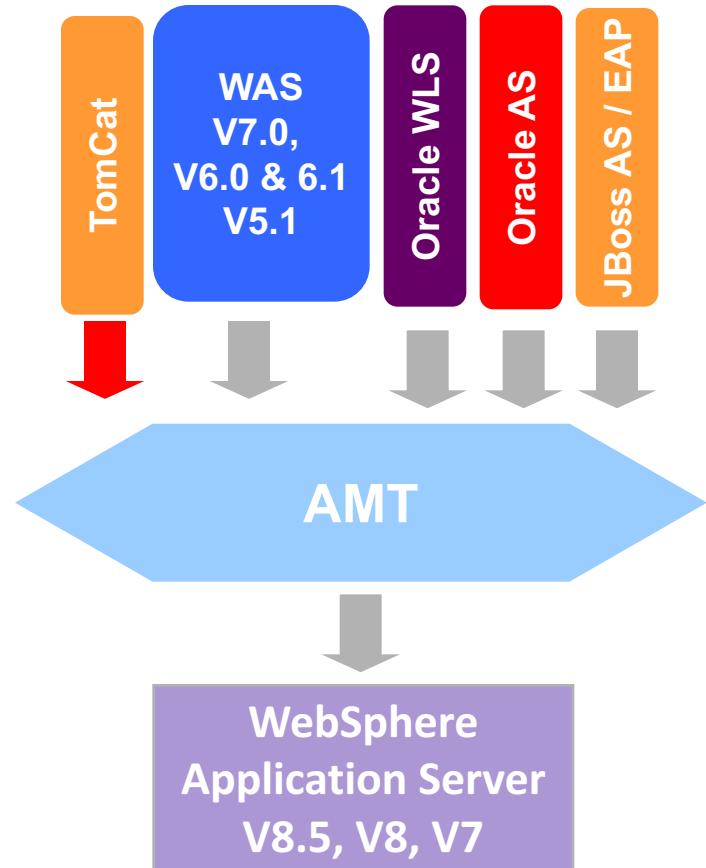


Application Migration Toolkit v3.0



Migrate applications from WebSphere & other Java EE application servers to WebSphere faster with minimized risk

- Migrate apps from older vers to WAS V8.5, V8, V7
- Migrate from Oracle, TomCat, JBoss faster & easier
 - Migrate applications up to 2x as fast
 - Migrate web services up to 3x as fast
- Application Migration Tool
 - Analyzes source code to find potential migration problems:
 - Removed & deprecated features
 - Behavior changes
 - JRE 5 & JRE 6 differences
 - Java EE spec changes or enforcements
 - Capable of making some application changes
 - Provides guidance on how to make required changes
 - Works with Eclipse or RAD (RAD)



Get the Tool at No Charge

Mobile Application Development



Worklight takes WAS mobile web applications to the next level

WAS

Enterprise Web Applications

- Java EE programming
- Build, deploy and manage Enterprise applications and services
- Server-side & Client-side development

WAS + Web 2.0 and Mobile Toolkit

Mobile Web App development based on standard web technologies:

- Run application in mobile browser
- Based on HTML5, CSS3, JavaScript
- Native look and feel
- Advanced mobile UI components

Feature Pack for WAS v6.1/7/8 Toolkit in WAS v8.5

Worklight

Application delivery in a variety of forms:

- Hybrid application
- Native
- Install through App Store
- Access to native services



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Application Resiliency



Intelligent
Management
& Enhanced
Resiliency

- Application Edition Management
- Application Server Health Management
- Dynamic Clustering
- New Intelligent Routing capabilities
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Levels of Virtualization



Application Infrastructure Virtualization

- Coordinate, schedule and manage workload across a pool of resources
- Schedulers, workload managers, etc.



Application Virtualization

- Running an application within a VM



Server Virtualization

- Partitioning / Hypervisors



Virtual Memory



Network Virtualization

- Virtual LANs (VLANs)
- Virtual Private Networks(VPNs)



Microprocessor Virtualization

- Multi / Hyper Threading
- Hardware assisted virtualization (Intel, AMD)



Intelligent Management and Cloud Offerings



**WAS Network Deployer V8.5 and WAS for z V8.5
Includes Intelligent Management**

Intelligent Management:

- ❖ Virtualizes application server infrastructure while lowering costs
- ❖ Improves performance and service
- ❖ Reduces errors while improving manageability

IBM Workload Deployer

WAS ND Hypervisor Edition V8.5



Private Cloud:

- ❖ Purpose-built hardware for deploying and managing virtual images in a cloud
- ❖ Provisions software patterns and Hypervisor Editions including WebSphere Application Server, MQ, DB2 etc... into private cloud



Intelligent Management

Extending QoS through autonomic computing

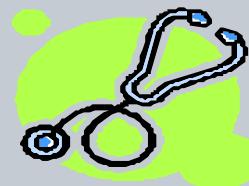
Application Edition Management

Self-Managing



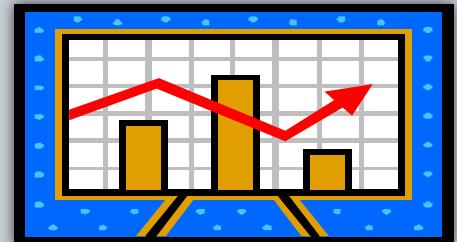
Health Management

*Self-Protecting
Self-Healing*

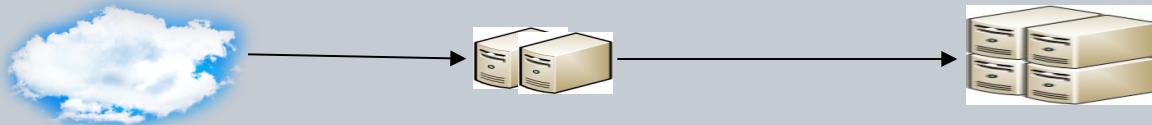


Dynamic Clustering

Self-Optimizing



Intelligent Routing



Intelligent Routing

Improves business results by ensuring priority is given to business critical applications

- 卷之三



Application Prioritization: Doing what's important to you

WAS v8.5 easily allows an administrator to specify the relative importance of applications; VE then manages to it

The screenshot shows the 'Service Policies' page in the IBM WebSphere Application Server administration interface. The left sidebar includes links for Guided Activities, Servers, Applications, Resources, Runtime Operations, Security, Operational Policies (with Service Policies and Health Policies), Autonomic Managers, Environment, System administration, Monitoring and Tuning, Troubleshooting, Service integration, and UDDI. The main content area is titled 'Service Policies' and contains a brief description of what a Service Policy is. Below this is a table with columns: Select, Name, Importance, Goal, and Description. The table lists three entries: Default_SP (Importance: Discretionary), Gold_SP (Importance: High, Goal: Avg response 15 seconds, Description: Gold Service Policy), and Platinum_SP (Importance: Highest, Goal: Avg response 1500 Milliseconds, Description: Highest SP). The 'Platinum_SP' row is circled in red, and a red arrow points from the text 'WAS v8.5 easily allows an administrator to specify the relative importance of applications' to the 'Importance' column of this row.

Select	Name	Importance	Goal	Description
<input type="checkbox"/>	Default_SP		Discretionary	
<input type="checkbox"/>	Gold_SP	High	Avg response 15 seconds	Gold Service Policy
<input type="checkbox"/>	Platinum_SP	Highest	Avg response 1500 Milliseconds	Highest SP

Streamlining Deployment of Applications and Services Leads to “Always On” Infrastructure





Application Edition Management

Applications can be upgraded without incurring outages

-
-
-
-
-
-
-
-

**Validation
Mode**



**Rollout
Policies**



**Concurrent
Activation**





Application Edition Management

Administrative Console - Edition Control Center

Edition Control Center

[Edition Control Center](#) > [BeenThere](#)

Manage editions of an application. The deployment targets for each edition were specified during the application install process. After install, an edition is initially in the inactive state. Inactive editions cannot be started. Activating an edition makes it eligible to be started. Validating an edition puts it into a special "validation mode" that configures the edition to run on a clone of its original deployment target. Validation mode requires assignment of a routing policy to the edition to control who may access it. Rolling out an edition performs an interruption-free upgrade of one edition to another on the same deployment target. Rolling out an edition that is in validation mode performs an interruption-free upgrade of the edition on the deployment target from which the validation mode target was cloned. After the rollout, the clone is deleted. Deactivation makes an edition ineligible to be started. Deactivating an edition will cause it to stop. The status column indicates whether an active or validation mode edition is running or stopped.

[Preferences](#)

[Activate](#) [Validate](#) [Rollout](#) [Deactivate](#)

Select	Edition	Description	Target	State	Status
<input type="checkbox"/>	Base	Base Edition	ProductionDC1	Inactive	
<input type="checkbox"/>	1.0	Generation 2 prototype	StaticTestCluster+Server1	Inactive	
<input type="checkbox"/>	2.0	Generation 2	ProductionDC1	Active	
<input type="checkbox"/>	3.0	Project "Blue Diamond"	ProductionDC1-Validation	Validation	

Total 4

Health Management



Sense and respond to problems before end users suffer an outage

-
-
-
-
-
-

**Comprehensive
Health Policies**



**Customizable
Health
Conditions**



**Customizable
Health
Actions**



Health Management – Health Policies

Helps mitigate common health problems before outages occur

→ Step 1: Define health policy general properties
Step 2: Define health policy health condition properties
Step 3: Specify members to be monitored
Step 4: Confirm health policy creation

Define health policy general properties

* Name
Description
Health condition

Health Conditions

- Excessive request timeouts: % of timed out requests
- Excessive response time: average response time
- Excessive garbage collection: % of time spent in GCs
- Excessive memory: % of maximum JVM heap size
- Age-based: amount of time server has been running
- Memory leak: JVM heap size after garbage collection
- Storm drain: significant drop in response time
- Workload: total number of requests

Health Management – Custom Health Conditions

Flexibility to determine what an “unhealthy” condition is...

-
-
-
-
-

Create a new health policy

Create a new health policy. Define the general properties, including the health condition, and the servers, clusters, and dynamic clusters to be monitored.

Step 1: Define health policy general properties

→ Step 2: Define health policy health condition properties

Step 3: Specify members to be monitored

Step 4: Confirm health policy creation

Define health policy health condition properties

Edit rule [Subexpression builder]

Run reaction plan when:

Logical operator and ▾

Subexpression builder

Select operand:

- PIMIMetric_FromServerStart
- PIMIMetric_FromLastInterval
- ODRServerMetric_FromServerStart
- ODRServerMetric_FromLastInterval
- ODRCellMetric_FromServerStart
- ODRCellMetric_FromLastInterval
- MBeanOperationMetric_TypeLong
- MBeanOperationMetric_TypeString
- MBeanAttributeMetric_TypeLong
- MBeanAttributeMetric_TypeString
- URLReturnCodeMetric

Subexpression:

Append [Close]

Previous | Next | Cancel

Health Management – Custom Health Actions

Health Policy Custom Health Actions

Add, delete, and edit custom operations

Preferences

New Delete

Select	Name	Supported OS	Action	Description
<input type="checkbox"/>	Enable Application Trace	windows	C:\myScripts\enableAppTrace.bat -serverName \${WAS_SERVER_NAME}	
<input type="checkbox"/>	Enable Application Trace	linux, aix, hp-ux, solaris	\usr\local\bin\enableAppTrace.sh -serverName \${WAS_SERVER_NAME}	
<input type="checkbox"/>	Collect Logs	windows	C:\myScripts\collectAllLogs.bat	:
<input type="checkbox"/>	Collect Logs	linux, aix, hp-ux, solaris	\usr\local\bin\collectAllLogs.sh	
<input type="checkbox"/>	Dump Application State	all	java -jar DumpAppState.jar	

Total 5

Health management monitor reaction

Reaction mode
Supervise

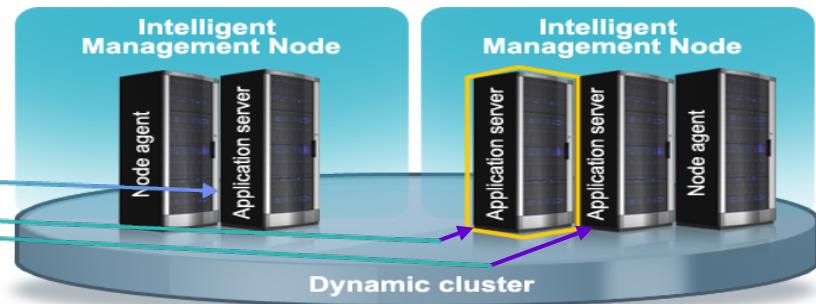
Take the Following Actions When the Health Condition Breaches

Add Step	Delete Step	Move Up	Move Down	
<input type="checkbox"/>	1	Place Server Into Maintenance Mode	Sick Server	Node hosting Sick Server
<input type="checkbox"/>	2	Dump Application State	Sick Server	Node hosting Sick Server
<input type="checkbox"/>	3	Restart Server	Sick Server	Node hosting Sick Server
<input type="checkbox"/>	4	Place Server out of Maintenance Mode	Sick Server	Node hosting Sick Server

Dynamic Clustering

Proactively provision and start or stop application servers based on workload demands to meet Service Level Agreements

-
-
-
-
-



Health Management – Preventive Action Avoids Outages

- **Proactively deal with application issues** before they become acute problems ... automatically



- **Health conditions and associated corrective actions**

- Examples: Memory leaks, slow response times etc...

- **Provides insight!**

Results In:

- **Better availability**
- **Less administration**
- **Satisfied end users**





WebSphere Virtual Enterprise (WVE) – Doing more with less



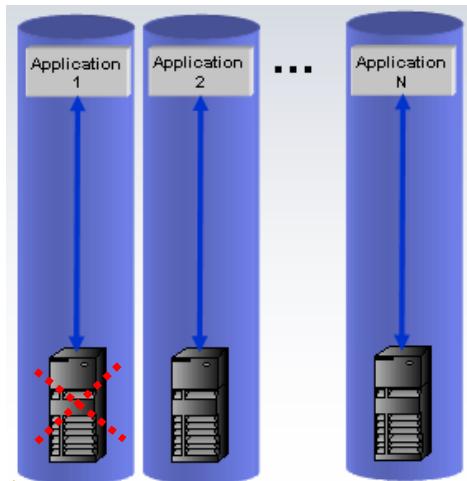
WebSphere Virtual Enterprise allows organizations to optimize their infrastructure investment and to prioritize their applications in a mission-critical manner



High Availability

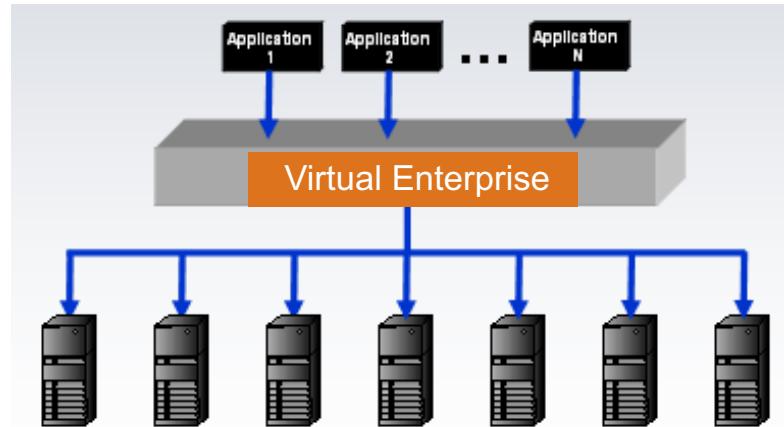
By running applications across a pool of resources, applications become inherently highly available; if a server fails, VE moves the work to other servers

Siloed Applications & Resources



By tying applications to a small set of servers, application availability can be compromised!

