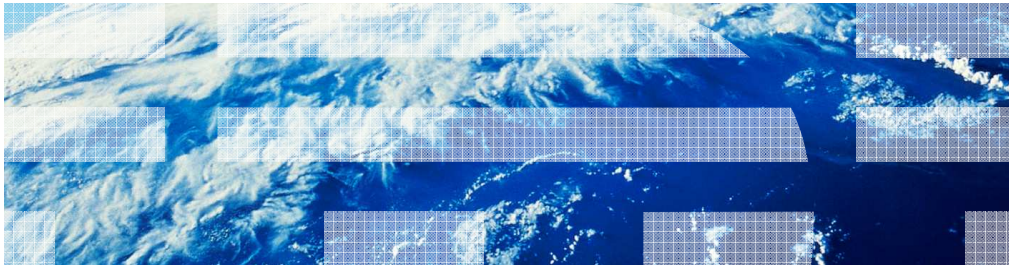


IBM WebSphere Application Server V8.5




Application resiliency overview



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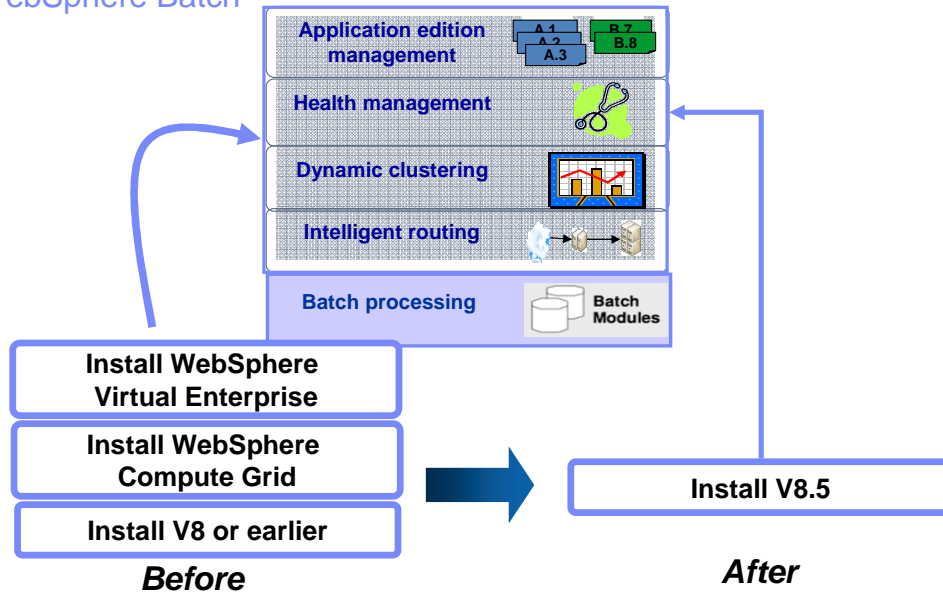
WebSphere® Application Server V8.5 brings you Java SE7 as a pluggable JDK, a profile that runs significantly faster and loads only components that are needed in your configuration, and intelligent management functions that make the application server even more resilient. This overview specifically covers the new features that improve application resiliency of the application server.

WebSphere Application Server V8.5 delivers

Developer experience	Application resiliency	Operations and control
 <p>Fast, flexible, and simplified application development</p> <ul style="list-style-type: none"> ▪ Liberty profile ▪ Expanded tools and WebSphere Application Server tool bundles ▪ OSGi programming model enhancements ▪ EJB support in OSGi apps ▪ JDK7 Support ▪ Migration toolkit ▪ Web 2.0 and Mobile Toolkit ▪ IBM Worklight Integration ▪ SCA OASIS programming model 	 <p>Intelligent management and enhanced resiliency</p> <ul style="list-style-type: none"> ▪ Application Edition Management ▪ Application Server Health Management ▪ Dynamic Clustering ▪ New Intelligent Routing capabilities ▪ Messaging infrastructure resiliency ▪ Memory leak detection and protection in WebSphere Application Server 	 <p>Improved operations, security, control, and integration</p> <ul style="list-style-type: none"> ▪ Selectable JDK ▪ WebSphere Batch enhancements ▪ Administrative Security Audit ▪ OSGi Blueprint security improvements ▪ Cross Component Trace (XCT) ▪ Enhanced IBM Support Assistant ▪ Better log and trace filtering
2	Application resiliency overview	© 2012 IBM Corporation

WebSphere Application Server Version 8.5 focuses on three primary goals: providing a fast, flexible, and simplified application development environment that allows you to deliver rich user experience faster; provide intelligent management and enhanced resiliency for your application server environment; and improve operation, security, control and integration of the application server.

WebSphere Application Server Network Deployment V8.5: Resiliency enhancements – WebSphere Virtual Enterprise and WebSphere Batch



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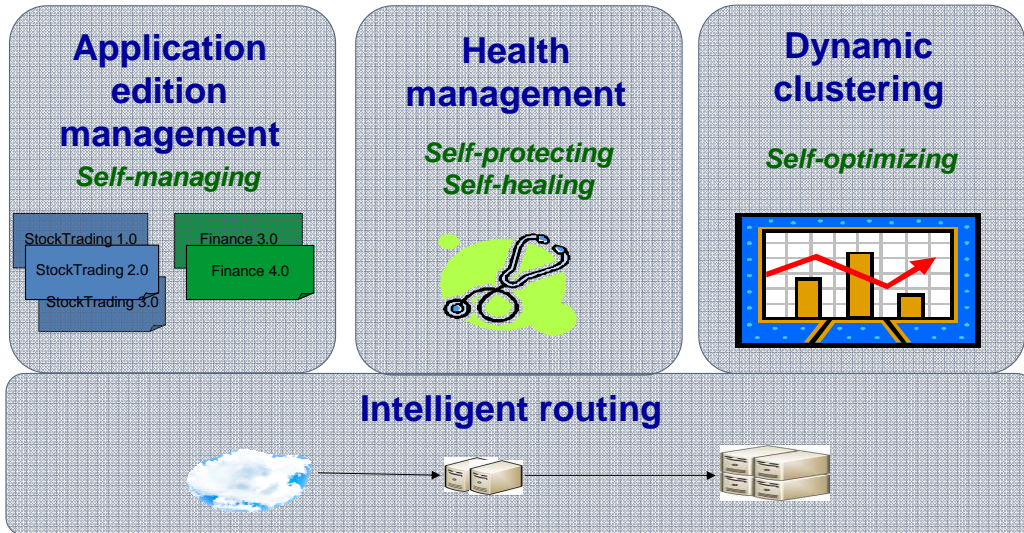
Application resiliency overview

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Intelligent management features in WebSphere Application Server V8.5 makes the application server even more resilient. These enhancements include application edition management, new intelligent routing capabilities, application server health management, and dynamic clustering. The WebSphere Virtual Enterprise product is now fully integrated as part of the WebSphere Application Server V8.5 release.

Intelligent management

Extending QoS through autonomic computing

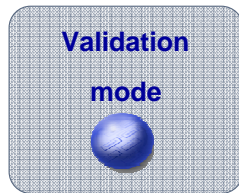


WebSphere Application Server V8.5 has several features that improve the quality of service through autonomic computing. These features make possible automatic routing without the need to update configuration files, application edition management without incurring any application downtime, automatic server health detection and correction without administrative intervention, and enhanced performance management through service policies. Intelligent management is part of WebSphere Application Server Network Deployment V8.5, WebSphere Application Server for z/OS® V8.5, and WebSphere Application Server Hypervisor Edition V8.5

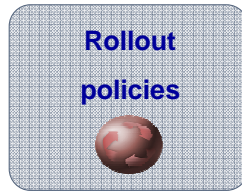
Application edition management

Applications can be upgraded without incurring outages

- Upgrade applications without interruption to users
- Concurrently run multiple editions of an applications
 - Automatically route users to a specific application
- Multiple editions can be activated for extended periods of time
- Rollout policies to switch from one edition to another without service loss
- Easily update OS or WebSphere without incurring down time
- Easy-to-use edition control center in administrative console, plus full scripting support



**Validation
mode**



**Rollout
policies**



**Concurrent
activation**

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Application resiliency overview

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WebSphere Application Server Version 8.5 provides application edition management, which allows you to rollout newer versions of the application without incurring an outage. The application edition management feature allows you to install a second version of the application and run it by directing some of the traffic to it and after you feel comfortable that it meets the need, you can have the application server automatically switch entirely to the newer version and get rid of the old one, or you can switch back to the old copy. These changes can be made easily without incurring any downtime.