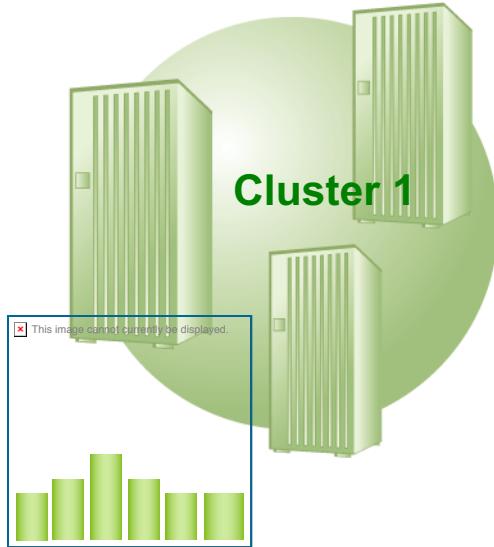
Single Pool of Resources



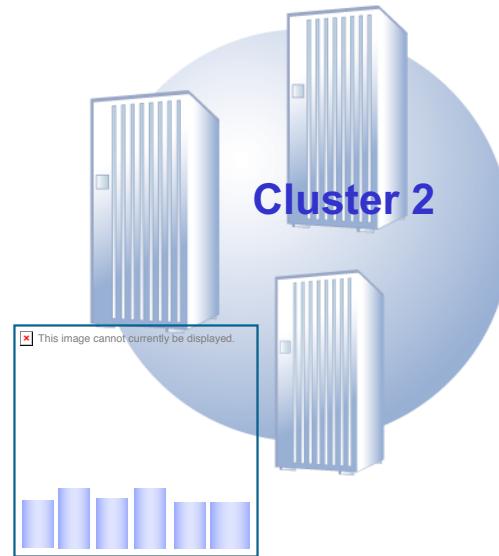
Applications can run anywhere; add more servers, applications can run on them.

Normal Day at Insurance Company

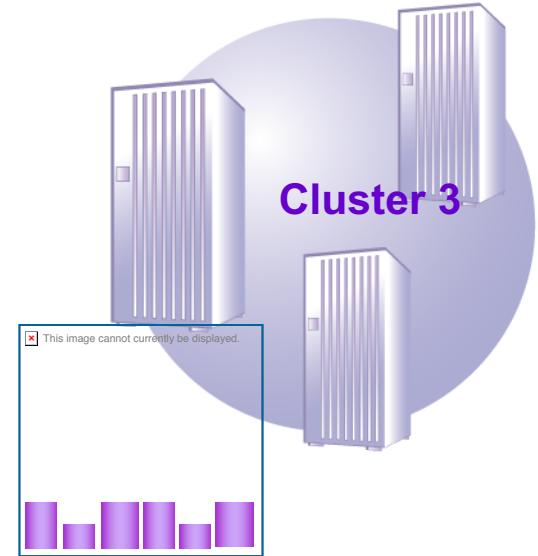
Example: Dynamic WorkLoad Management Capability



Claims Processing



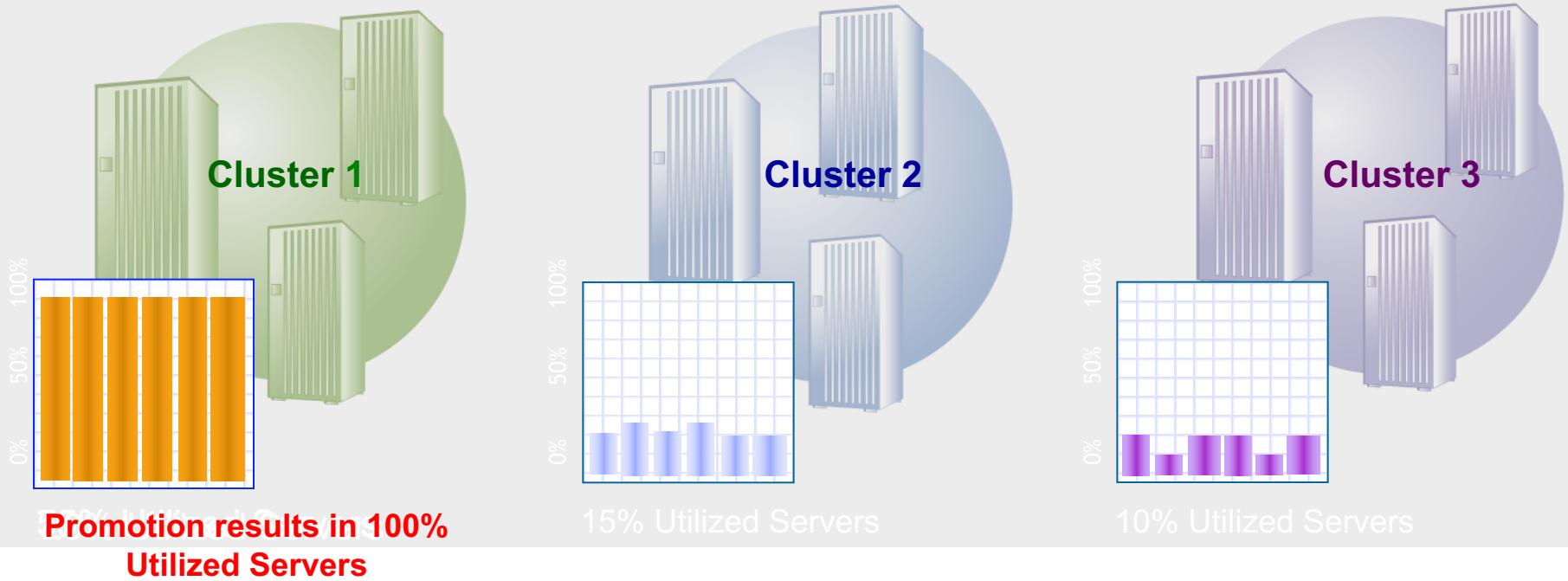
Account Management



Billing Application

Resource Optimization: An Example

An ad campaign or promotion results in a huge increase in insurance quotes ...



Quote Processing



Quote processing time increases ...
Customers grow tired of waiting ...
Lost Revenue.

Auto Insurance

Home Insurance





Resource Optimization: An Example

WebSphere Virtual Enterprise maximizes utilization and improves responsiveness!



Quote Processing



Auto Insurance



Customer Support



Underwriting



Home Insurance



Bronze



Dynamic Operations – Dynamic WorkLoad Management

- Routes work to the application server that can do it best
- Streamlines processing for higher priority requests
- Adjusts application capacity
- Requires no application changes!

Results in:

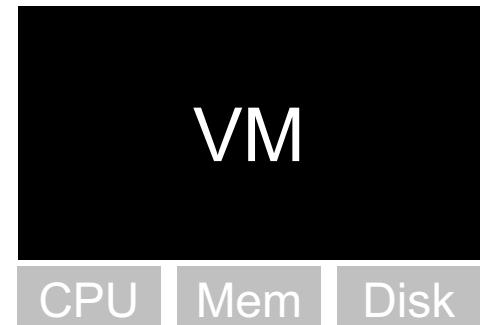
- **Better application performance with lower costs**
- **Optimal throughput & responsiveness**
- **Satisfied end users**



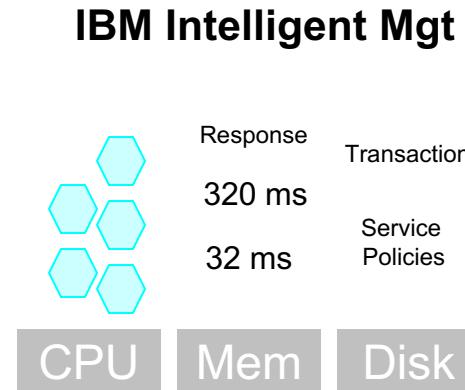


WAS Intelligent Management: Beats the Alternative

- We get information from inside the application server
 - Have access to information like request priority, request queuing, and responses times
- We can make finer grain decisions
 - Instead of moving entire VMs (Virtual Machines), we can move just an application inside a JVM (Java Virtual Machine)
 - These are less expensive operations, and more efficient
- We recommend using WAS ND V8.5 Hypervisor Edition with IBM Workload Deployer with many non-IBM and IBM hypervisors (zVM, PowerVM, VWWare etc...) to combine application virtualization w/ server virtualization



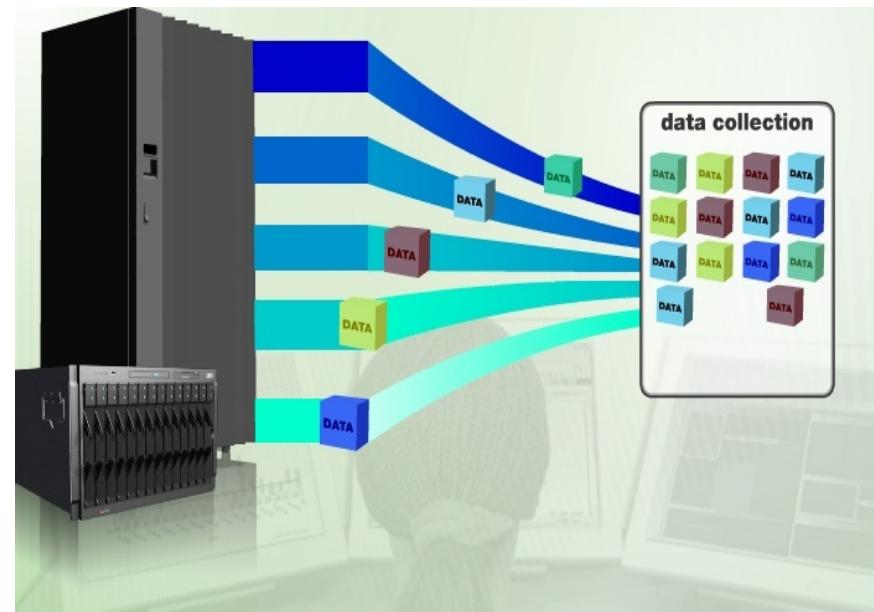
Gets all information from outside the VM (CPU, mem, disk)



Sensors in the request flow provide much more information about what's going on, and facilitate better decision-making.

Intelligent Management Data Logging

- WebSphere Application Server ND contains comprehensive data logging of applications, users and resources; content in logs is configurable and aggregated for easily hooking into accounting and charge-back products



Intelligent Management

Three Primary Value Propositions



1. Seamless upgrades of applications

- Application versioning for application server



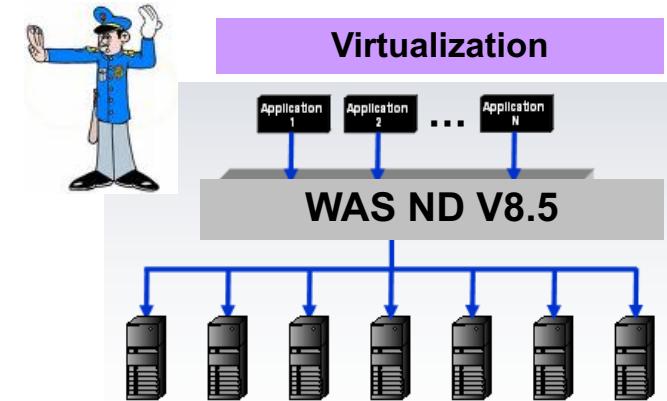
2. Preventive action avoids outages

- Health management



3. Enable peak usage at lower cost

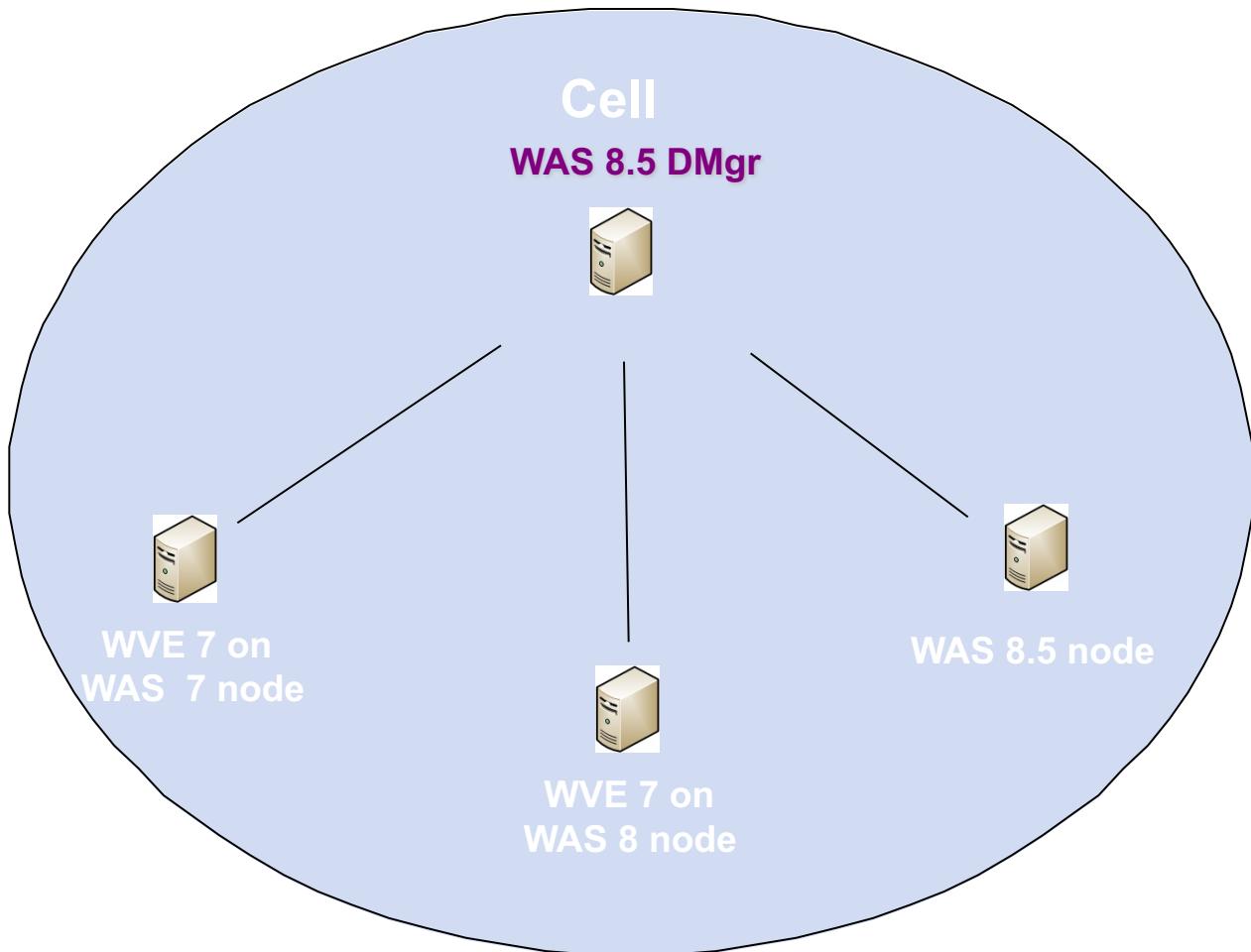
- Dynamic workload management
- No longer need each application to provision for peak usage



Migrating WebSphere Virtual Enterprise to WebSphere Application Sever ND V8.5



-



-



Business Value Assessment – ROI Analysis

➤ **Free for customers**

➤ **TCO data is captured in a multi-year cost model**

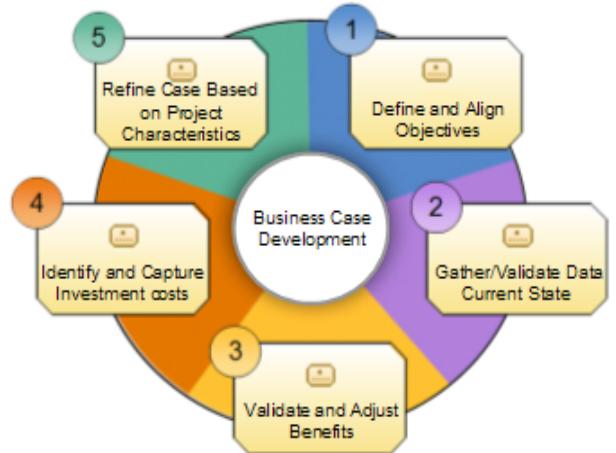
- Compares current application server environment vs. using WAS Intelligent Mgt environment
- Includes I/T cost components related to implementation and operations

➤ **Deliverables**

- TCO Model
- Business Case Presentation
- Solution Architecture – “To-Be” environment

Value Assessments

- 1) Express format - “Quick TCO”
- 2) On-site detailed assessment





Business Value of Intelligent Management

Infrastructure optimization, flexibility, and new business opportunities

Server Consolidation

- ✓ \$4M+ saving over 5 yrs
- ✓ 40% reduction in TCO

Insurance Company

- ✓ Reduce TCO 25%
- ✓ Manage peaks & growth within existing servers

Large Manufacturer

- ✓ 20% - 30% reduction in server, software and admin costs

Company Intranet

- ✓ Improved application resilience
- ✓ Cost savings of 25%
- ✓ Manage peak load situations



WebSphere Intelligent Management References

NA

American Airlines



Erie Insurance



First Citizens Bank



First Citizens
Bank

REI

IBM
IBM



Nationwide Insurance

Max NY Life

Dalian Public Security

Bureau

CSC



Trinity Mirror

Public

Osaka
Gas



Intituto Nazionale





WAS V8.5 Delivers

Unparalleled Application Development and Management Environment, Rich User Experiences...Faster

Operations and Control



Improved Operations,
Security, Control & Integration

- Selectable JDK
- WebSphere Batch enhancements
- Admin Security Audit
- OSGi Blueprint security improvements
- Cross Component Trace (XCT)
- Enhanced IBM Support Assistant
- Better log and trace filtering



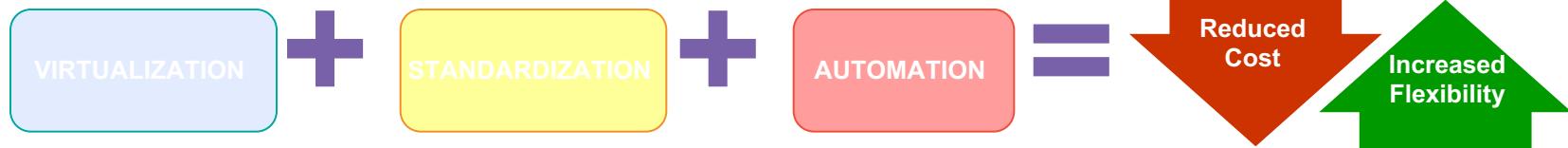
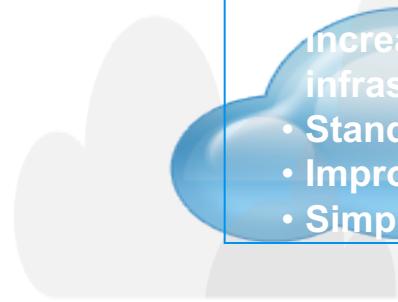
An effective Cloud Computing deployment is built on a dynamic application infrastructure and is highly optimized to achieve more with less....



Traditional IT



Private cloud



...leveraging **virtualization**, **standardization** and **automation** to free up operational budget investment.



Private Cloud Evolution

1

- Virtualization of hardware resources in the data center
- Management of virtualized infrastructure

Infrastructure Management

2

- Virtualized infrastructure leads to creation of “virtual” software images
- Proliferation of virtual software images leads to management challenges

Image Management

3

- Images are combined into patterns representing middleware workloads
- Workloads encapsulate well defined combinations of integrated middleware

Integrated Middleware

Selectable JDK



Allow development and production environments to select the most appropriate JDK for the situation (JDK 6 or 7)

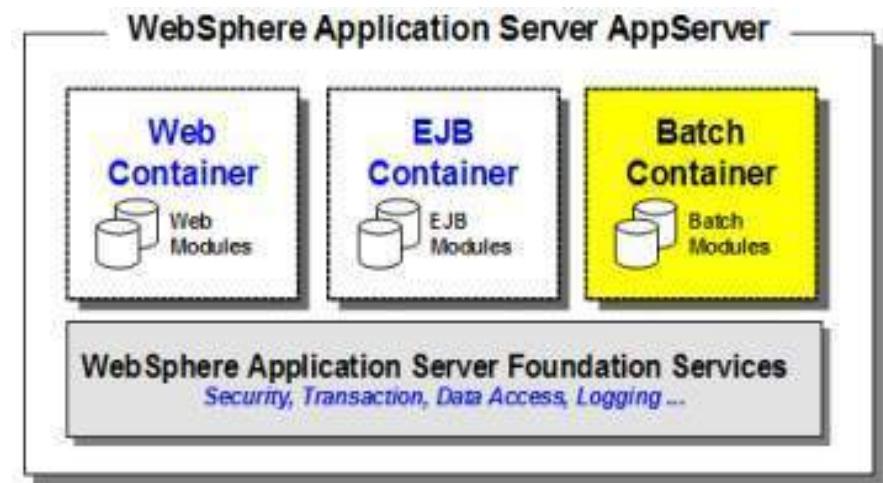
- Figure 1. A scatter plot showing the relationship between the number of hours spent on social media per day and the level of depression. The x-axis represents the number of hours spent on social media (ranging from 0 to 10), and the y-axis represents the level of depression (ranging from 0 to 10). The data points show a positive correlation, indicating that higher levels of depression are associated with more hours spent on social media.

WebSphere Batch



Quickly develop and deploy batch applications and dramatically reduce infrastructure and operational costs

- **Lower TCO:** Concurrent execution of batch & online transaction processing (OLTP) workloads using shared business logic on a shared infrastructure; Higher throughput and lower resource consumption on z/OS when collocated with data subsystems
- **Enhanced Developer Productivity:** Pre-integrated application framework, Java batch programming model and tools
- **Automation & Admin:** Container managed services for checkpoint and restart capabilities. Integrated administration of OLTP applications and batch jobs
- **Packaging utility:** Utility to package batch application that can be deployed using JEE runtime
- **New Parallel Batch and Cobol Support**



Repository Checkpoint and Admin Audit



WebSphere Integrated Solutions Co... Welcome rc

View: All tasks

Extended Repository Service > Repository Checkpoints

Cell=birdlandCell01, Profile=Dmgr01

Repository checkpoints represent saved images of the repository before configuration changes are made. Checkpoints can be either full or delta images. A full checkpoint is created manually by the administrator and is a copy of the entire configuration repository. This includes applications and connectors, so it can be very large. A delta checkpoint is created automatically when configuration changes are made. The delta checkpoint is formed by making a copy of the configuration documents affected by the configuration change before the changes are actually applied. Checkpoints can be used to restore the configuration repository back to a prior state. Use a full checkpoint to restore the entire configuration repository back to the state it was in at the time the full checkpoint was made. Use delta checkpoints to undo recent changes. Delta checkpoints can only be restored in the reverse order in which they were created. Each delta checkpoint has a sequence number. The highest sequence number represents the most recent delta checkpoint. Delta checkpoints can be removed in descending sequence numbers only. After the configuration repository is restored from a delta checkpoint, that checkpoint is destroyed.

New Delete Restore Export

Selected	Name	Documents	Type	Sequence	Timestamp	Description
<input type="checkbox"/>	2012-Jan-17	270	FULL	1326814677750	01/17/2012 09:37:57	Weekly full backup
<input type="checkbox"/>	Delta-1326815044093	1	DELTA	1326815044093	01/17/2012 09:44:04	Autosave delta image
<input type="checkbox"/>	Delta-1326815061484	1	DELTA	1326815061484	01/17/2012 09:44:21	Autosave delta image

You can administer the following resources:

- 2012-Jan-17 270 FULL 1326814677750 01/17/2012 09:37:57 Weekly full backup
- Delta-1326815044093 1 DELTA 1326815044093 01/17/2012 09:44:04 Autosave delta image
- Delta-1326815061484 1 DELTA 1326815061484 01/17/2012 09:44:21 Autosave delta image

Extended Repository Service > Repository Checkpoints

Extended Repository Service

System administration

- Cell
- Job manager
- Extended Repository Service (arrow)
- Save changes to master repository
- Deployment manager
- Nodes
- Node agents
- Node groups
- Centralized Installation Manager
- Console Preferences
- Job scheduler
- Console Identity



Cross-Component Trace (XCT) for Problem Determination

Improve your ability to diagnose & debug SW problems in order to minimize and eliminate application downtime

-
-
-
-

IBM Support Assistant Data Collector



Resolve software issues as well as locate and collect key data in a timely manner

-
-
-

Customization

Automated data collections are specific to products and symptoms

Automated version of many MustGathers

Efficiency

Less time spent between a support analyst and the system operator

Reduces the effort to send the collected data to IBM support

Repeatability

Repeatable process with similar inputs without fear of human error

Simplicity

Executable by operators not familiar with the nature of the working product





WAS V8.5 – Get Started Today !

- *Download and try the Liberty profile (wasdev.net)*
- *Investigate all the Resiliency Improvements in WAS ND*

Developer Experience



**Fast, flexible,
and simplified
application
development**

- Liberty Profile
- Expanded Tooling and WAS Tooling Bundles
- OSGI programming model enhancements
- EJB support in OSGi apps
- JDK7 Support
- Migration toolkit
- Enterprise Mobility
- Web 2.0 & Mobile Toolkit
- SCA OASIS programming model

Application Resiliency



**Intelligent
Management
& Enhanced
Resiliency**

- Application Edition Management
- Application Server Health Management
- Dynamic Clustering
- New Intelligent Routing capabilities
- Messaging infrastructure resiliency
- Memory leak detection & protection in WAS

Operations and Control



**Improved
Operations,
Security, Control
& Integration**

- Selectable JDK
- WebSphere Batch enhancements
- Admin Security Audit
- OSGi Blueprint security improvements
- Cross Component Trace (XCT)
- Enhanced IBM Support Assistant
- Better log and trace filtering



Private Cloud and Intelligent Management



Debbie Miller

BUE Business Agility Tiger Team

Horizon Technologies

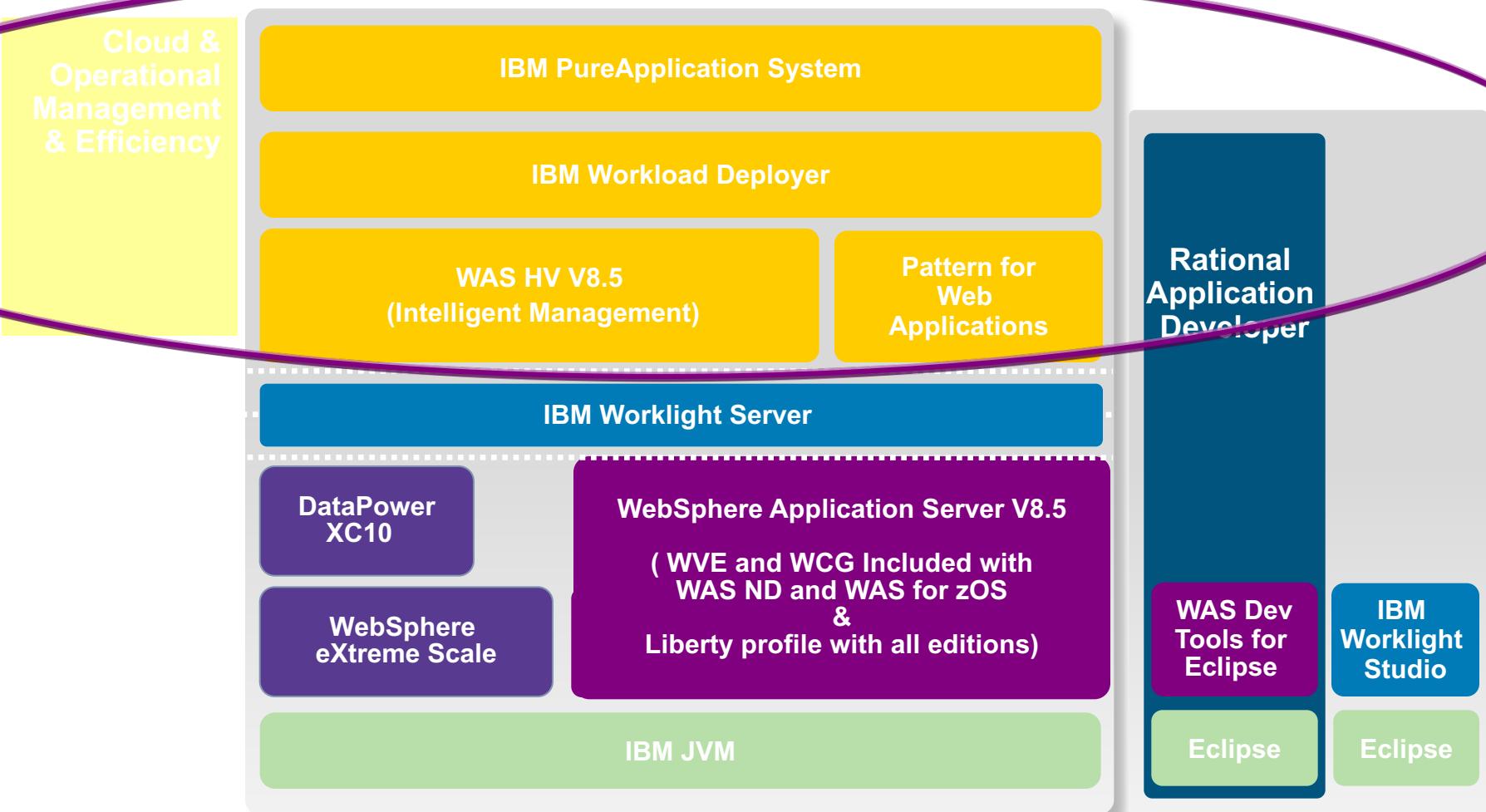
ddmille@us.ibm.com





WebSphere Application Infrastructure V8.5

What's Changed





Enabling Dynamic Enterprise...

85% idle

In distributed computing environments, up to 85% of computing capacity sits idle

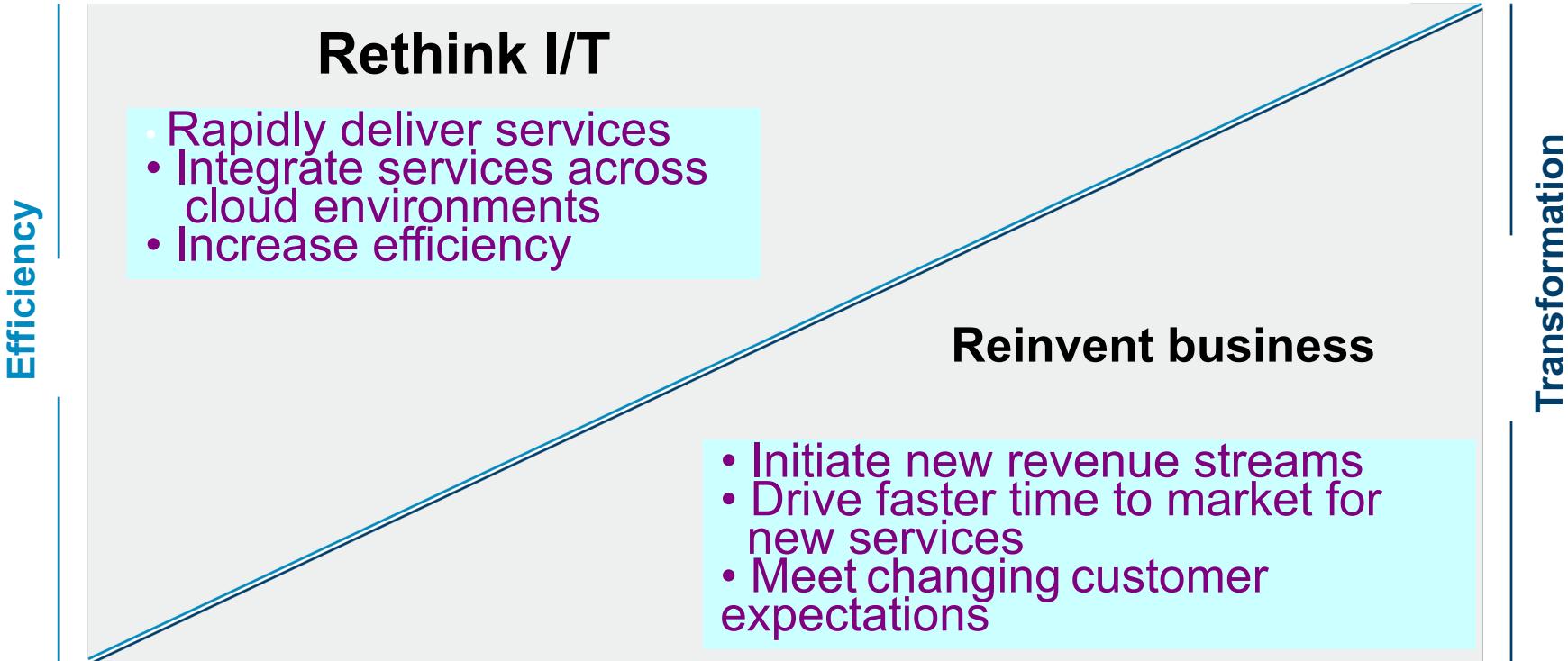
70¢ per \$1

70% on average is spent on maintaining current I/T infrastructure versus adding new business capabilities

- *Demands on I/T are Growing*
- *I/T Infrastructure is Reaching a Breaking Point*

It's time to start thinking **differently** about infrastructure

I/T and Business are attracted to cloud for different reasons



**Source: Gartner, Cloud Computing Services, Virtualization Top CIO 2011 Wish Lists Jan 24 2011

I/T is drawn to cloud's cost, efficiency and control...