Health management

Sense and respond to problems before users suffer an outage

- Automatically detect and handle application health problems
 - Without requiring administrator time, expertise, or intervention
- Intelligently handle health issues in a way that will maintain continuous availability
- Each health policy consists of a condition, one or more actions, and a target set of processes
- Includes health policies for common application problems
- Customizable health conditions and health actions

**Comprehensive
health policies**



Application resiliency overview

**Customizable
health conditions**



**Customizable
health actions**



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WebSphere Application Server Version 8.5 can monitor servers for common health problems and take corrective action. There are several health conditions that can be defined using health policies. When a violation of a health policy is detected, an action plan can be put into effect automatically – including sending email, capturing diagnostic data, and restarting the application server. Application server restarts are smart and done in a way to prevent outage and service policy violations. WebSphere Application Server Version 8.5 provides the “First line of defense” for poor application health by mitigating common health problems and routing around unhealthy servers.

Dynamic clustering

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

- Associate service policies with your applications
 - Let WebSphere manage to the service goals
- Programmatically respond to spikes in demand
 - Add or reduce application server instances as appropriate
- Automatically recover from infrastructure problems
- Includes automatic start and stop of cluster members based on load for MQ-driven applications
- Decrease administrative overhead required to monitor and diagnose performance issues



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Application resiliency overview

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Dynamic clustering allows the system to dynamically respond to spikes in demand by adding and reducing application server instances to accommodate the workload. This also includes recovering from infrastructure problems. This will help in decreasing the administrative overhead of monitoring and diagnosing performance issues.

Intelligent routing

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

- Requests are prioritized and routed based upon administrator defined rules
 - Flexible policy-based routing and control
- The on-demand router is the focal point for intelligent routing
- A routing tier that is aware of what is happening on the application server tier
 - Application server utilization, request performance, and so on...
- Route work to the application server that can do it best
- Provide preference for higher priority requests
- Integrates with health management and dynamic clustering



8

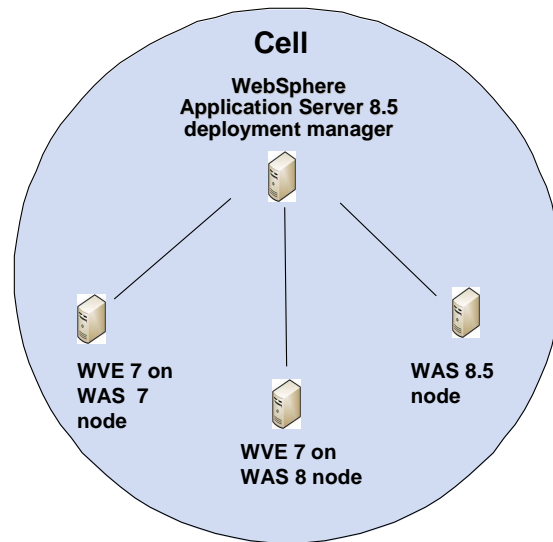
Application resiliency overview

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The on-demand router is the layer that allows most of the intelligent management functionality to work by routing work to the right place, using the health monitoring data and the request priority set by the application.

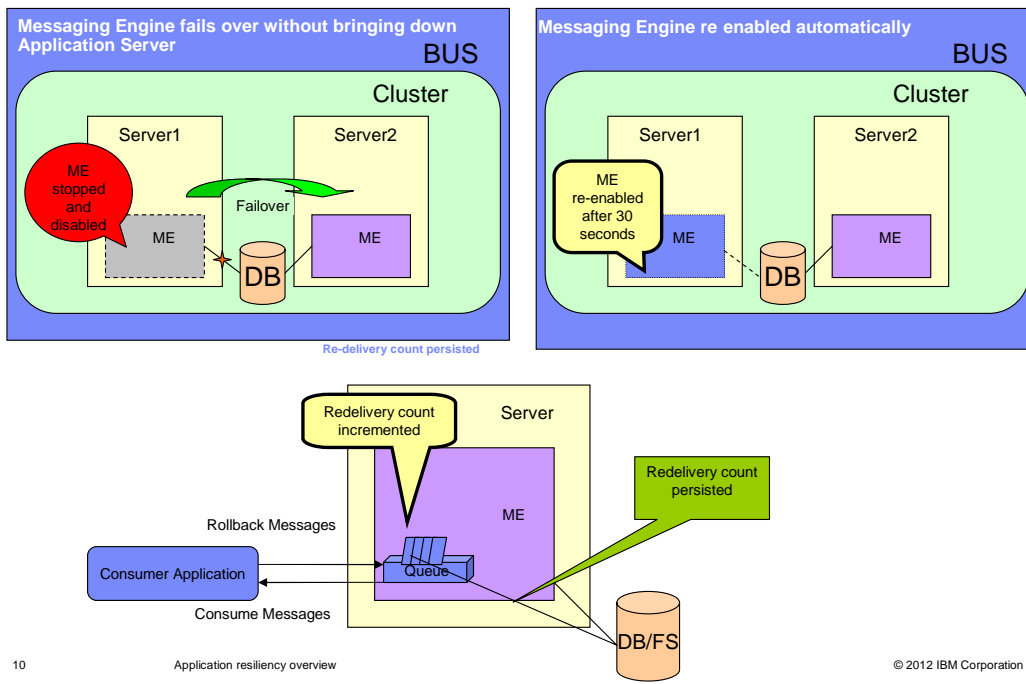
Migrating WebSphere Virtual Enterprise to WebSphere Application Server Network Deployment V8.5