Efficiency

60%

of CIOs plan to use
cloud—up from 33% two
years ago

Transformation

55%

of business executives believe cloud
enables business transformation and
leaner, faster, more agile processes

2011 IBM CIO Study, London School of Economics, December 2010

Private Cloud Computing: What is it?



- Shared, virtual infrastructure leveraging virtualization technology built “in-house”
- Easy to “get started”
- Can reduce costs and errors
- Management and access provided through graphical interfaces
- Mechanism for tracking usage and allocating costs
- Provision and De-Provision “On Demand”





AUTOMATION

Approvals

Procurement

HW Install

OS Install

MW Install

App Install/Config

Approvals

Procurement

HW Install

OS Install

MW Install

App Install/Config

Click “Deploy” and wait

Hours or Minutes lead time!



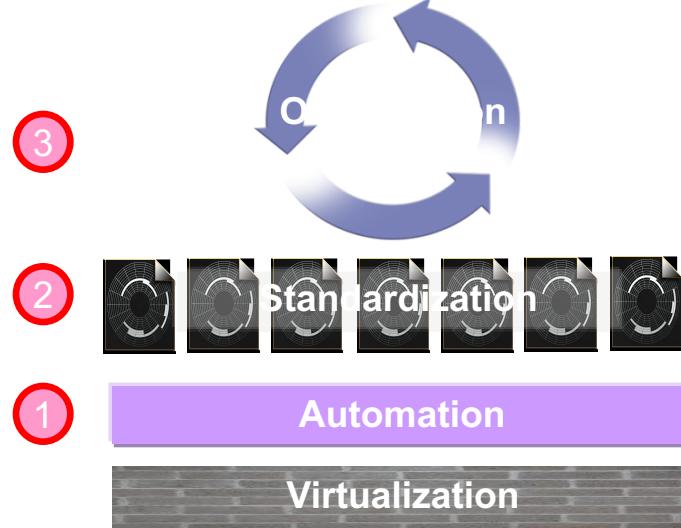
Customer Issues:

Break The Cycle To Reduce Costs and Errors

- The **average lead time** to get a new application environment up and running is **4-6 weeks**
- **30% of bugs (errors) are introduced by inconsistent configurations**
 - Most difficult variety to detect
 - Often emerge when moving between development, test, Quality Assurance (QA), and production
- **Developers and others have incentives to hold onto resources even when no longer needed “just in case”**
 - Future environments = new hardware, instead of recycling returned hardware- which takes time and money



WebSphere Virtualization





Intelligent Management and Cloud Offerings



**WAS Network Deployer V8.5 and WAS for z V8.5
Includes Intelligent Management**

Intelligent Management:

- ❖ Virtualizes application server infrastructure while lowering costs
- ❖ Improves performance and service
- ❖ Reduces errors while improving manageability

IBM Workload Deployer

WAS ND Hypervisor Edition V8.5



Private Cloud:

- ❖ Purpose-built hardware for deploying and managing virtual images in a cloud
- ❖ Provisions software patterns and Hypervisor Editions including WebSphere Application Server, MQ, DB2 etc... into private cloud





IBM WorkLoad Deployer

New class of hardware appliance that sits in a data center and dispenses hardened WAS and other Hypervisor Edition (HV) topologies and/or workload patterns into a pool/cloud of virtualized hardware running a supported hypervisor: VMWare, PowerVM, or z/VM etc...



Dispense server (soda), or topology (6-pack) of virtual images

Return licenses to available pool



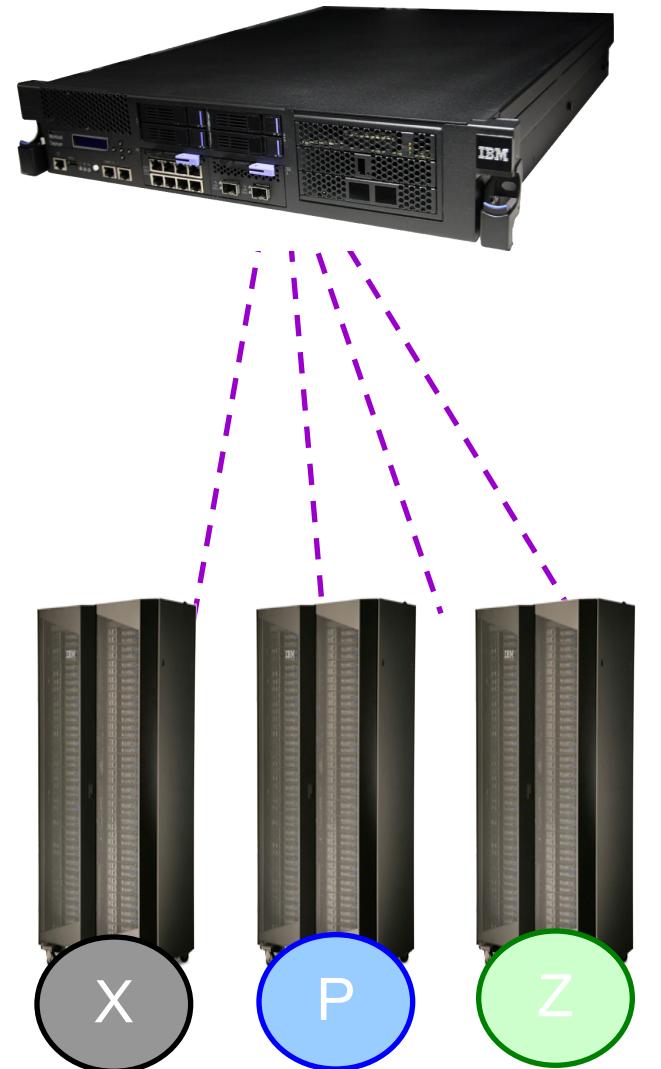
At end of usage, remove virtual image(s) from cloud



IBM Workload Deployer – What is it?



- Secure, self-service cloud management hardware appliance
- Unmatched IBM Middleware management (apply maintenance, federate cells, etc. - not black box)
 - Can also manage black-box images to support other products
- Enables consistent & repeatable deployment of pattern-based application environments to X86, Power, and System z hardware pools
- Dispenses hardened middleware patterns into a pool/cloud of **external** virtualized hardware running a supported hypervisor e.g. VMware ESX, z/VM, or PowerVM.
 - “Bring your own cloud”





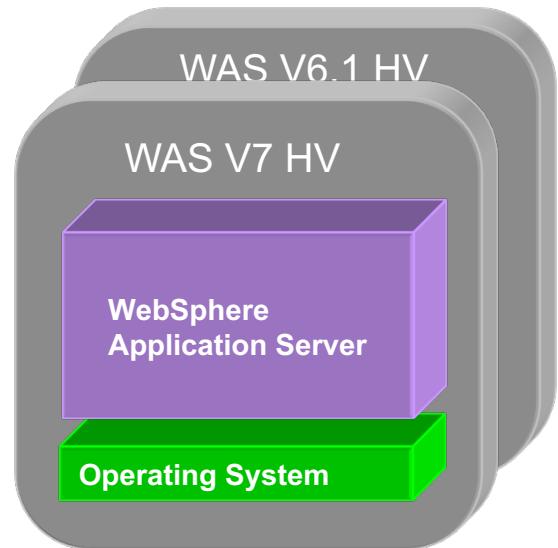
Key Capabilities in IBM Workload Deployer

- Secure appliance for quick deployment of private cloud
- Simple drag and drop user interface for designing patterns
- Rapid pattern-based cloud applications design and deployment
- Policy driven qualities of service management for applications
- Faster and easier deployment of middleware topologies using virtual system patterns
- Elastic scaling of applications based on business demand
- Build once and deploy across IBM SCE public offering



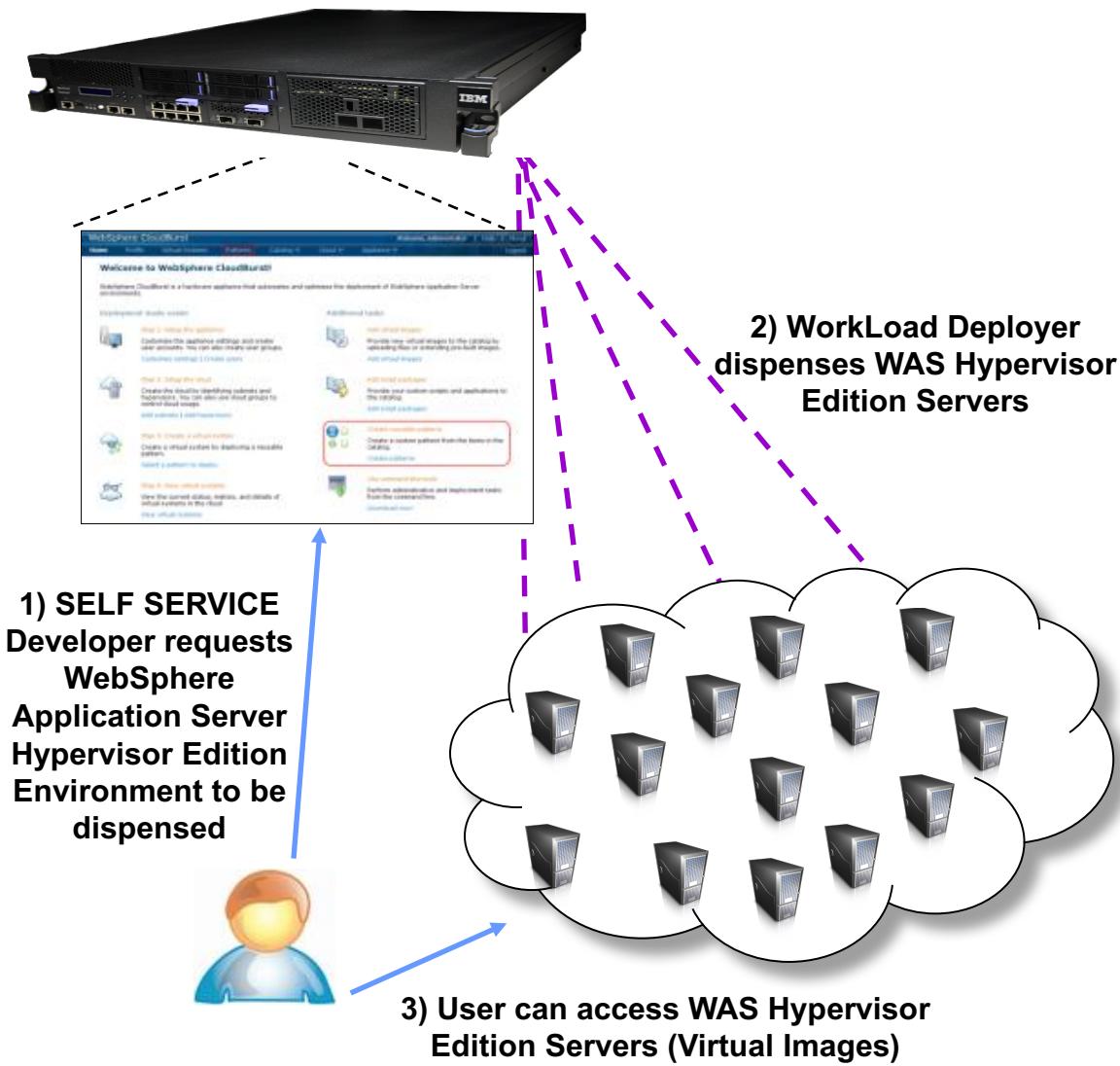
Hypervisor Edition Images

- IBM Middleware shipped as an .OVF virtual image, ready to run on a hypervisor
- The following products offered
 - WebSphere Application Server
 - WebSphere Process Server
 - WebSphere Portal Server
 - DB2
 - WebSphere Message Broker
 - WebSphere Business Monitor
 - WebSphere Message Queue (announced)
- Products support various combinations of:
 - VMware ESX, z/VM and/or PowerVM hypervisors
 - Red Hat Enterprise Linux, SUSE Linux, AIX
- Maintenance, support, and fixes through IBM for both middleware and operating system
 - New images include most recent GA components of IBM middleware, as well as OS patches

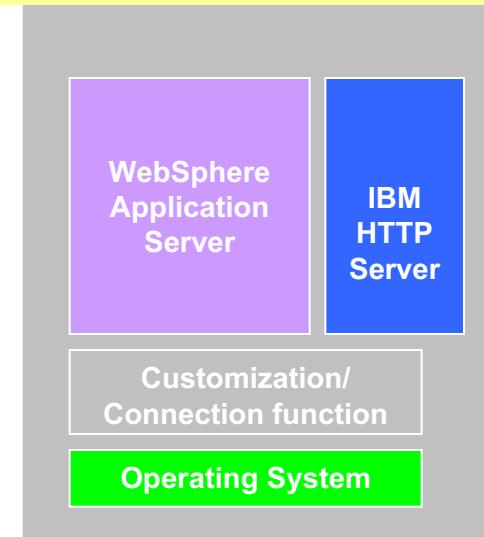




WebSphere Private Clouds: Hardware and Software



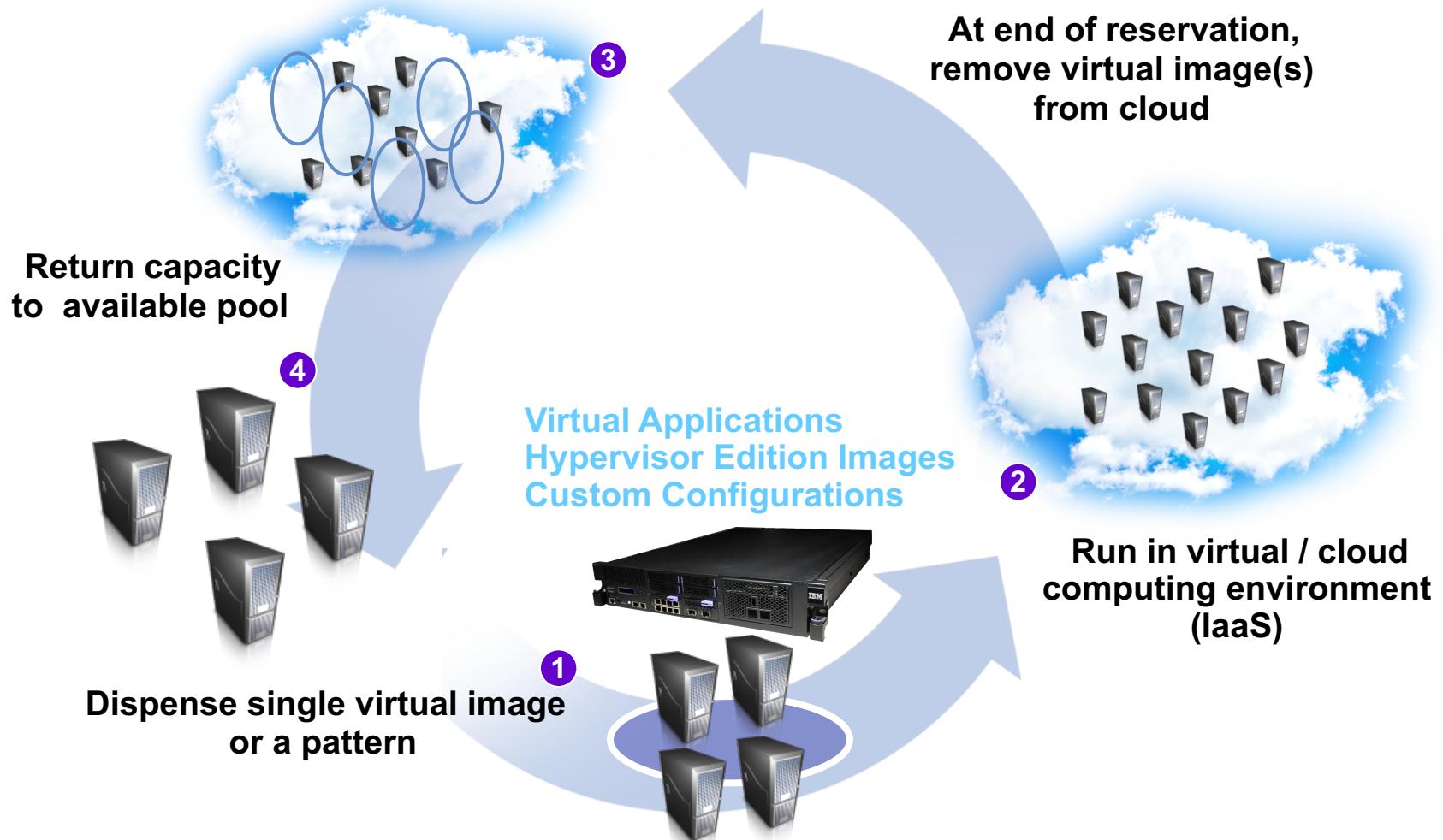
Hypervisor Editions include: WAS, WebSphere Portal Server, BPM, WebSphere Message Broker, DB2, Business Monitor, MQ....



ORGANIZATION



Cloud / Topology / Application Shaping ... with IBM Workload Deployer
Leveraging Virtual Images and Workload Patterns





Current HyperVisor Image Portfolio – Deployed by IWD

	Red Hat (64-bit) ESX	Red Hat (32-bit) ESX	AIX PowerVM	SUSE zLinux zVM	Red Hat (64-bit) KVM	Red Hat zLinux zVM	SUSE Linux (64-bit) ESX	SUSE Linux (32-bit) ESX
Portal								
Portal/WCM V6.5.1								X
Portal/WCM V7.0		X						X
Database								
DB2 V9.7							X	X
BPM								
WPS V6.2			X	X				X
WPS V7.0		X	X	X				X
WPS V7.5								
Monitor V7.0								
Monitor V7.5								X
ILOG								
Cognos								
Connectivity								
Cast Iron								
WMQ v7.0.1	X							
WMB v7.0	X							
WSRR v7.5								
WTX v8.4								
Application Infrastructure								
WebSphere Application Server v6.1		X	X					X
WebSphere Application Server v7.0	X	X	X	X		X	X	X
WebSphere Application Server v8.0								
IBM HTTP Server for WAS HV	X	X	X	X		X	X	X

2010 or earlier

1H 2011

What is Intelligent Management Pack?

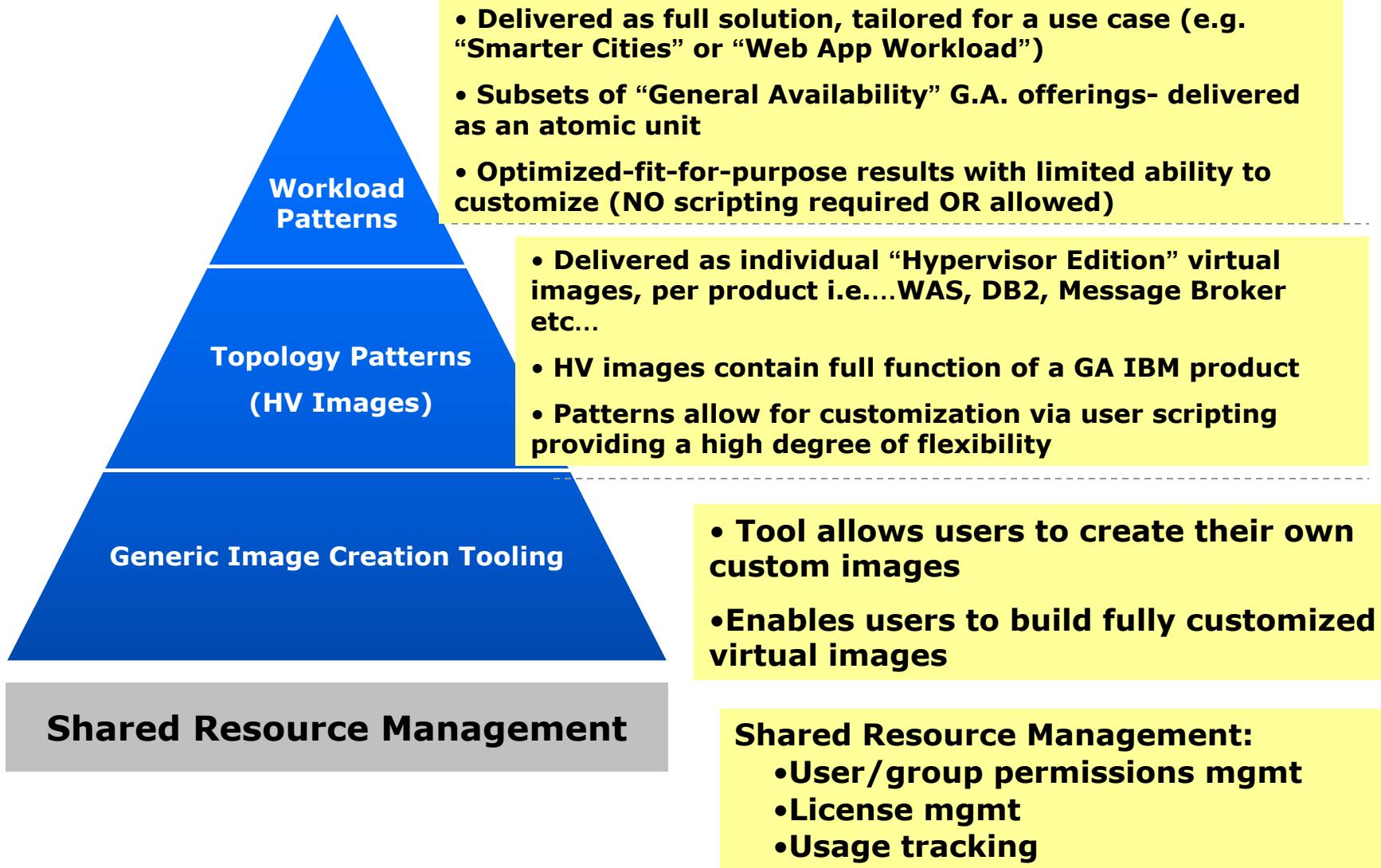
- The Intelligent Management Pack is an optional add-on to the WebSphere Application Server Hypervisor Edition (on any supported platform)
- The Intelligent Management Pack represents IBM's WebSphere Virtual Enterprise functionality delivered in a form that is able to be dispensed through IBM Workload Deployer
- The end result is self-optimizing and autonomic private clouds!





IBM WorkLoad Deployer (IWD) - Workload Models

Labor Savings
Flexibility

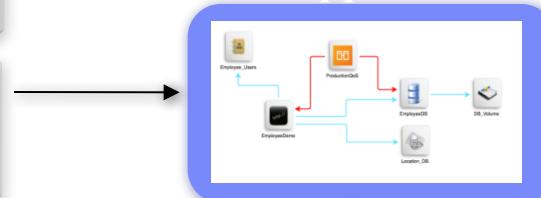


Example: IBM Workload Pattern – WebApp Pattern



Application &
Characteristics

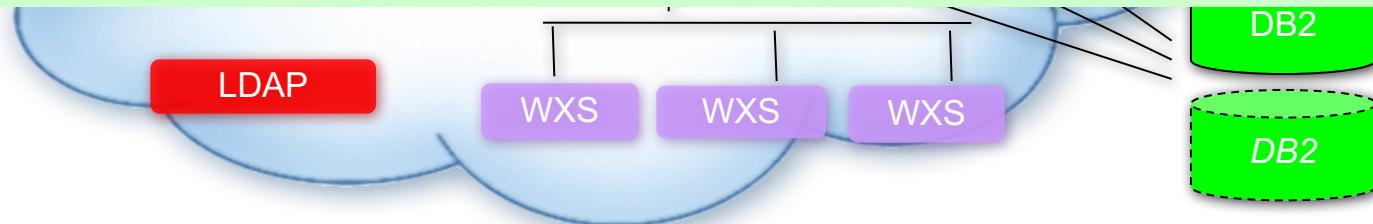
Functional &
Non-Functional
Requirements



Customer Quotes for IBM WorkLoad Patterns

"I spend 80% of my time supporting my '2nd tier applications,' but want to spend more time on my top tier apps. I'm willing to trade off **control** for **cost savings**."

"50% of my applications fall into a class I call ‘Mickey Mouse apps.’" They last 6-9 months, and don't require the same level of control as my top tier apps. I want the cheapest solution..."





Virtual Application Pattern Features

Automated Scaling

Managed environments scale up and down based on observed utilization of compute resources

Failover

Failed virtual machines are replaced with new VMs which are configured with the old VM's identity

Load Balancing

Requests coming into virtual application environments are load balanced

Security

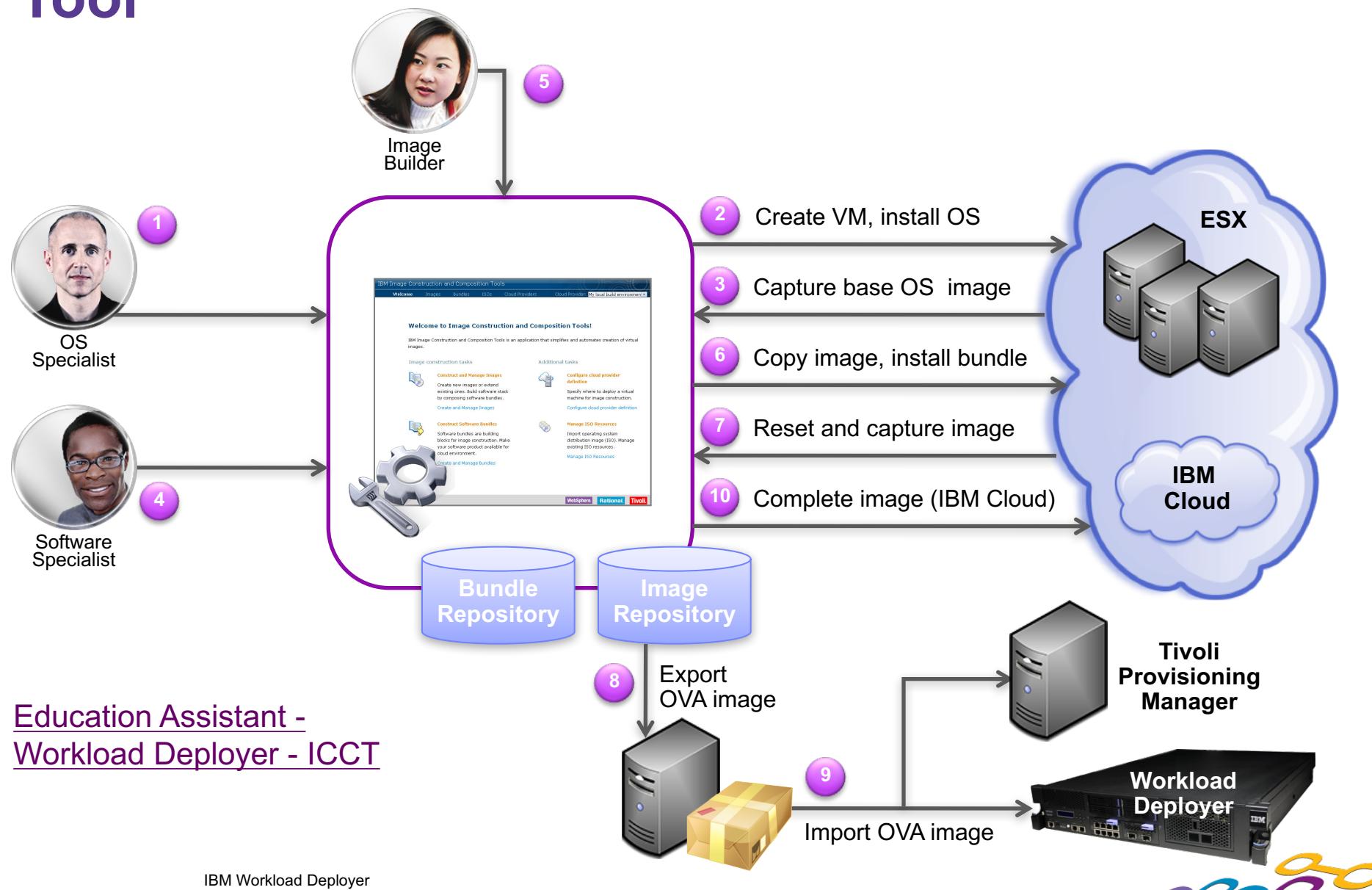
ACL's for application sharing and management access, LDAP integration for application security

Monitoring

All components of virtual application environments are monitored by IWD



IBM Image Construction and Composition Tool





Web App and Database Patterns

- Designed to support common online web application and database workloads
- **Pattern for Web Applications** consists of application support based on
 - WebSphere Application Server,
 - Tivoli Directory
 - WebSphere eXtreme Scale
 - Connectors to remote systems
 - MQ, DB2, DB2/z, CICS, IMS, 3rd party DB (Oracle), Tivoli Directory, MS Active Directory
- **Pattern for Database** provides support for DB2 in a Database-as-a-Service model
- **Web and Database patterns can be used together**
- **All Patterns support**
 - Integrated monitoring and logging extensions
 - Failure recovery and HA/Auto-Scaling*
 - Sold as an integrate offerings



Cloud Application Builder



IBM Workload Deployer - [Solution: webapp 1.0] Virtual Application Builder - [ScalableDayTrader] *

Diagram ListView Source
Save Save As Layout Undo Redo

Assets

Add policy for application

Web Application Database

Scaling Policy

TradeLite TradeDB

Web Application Database

Name: * TradeLite

WAR File: * artifacts/tradelite.war Browse Delete

Context Root: trade

Scaling Policy

Initial instance number: * 2

Enable session caching: *

Scaling Setting

Instance number range of scaling in/out: *
Range: 10 - 10

Minimum time (sec) to trigger add/remove: * 120

Application Scenario

None Basic

Scaling in/out when CPU usage is out of threshold range(ms): *
Range: 20% - 80%

Scaling in/out when Web response time is out of threshold range(ms): *
Range: 1 - 10000

Other Components

Layers

This screenshot shows the IBM Workload Deployer and Virtual Application Builder integrated interface. On the left, the 'Assets' panel lists various component types like Application Components, Database Components, and Messaging Components. The main workspace displays a diagram where a 'Web Application' component (labeled 'TradeLite') is connected to a 'Database' component (labeled 'TradeDB'). A 'Scaling Policy' box is also present in the diagram. To the right, a detailed configuration pane for the 'Web Application' is open, showing fields for 'Name' (TradeLite), 'WAR File' (artifacts/tradelite.war), 'Context Root' (trade), and 'Scaling Policy' settings. The scaling policy section includes sliders for 'Initial instance number' (set to 2), 'Enable session caching' (checked), and 'Scaling Setting' (instance range 10-10, minimum time 120 seconds). Below this are sections for 'Application Scenario' (Basic selected) and 'Scaling in/out' based on CPU usage (range 20%-80%) and Web response time (range 1-10000 ms).