- Migrate WebSphere Virtual Enterprise configuration data from an existing WebSphere Virtual Enterprise V7 installation (on either WebSphere Application Server V7 or V8) to a WebSphere Application Server Network Deployment V8.5 installation
- Support coexistence of WebSphere Virtual Enterprise V7 nodes (on WebSphere Application Server V7 or V8) in a partially migrated WebSphere Application Server Network Deployment V8.5 cell



You can migrate from WebSphere Virtual Enterprise to WebSphere Application Server V8.5. Migration tools handle the migration of Virtual Enterprise V7 to WebSphere Application Server Network Deployment V8.5. Mixed cell environments are supported where within the same cell, you can have a WebSphere Application Server V8.5 deployment manager and a Virtual Enterprise V7 on a WebSphere Application Server 7 Node or WebSphere Application Server V8 node, and a WebSphere Application Server V8.5 node as in this diagram.

Resiliency of messaging infrastructure



The WebSphere Application Server V8.5 messaging engine fails over to the stand-by instance without the need of bringing down the entire application server when an unrecoverable problem such as a hang or database connectivity issue is encountered. If the messaging engine is self-disabled due to a failure, it will re-enable itself after a configurable amount of time. If the problem still exists, it will take itself down again. The number of message delivery attempts is persisted and available to the messaging engine upon its restart.

Memory leak detection and protection

Reduce possibilities of memory leak in your applications

Get enough info. if leak is detected to help fix my app

List stopped apps that have memory leaks

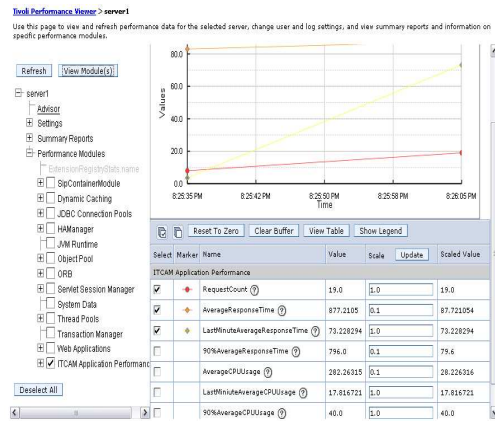
WebSphere Application Server V8.5:

- Ability to mitigate memory leak when stopping apps
- Ability to prevent leaks, receive leak warnings and get heap/system dumps
- MBean to list stopped apps that have memory leaks

WebSphere Application Server V8.5 provides top down pattern-based memory leak detection, prevention, and action by watching for suspect patterns in application code at run time. It can protect against memory leaks when stopping or redeploying applications. This feature monitors application and module activity and performs diagnostic actions when an application or an individual module stops, helping to increase application up time and with frequent application redeployments without cycling the server.




ITCAM for WebSphere Application Server 8.5

- Download is available in the ISM Library at <https://www-304.ibm.com/software/brandcatalog/ismlibrary/>
- Provides additional request-based response time and CPU metrics for WebSphere Application Server
- Easy integration with IBM SmartCloud™ Application Performance Management capabilities including:
 - Transaction tracking for quick problem isolation
 - SOA monitoring to understand the performance of your web services
 - Operational monitoring of WebSphere stack products such as WebSphere Application Server, IBM BPM, WebSphere Portal, and so on.
 - Simple upgrade to deep diagnostic capabilities from ITCAM for Application Diagnostics



ITCAM for WebSphere Application Server no longer ships on the WebSphere Application Server media. Instead, it can be downloaded from the ISM library.

WebSphere Application Server V8.5 – Get started today !

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<p>Liberty profile download 40MB zip from http://wasdev.net/</p>		
13	Application resiliency overview	© 2012 IBM Corporation

In summary, WebSphere Application Server V8.5 is the best WebSphere Application Server release to date. It provides improvements in application server resiliency. For more information about improvements in the developer experience and in operations and control, see the overview presentations for those topics. Download and try the Liberty profile from wasdev.net, and investigate for yourself all the resiliency improvements in WebSphere Application Server Network Deployment V8.5.

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