Value of Workload Patterns

■ Improvements:

- Integration of products across SWG into a single unit of management (**single PID**)
- Central log repository for entire pattern
- Failover support – VMs that die are recreated/configured

■ Reduces work/complexity:

- Use graphical UI instead of writing scripts to:
 - Install applications
 - Configure databases
 - Configure security
 - Install/configure monitoring

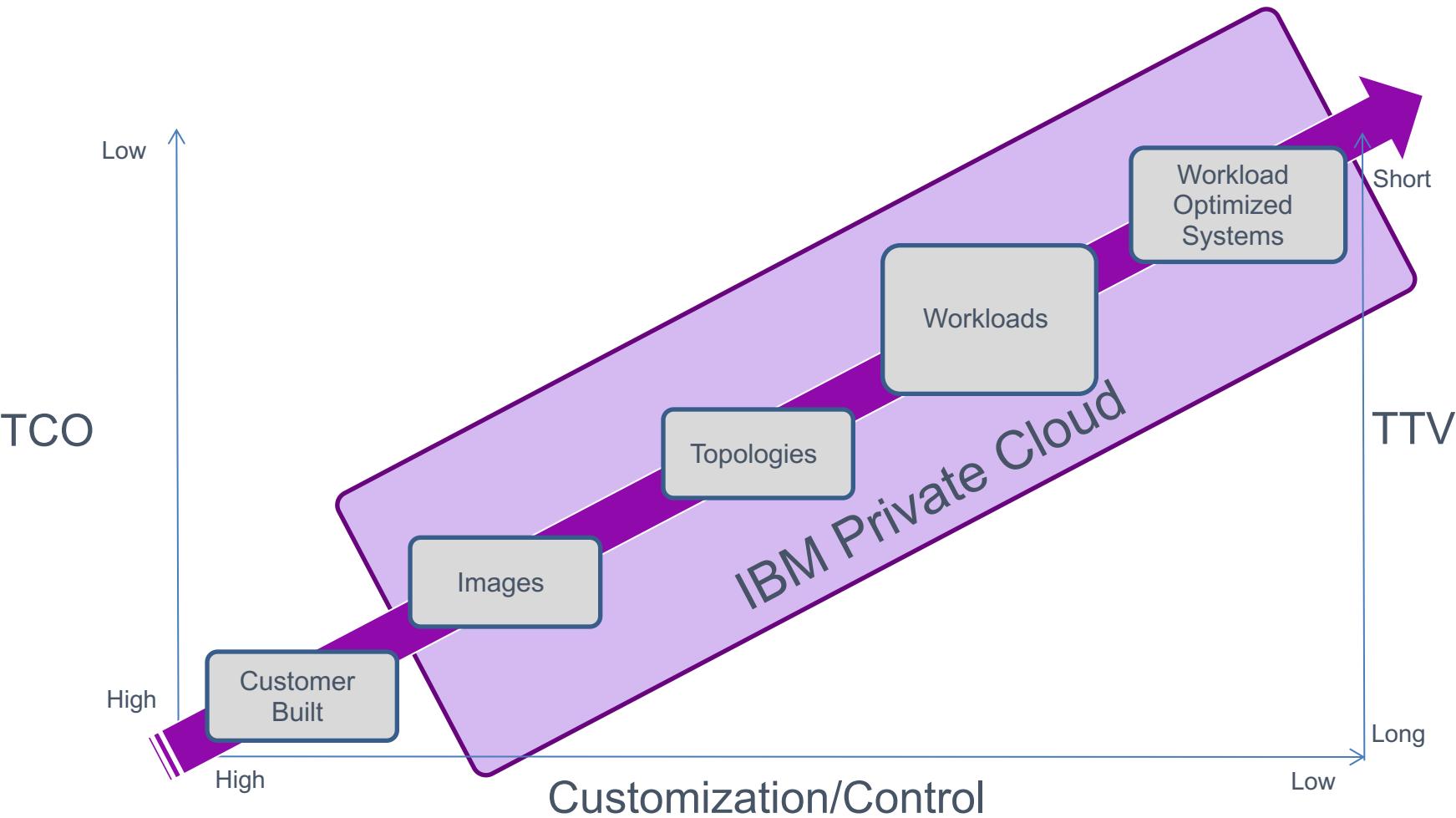
■ Tradeoff:

- Users effectively trade control for reductions in work and complexity

■ Customer statement:

- “I spend 80% of my time supporting my ‘second tier applications,’ but want to spend more time on my top tier apps. I’m willing to trade off control for cost savings.”
- “50% of my applications fall into a class I call “Mickey Mouse apps.” They last 6-9 months, and don’t require the same level of control as my top tier apps. I want the cheapest solution to get them running quickly”

The Cloud Tradeoff





Benefits: IBM WorkLoad Deployer

Break The Cycle....

Improved Productivity / Reduced Costs / Labor Savings / Improved Availability...

- **Reduce lead time** to get a new application environment up and running from 4-6 weeks DOWN to minutes
- **Eliminate bugs** which are introduced by inconsistent configurations
- **Reduced costs** for test / development environments / demos / production
- **Can "re-provision" the exact image in minutes "any time"**
 - Recycle returned hardware REDUCING time and money

WAS Product Team Accelerates Agile Development Practices



Client Pains

- Needed to enable rapid access to WAS topologies to improve quality and decrease costs
- Inefficient use of infrastructure resulting in low hardware utilization



Real Results

- **\$500K** in direct savings, **\$2.1M** in enabled efficiency gains through Agile development practices in the first year of deployment
- Reduced topology install time from **3 Hours to 20 Minutes**
- Increased hardware utilization from approx **10% to over 60%**





IBM Lab Use Case Scenario



Industry Pains

- OS security compliance issues due to virtualization
- Low rates of hardware utilization
- Agile development requires high quality and broader testing

Smarter Business Outcomes

- No OS security compliance violations in 12 months
- Increased server utilization up to 90%
- Reduced standardized topology deployment from over 2 hours down to 18 minutes
- Leveraged existing hardware and software assets



Why Smart SOA Infrastructure?

“The ability to provide compliant patterns and images in our public lab while leveraging the speed and rapid deployment of virtualization is significant for our efforts to consolidate hardware, and reduce costs while at the same time providing onDemand access to development and test environments necessary for Agile development”. **Frank Varone, IBM WebSphere Test and Quality Manager**



Customer Success: Large US Airline



- WebSphere VE's work load management dynamically adjusts server weights and evens out CPU utilization and response times
 - WebSphere VE's Application Edition Management allows application update with continuous availability
-
-
-



Customer Success: Large Health Provider



■ Business Challenge

- 50+ aging WebLogic applications running on older legacy hardware + software
- Website runs on over 150 physical Intel based servers

■ Solution Elements

- WebSphere Network Deployment and Virtual Enterprise
- HP Intel hardware running Linux

■ Why WebSphere Dynamic Infrastructure?

- Virtual Enterprise gave them the consolidation they were looking for in their production and non-production environments
- Virtual Enterprise allowed them to gain QoS they would normally get in a higher end hardware platform
- Application edition management supporting rolling upgrades (no downtime)

■ Results

- Collapsed over 100 CPUs to less than half with Virtual Enterprise
- Delivered a Java application for less than \$25K – previously they were unable to deliver a Java application for less than \$100K
- Much better availability and up-time – no need to reboot servers for new releases!



Public “Private Cloud” Customer Reference – Haddon Hill Group



■ Overview

- WebSphere Application Server powers the day-to-day operations of many of the largest companies. Many large financial services companies, in particular, are in essence software companies that build their custom applications that create their products on IBM operating systems and IBM middleware.

■ Business need:

- A major financial services company wanted to consolidate large, complex WebSphere product environments in two data centers and manage configurations efficiently.

■ Solution:

- IBM Business Partner Haddon Hill Group used IBM WebSphere CloudBurst Appliance now named IBM WorkLoad Deployer to roll out and roll back configurations for the WebSphere stack, reduce the complexity of large environments and maintain consistency of server configurations thus reducing errors.

■ Benefits:

- Projected 7-figure savings for enterprise WebSphere implementations ·
- 13 - 15x times faster time to market (3 - 4 days versus 40 - 60 days) ·
- Six months to one year from go-live for investment payback

■ Case study (.pdf):

- <http://www-01.ibm.com/software/success/cssdb.nsf/cs/CPOR-8CVJTW?OpenDocument&Site=corp&ref=crdb>





Large Financial Services organization cuts operational costs with IBM Workload Deployer

- More efficient recycling and reuse of hardware resources, significantly improving utilization
- Cut operational costs associated with manual provisioning steps
- Significant reduction in lead time when doing bug fixes, application feature changes or deploying new applications into their WebSphere Application Server environments.

-
-



Financial Institution

■ Goals

- Faster provisioning of large WebSphere farm
- Consistency required by compliance & information security
- Based on proven standard engineering patterns (SEP)
- Effectively manage WebSphere licenses utilizing sub-cap licensing facility

■ Results

- **The provisioning time for an application with over 60 JVMs were reduced from 3 weeks to 18 hours**
- **Great tool to apply fixpacks to large WebSphere farm**
- **Achieve uniform WebSphere configuration across multiple applications in a large WebSphere deployments**
- **Secure, scalable images helps reduce repetitive manual labor**
- **Effective tool to control and manage WebSphere license cost in VM farm**
 - The tool allows to leverage IBM sub-capacity model



Benefits: WebSphere Private Cloud and Intelligent Management



- **Reduce rising costs**

- Lower operational & energy costs by proactively managing server and application deployment, managing application health, consolidating workloads, and maximizing utilization

- **Deliver superior customer service**

- Improve customer service by dynamically delivering needed resources to highest priority applications and providing self-service access to cloud resources for development, test and production

- **Roll out new services faster**

- Use cloud computing techniques and enhanced efficiency to quickly roll out new services and increase revenue and market share

Value Propositions of IBM Workload Deployer

3



2



1

Automation

Virtualization

- Manage access to shared resources
- Recycle resources
- Understand who's using what, for better capacity planning and chargeback

- Deploy workloads as “patterns”
- One click = running system
- Errors & inconsistencies are removed

People...

- Make mistakes, computers don't
- Are slow, computers are fast
- Are expensive, computers are cheap



IS Workload Deployer for you?

- Is your infrastructure team's **productivity hindered** by process?
- From the "decision to deploy" to "running app," **how many people** have to be involved to get an application environment running?
- Are you having **trouble managing parallel maintenance streams** for products in virtual images?
- **Do bugs show up late in your development cycle** due to inconsistencies between development/test, QA, and production? Does this impact your delivery? customer satisfaction?
- Does your test team spend lots of **time preparing/destroying** environments?
- Does your environment experience **virtual machine sprawl** because resources are not relinquished?
- **How long does it take** to "spin-up" or provision a new environment?
- Do you want **simplification? Ease of deployment for web applications?**



Workload Deployer: Alternative

- **Workload deployer understands what it is dispensing**

- Can do more of the work required for deploying an environment, compared to black-box-dispensing competition
- Alternatives considers all deployed products to be black boxes

Alternative

VM VM VM

VM VM

Deploys machines as black boxes. Each VM is treated the same, regardless of the contents.

- **Use of Workload Deployer Results in following benefits**

- More of the deployment is automated
- More labor savings
- More consistent deployments

IWD

IHS WAS Portal

DB2 DB2

IWD knows how IBM products are given “personality” and “wired together.” It takes care of setting IP addresses, nodenames, configuring clusters, etc.

Intelligent Management Delivery Vehicles

Private Cloud – IBM WorkLoad Deployer

WAS ND and WAS for z
V8.5



Standard I/T
Usage with
WAS etc.

WAS ND
Hypervisor Edition
V8.5



Topology
Patterns

IBM Workload
Deployer Pattern
For Web Applications



Workload
Patterns

Flexibility

Labor Savings

Business Value
Assessments (BVA's) have
shown energy and cost
savings with increased
utilization using Intelligent
Management



Pure Application System

Jason McGee installs less than 4 hours video

- <http://www.youtube.com/watch?v=os-sAK12jmE&feature=related>





Cast Iron — Company Overview

Corporate Facts

- Founded in 2001 by integration industry experts
- Acquired by IBM May 2010
- Pioneered SaaS / cloud integration
- Unique focus on speed & simplicity — “Integration in Days”
- Thousands of customer integrations
- 14 consecutive quarters of growth
- 96% customer retention
- Patented technology

Buzz

“ IBM bought Cast Iron Systems because...they do inter-enterprise integration better than anyone else.... ”



“ With Cast Iron, IBM gets a proven Cloud integration-as-a-service solution. ”



Recent Awards



CLOUD COMPUTING
WORLD SERIES AWARDS



2010 SIIA //CODiE// FINALIST

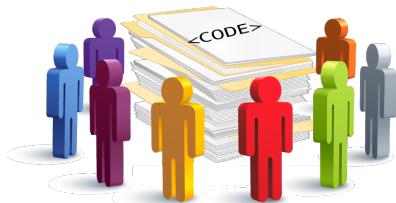


Cast Iron Integration Platform

Complete. Proven. Trusted.

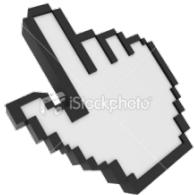


Custom Code



People intensive

On-Demand



Rudimentary Capabilities

On-Premise



Cloud is an Afterthought





Complete Flexibility



Cast Iron Cloud2™



Physical Appliances



Virtual Appliances

Total Connectivity



Complete Reusability



TIP Exchange



TIP Development Kit

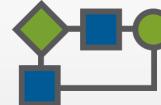


TIP Community

For All Types of Projects



UI Migrations



Process Integration



Data Migration



Complete



Complete Flexibility



Total Connectivity



Complete Reusability



Save Up to 50%
in Time & Costs



TIP Community

For All Types of Projects



Increase
Return

Process Integration



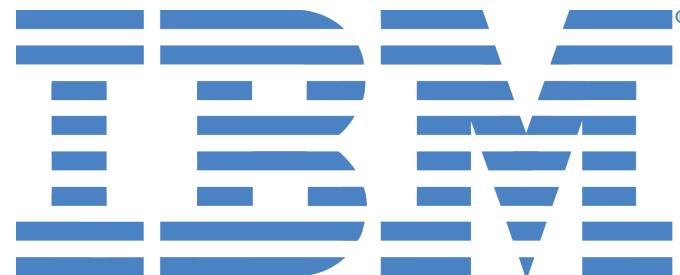
Data Migration

Trusted



salesforce.com[®]
Success On Demand.[™]

ORACLE[®]



amazon.com[®]

Microsoft[®]

SAP[®]

 **vmware**[®]

ADP[®]



Proven



Application Optimization

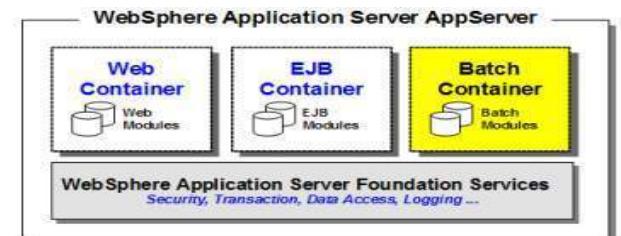
Focus on Elastic Caching and Java Batch

Debbie Miller

BUI Business Agility Tiger Team

Horizon Technologies

ddmille@us.ibm.com



Market Requirements: Support Transaction-Intensive Services



The Situation

- Business growth pushing the traditional I/T envelope
- On-line data demands driving volume growth
- Budget constraints

Your Opportunity

- Improve performance
- Increase throughput
- Optimize cost



Problem: Delays in Internet Response Time

Negative Impact on Revenue and Customer Satisfaction

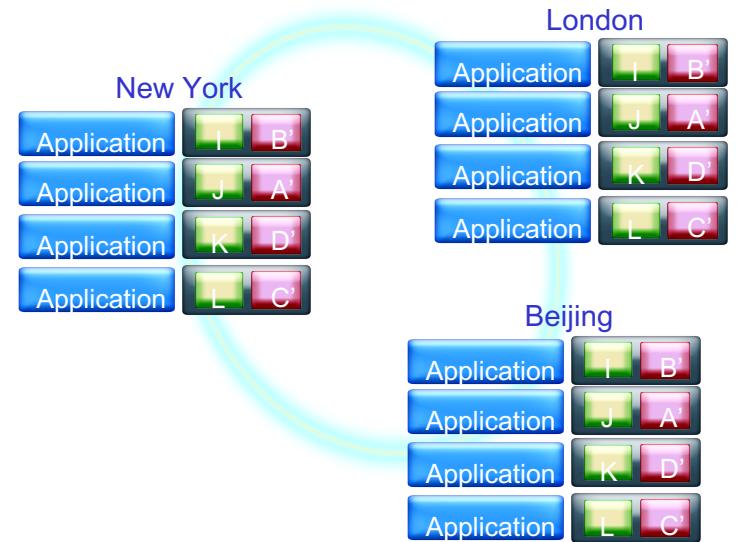
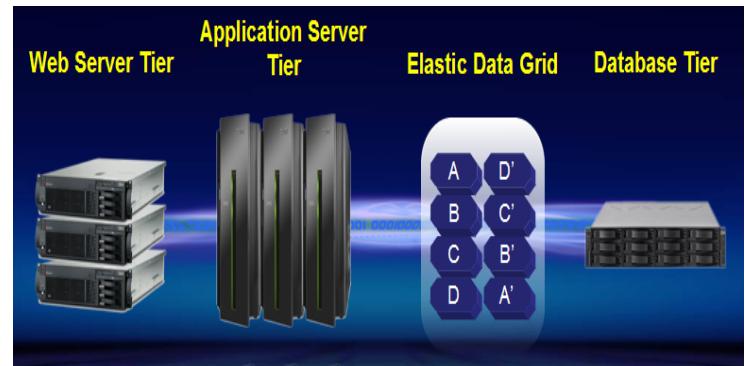
Average impact of one second delay in response time for web users



1. "The Performance of Web Applications: Customers Are Won or Lost in One Second," Bojan Simic, Aberdeen Group, November 2008
2. Source: Internet World Stats, Usage and Population Statistics, www.internetworldstats.com/stats.htm, December 22, 2010

WebSphere eXtreme Scale

- A powerful, elastic cache
 - ✓ Very quick time-to-value and high ROI
- Offers automatic scaling and fail-over
 - At predictable costs as transaction volumes grow
- IBM and non-IBM:
 - Non-IBM Application Servers (TomCat, JBOSS, Oracle, others)
 - WebSphere Application Server
 - WebSphere Commerce
 - Business Events – now part of WebSphere Operational Decision Management (WODM)
 - Business Rules – now part of WODM
 - .Net Applications with REST API



Cache Helps Improve Response Time...

A cache allows you to get “stuff” faster and helps you to avoid “going to fetch it” over and over again!!!





Innovative Elastic Caching Solutions - also works with non-WAS Solutions



DataPower XC10 Appliance

- Drop-in cache solution optimized and hardened for data oriented scenarios
- High density, low footprint improves datacenter efficiency

“Data Oriented”

Session management
Elastic DynaCache
Web side cache
Petabyte analytics
Data buffer
Event Processing
Worldwide cache
In-memory OLTP
In-memory SOA

“Application Oriented”



eXtreme Scale

- Ultimate flexibility across a broad range of caching scenarios
- In-memory capabilities for application oriented scenarios

*Elastic caching for linear scalability
High availability data replication
Simplified management, monitoring and administration*



IBM WebSphere DataPower XC10 Appliance

- Scale out with ease
 - Large, elastic cache allows you to scale more economically while providing high Quality of Service
- Easy drop in use for common scenarios
 - Support for data-oriented caching scenarios without rip & replace
- Fault tolerance
 - Lower risk of data loss while providing continuous availability
- Flexible and simple user management
 - Simple solution for real world management and monitoring



Elastic Caching Works with WAS 8.5 Liberty Profile!

WebSphere eXtreme Scale and DataPower XC10

- Integrates seamlessly with Liberty Runtime and its dynamic feature model
 - WXS Container servers can now run on Liberty profile
 - Standalone Liberty Servers can maintain HTTP Session failover and high availability by leveraging an WXS Grid
 - Simple for customer to make use of WXS Use cases!
-
- For Developers, easy to develop WXS applications using Liberty within Eclipse
 - Start up a WXS grid, start up a WXS client, & start up the Liberty server all within a single runtime environment!
 - Additional Tooling for WXS supported for Liberty
 - Very easy for customers to develop & configure WXS applications right in the Eclipse tool!

Elastic Cache



1 DataPower XC10 for simple data oriented scenarios



2 WebSphere. software
eXtreme Scale for maximum flexibility





ESPN: innovating at the edge

The screenshot shows a web browser displaying the ESPN Front Row website. The main content area features a photograph of two men in a television studio, with one man in the foreground looking at a monitor. Below the photo is a headline: "Engineering a message in Vegas". A large video thumbnail on the left shows a man speaking on stage at an event. At the bottom of the page, there is a paragraph about a recent event in Las Vegas.

Engineering a message in Vegas « ESPN Front Row

Most Visited MNR Schedules Everything from net... Google Latest Headlines News 1

Engineering a message in Vegas ... +

The ESPN SportsCenter Studio in Bristol, CT

ESPN FRONT ROW

HOME ABOUT ARCHIVES CONTACT US

PREV POST > NEXT POST <

posted by Kevin Ota on April 21, 2011 8:00 AM

Engineering a message in Vegas

LAS VEGAS – Last week, ESPN was part of a big production at an event with an audience of thousands. With a huge center stage framed by oversized video screens in the background, the applause was loud, the music was louder, and the crowd was entertained by an array of world class performers.

Done

When we started the personalization effort for ESPN.com, our biggest challenges were scalability and performance. Personalized content is unique for each sports fan, and with so many requests every minute of the day, traditional web page caching starts to break down quickly. So we designed the GRID..."

- 10,000 requests per second
- Sub-second response time
- 10x better than before
- Now: 20 servers; IBM tested to 1,500
- 3 months from concept to production



Business Value: One of the Largest Retail US Banks

Retail Banking

22 Million
online banking users

35x
reduced
response
times

\$500k
reduced
costs per
month

20x
reduction
in Lost
Sessions



Next-generation Online Banking

- **Before:** 700ms to login with 2 backend calls
- **After:** 20ms to login with profile cache access
- **\$6M cost savings in MIPs reduction**
- 700k replication operations per hour across 3 data centers
- 8Gb of data transfer per hour between DC's

Provides seamless cache infrastructure across applications

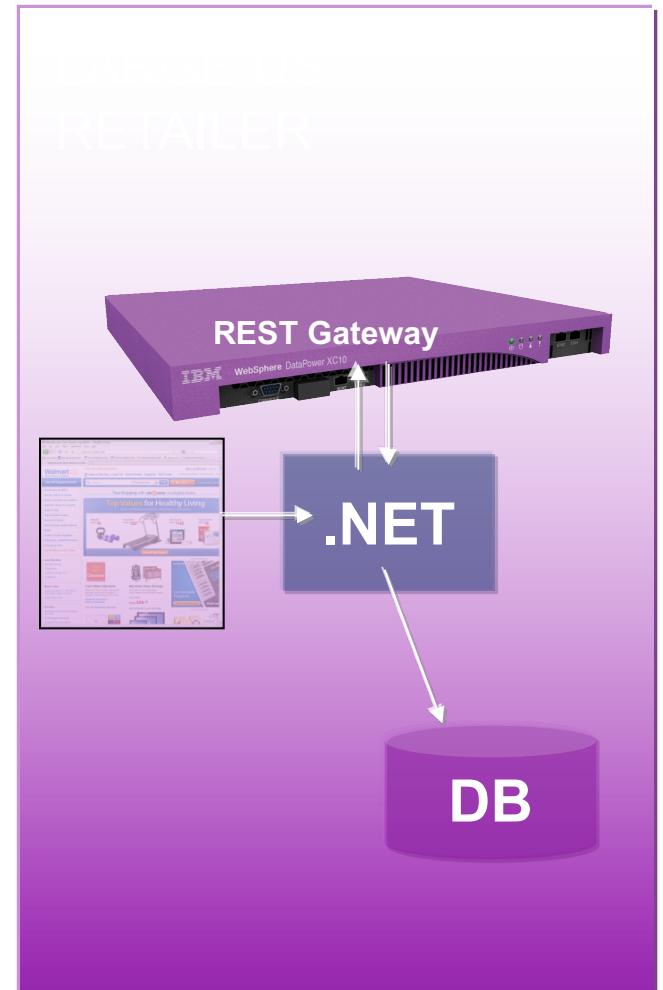
Delivers high performance & consistent response times

Ensures high availability of critical online applications

Scales with simplicity and lower TCO

Using DataPower XC10 via REST Gateway

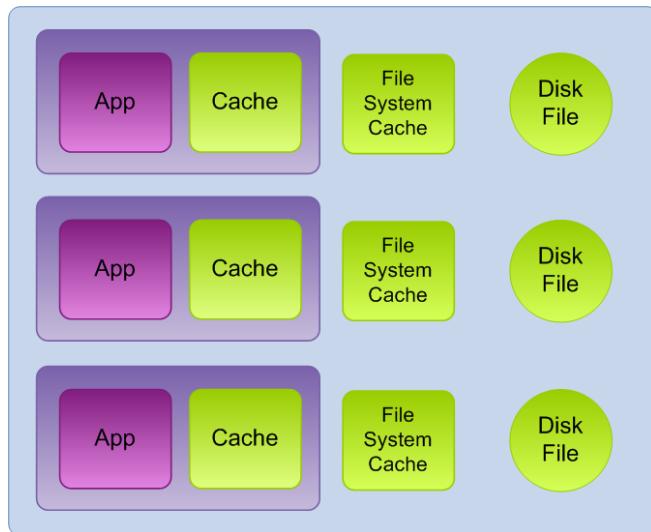
- Non-Java clients and Java clients can access the same data grids
- Enables non-Java based clients access to simple data grids
 - e.g. .NET, PHP – Scripting Language





Cache in on Commerce

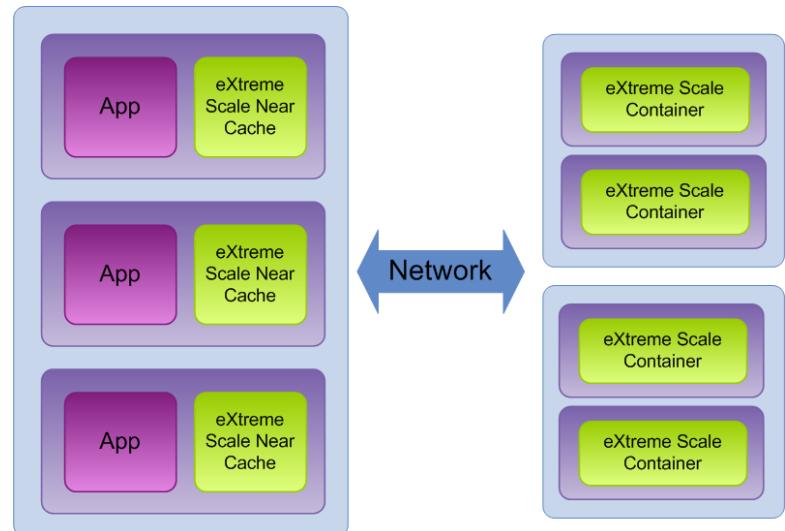
Traditional Commerce Caching



Commerce uses memory to cache whole pages, page fragments, images, etc.

Difficult to keep cache copies in synch. As one copy is updated all the other instances need to be notified of the changes as well

ADDING Elastic Caching



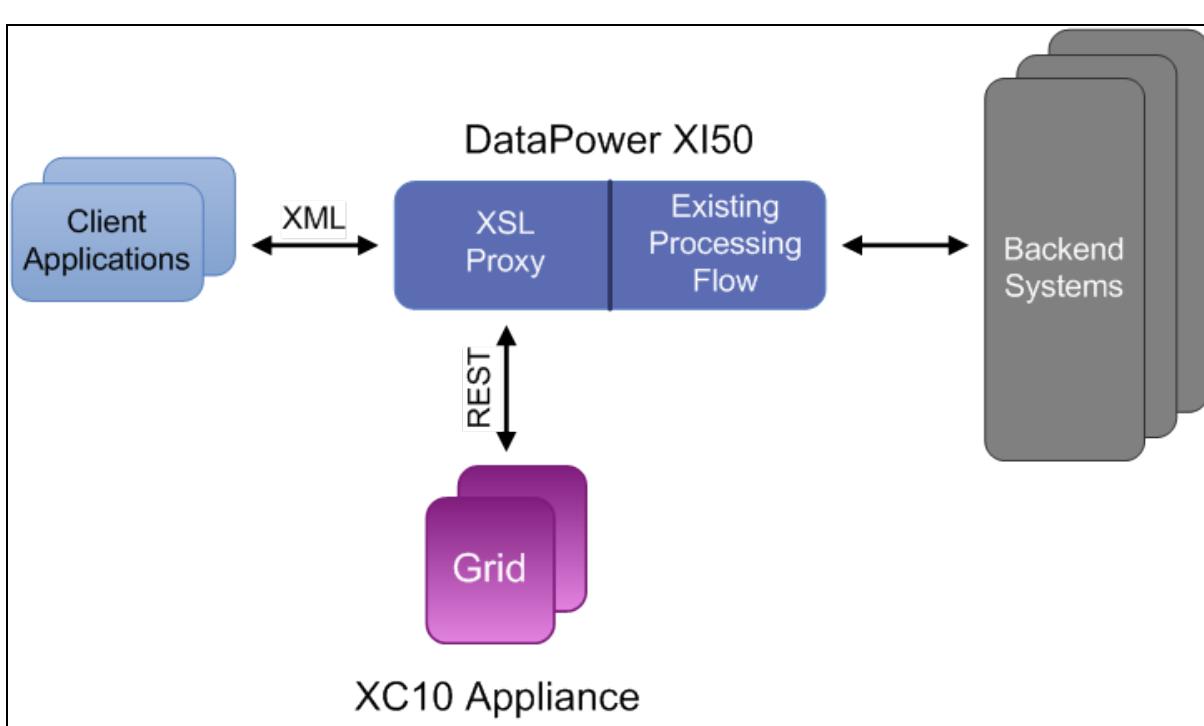
WebSphere eXtreme Scale delivers SHARED elastic grid for all Commerce servers

Cost savings due to reduced hardware, memory and disk requirements.

***IMPACT Testimony:** Sears added XS to their WebSphere Commerce environment and didn't have to change a line of code! – contact Scott Hughes before using as reference*

Cache in on Connectivity

DataPower XC10 w/ XI50 (Enterprise Service Bus & Security)



Norwegian Cruise Lines Benefits:

- ❖ 100x faster response time
 - ✓ From 3-5 seconds down to 0.01- 0.05 seconds

- ❖ Reduced load on Back-end
 NORWEGIAN CRUISE LINE®

Target Customers with DataPower XI50's/XI52's:

Cache content of transactions flowing through an ESB to be used for handling subsequent redundant service requests



Cache in on Connectivity – SOA Data Grid

Building on momentum from DataPower XI50 / XI52 integration

- Opportunities to ADD-ON elastic caching with the following:
 - WebSphere Message Broker
 - WebSphere ESB
 - WebSphere Process Server (Business Process Management)
 - WebSphere Service Registry and Repository (WSRR) – services registry and governance



eXtreme Scale (XS) for WebSphere Portal

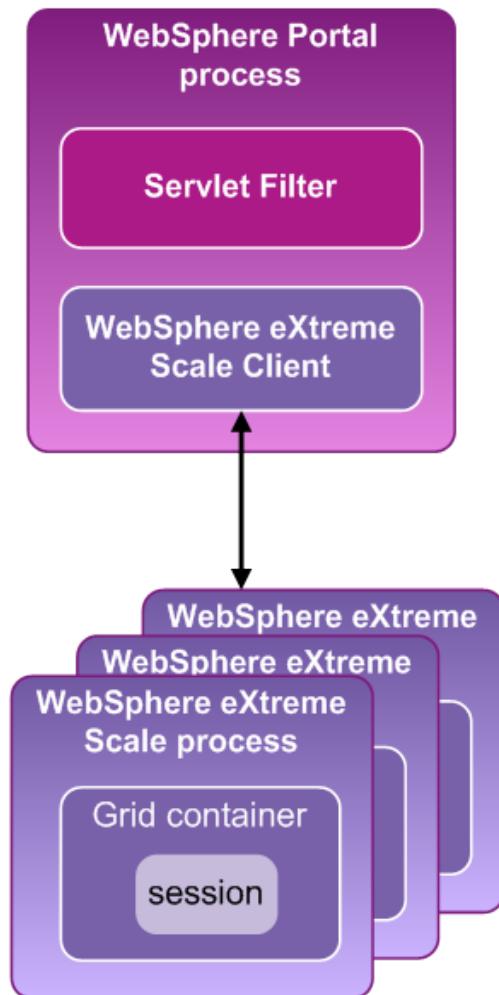
Problem: Session replication required for high availability

- **LARGE memory demands in the Portal Server**
 - Very costly –due to “throwing hardware at the problem to add more memory”

Solution: WebSphere eXtreme Scale delivers session persistence and replication of portlets

Key Benefits of using XS Caching with WebSphere Portal

- Reduced hardware resources
- Improved session QoS (Quality of Service)
 - Fewer servers and less memory needed
- Disaster recovery solution - Multi-data center session replication



Summary: Transaction Intensive Infrastructures

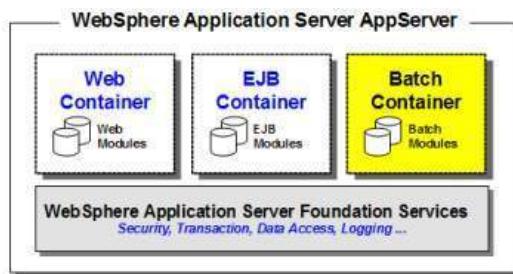
Delivering transaction flexibility, scaling with the business



- Get data close to the transaction that needs it
- Scale linearly with a business resilient data store
- Adjust dynamically to the size and shape of the enterprise
- Address needs from a simple shared cache to a fully elastic data store
- Extend business value using a “Plug in” for existing applications



AGENDA

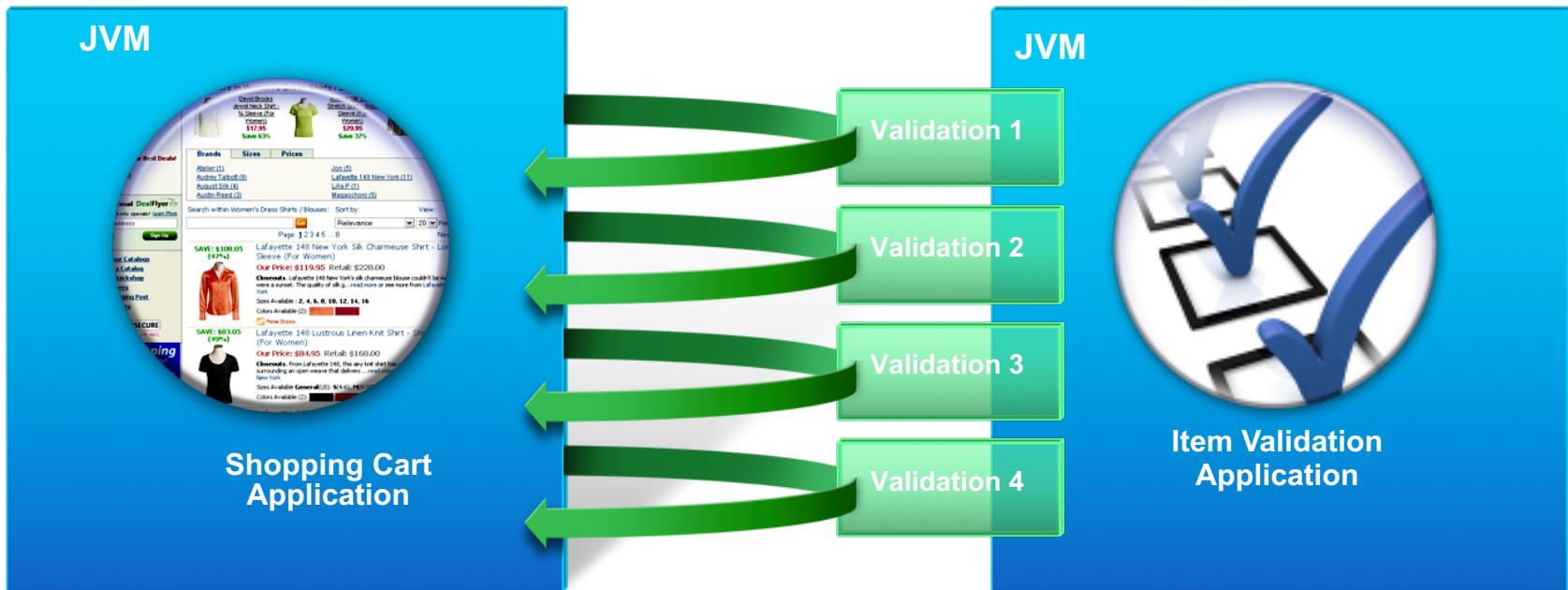


- Java Batch



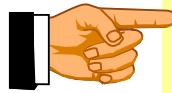
High Latency Issues – takes more cycle time

Without WebSphere Java Batch Support



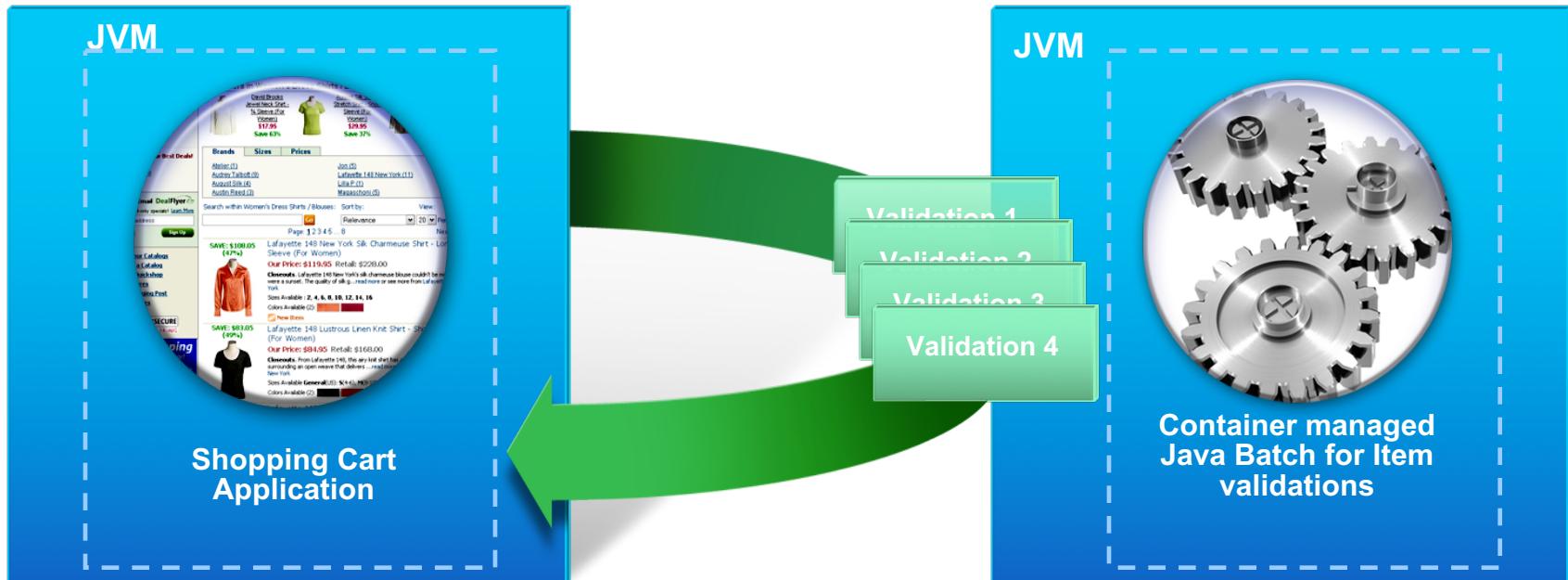
Result:
Even a handful of validations takes lots of time

Optimized Java Batch = Improved Performance



With WAS ND V8.5 and WAS for z V8.5 includes FULL Java Batch support

Java batch programming model supported on WAS V8.5



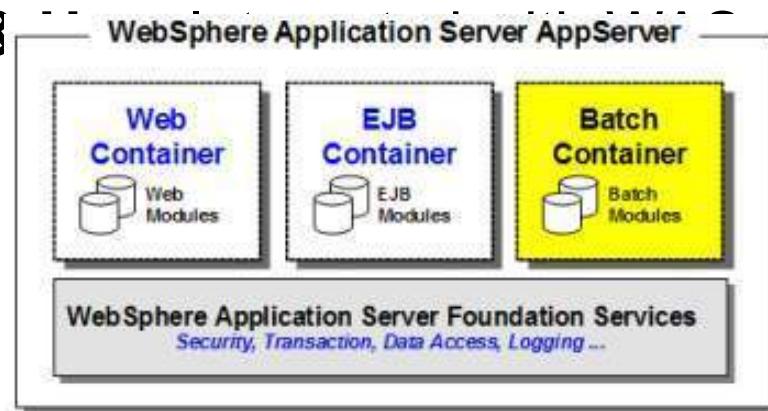
Result: Reduced LATENCY with hundreds of validations back in a split second

Java Batch

Quickly develop and deploy batch applications and dramatically reduce infrastructure and operational costs

Key Features:

- **Lower TCO: Higher throughput and lower resource consumption on z when co-located with data. If data on distributed then use it there (works with WAS on z and distributed)**
- **Ease of Access &**



Optimize Transaction Lifecycles

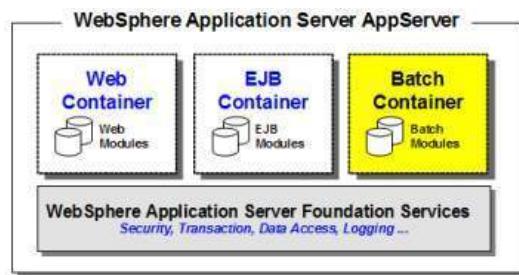
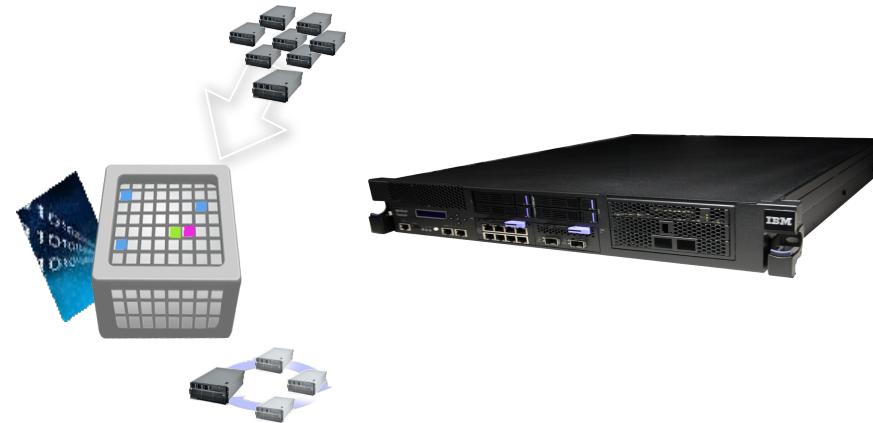
WebSphere Java Batch

Enabling practical reuse of on-line Java assets as batch workloads

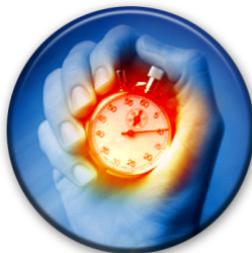
- **Increase operational efficiency** - integration of online and batch workloads
- Scale with the business supporting **large Java batch application workloads**
- **Reduce transaction lifecycle costs**
 - Reuse business and I/T assets online and in batch
- **Leverage WAS with Java Batch (FREE)**
 - **Move customers off of Open Source Spring Batch Framework**
 - **Upsell to WAS V8.5**
 - Which enables ability to efficiently submit, monitor and control batch workloads using a high speed connector with Tivoli Workload Scheduler



AGENDA



- Real Time



WebSphere Real Time Optimizes Transaction Response Times

When consistency and low latency in real time applications truly matters

- **Real Time Examples:** applications controlling rudder of an airplane or controls for Shuttle mission
- **Provides real-time runtime and development toolkit:** Using Java instead of lower level languages like Ada, C, or C++
- **Critical application requirements measuring response time in milliseconds:**
 - Delivers "**Metronome**" Garbage Collection
 - **Ahead-of-Time compilation:** Enables code pre-compilation for the fastest and most deterministic execution performance
 - **Real Time Linux Kernel**



Enables Java as
a practical
language for
Real Time
Applications

SolidDB Positioning w/ WebSphere eXtreme Scale and XC10

Sophisticated Query Support

solidDB

WebSphere eXtreme Scale

*Access Data
as POJOs*

- For adding simple caching to a new and existing system both WXS and SolidDB can be used
- For systems that need large scale-out, eXtreme Scale is the better fit: it can linearly scale transaction processing systems out to thousands of servers
- For SQL-Intensive applications with complex SQL query requirements, but no extensive scale-out SolidDB is a good fit.
- For systems needing to cache results from backend services, eXtreme Scale is a better fit. Its Loader interface permits caching results from services, accelerating performance and adding scalability to a SOA



Are you ready for WebSphere eXtreme Scale

1. Is the application making too many expensive roundtrips to the backend systems?
 - Are the data accesses redundant?
 - Is the same data being accessed by multiple applications or multiple instances?
2. Is the data accessed mostly read-only (i.e., applications with high read/write ratio)?
3. Are you spending a large number of resources in managing the environment?
4. As the data volume grows, how will the current infrastructure scale? Will it be able to keep up?
 - Is the growth affecting your data access time and/or throughput
5. Is the volume of data so large that it cannot possibly be stored in a single physical box? Or in a traditional database?
6. Is there a requirement for extreme levels of data processing and real-time analysis of gigabytes of data with low latency, constant millisecond level response time?
7. Are you comfortable with your High Availability strategy?





Should I use a DataPower XC10 (eXtreme Scale Appliance) instead?

1. How are you handling HTTP sessions for your WAS applications
2. How do losses of users' sessions affect their satisfaction with your application (or conversion rates if e-commerce)
3. How will your current infrastructure scale? Will it be able to keep up with your growth projections?
4. Are data center costs associated with power consumption, administration, rack space inhibiting growth?



Search

GO

Search scope: All topics

Search

Contents









































































































































































































































































































Easy to support

- One vendor to call to get high quality support
- Vast amount of knowledge from thousands of real projects
 - Redbooks, developerWorks, books, blogs, case studies, docs
- IBM stack certification
 - Product integration teams for cross-brand system verification
- Synchronized release schedules and prerequisites management
 - Example: BPM 6.1 stack consists of WAS 6.1, Modeler 6.1, WPS 6.1, Monitor 6.1, WSRR 6.1, WID 6.1 and Fabric 6.1
 - Consistent system requirements, support for OS, DBMS, JDK, standards
- Interoperability
 - Leading the way in WS-I.org profile compliance and doing interop testing internally
 - Supporting the widest array of 3rd party software (LDAPs, OSs, DBs, protocols, devices, etc.)
- IBM Support Assistant and Electronic Service Agent tool
 - Supports all IBM brands (Tivoli, WebSphere, Lotus, Rational, Information Management, Systems Group) and helps collect system information and submit/manage problem requests, access and search information sources (manuals, redbooks, forums, education, PMRs, etc.)



IBM WebSphere Application Server V6.1 Security Handbook



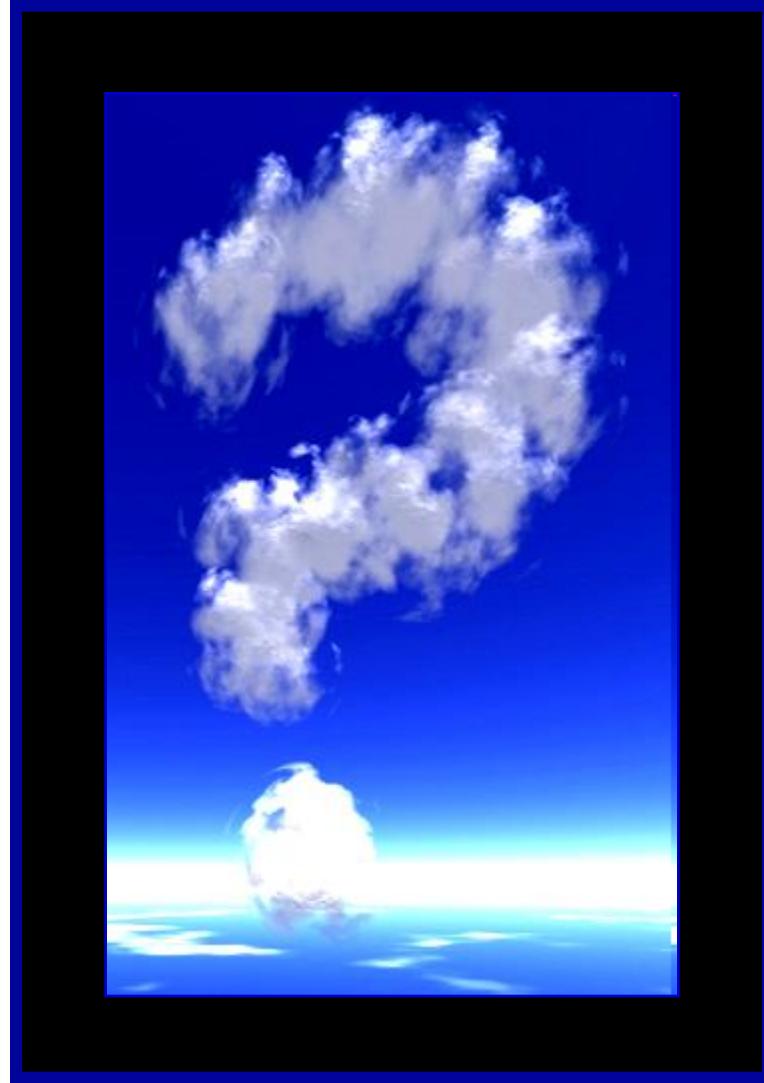
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Markus Miettinen
Kai Sonnenschein
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