



OpenCloud Rhino Management

OpenCloud Rhino fully implements all the management capabilities mandated by the JSLEE standard plus additional operations and management capability.

FEATURES AND BENEFITS

Fault tolerant management

Management is always available ensuring that the mission critical system is always able to be controlled.

Single System Image

The management interfaces support the concept of “single system image” making the management of the underlying clustered system transparent, simple and atomic.

Web based management console

Intuitive Web-based management console to control the Rhino Application Server.

Multi-protocol management capability

Extensible management via the JMX architecture allowing the Rhino platform to be monitored and controlled by a variety of management products and systems such as provisioning systems, alarm management systems.

Command line management interface

Highly efficient and deep management of the Rhino SLEE from a command-line with no other tools needed. Allows for hands-free administration and management through available scripting and batching modes.

Application lifecycle, versioning, online upgrade and downgrade

Complete control of the application allows the administrator to seamlessly install, add features, monitor and finally decommission the application.

Rhino platform online upgrade and downgrade

The Rhino administrator can upgrade and downgrade the Rhino SLEE, Applications, Resource Adaptors, and provisioned data all without affecting the service.

Platform backup and restore capabilities

A Rhino installation is backed up by dumping the contents of the management and provisioning database. A Rhino node can be restored to the identical state at the time of the backup by restoring this dump.

Platform export and import support

Rhino configurations and provision data can be exported and restored for use in seamless upgrade processes. These capabilities can also be used to clone the production environment for development and test purposes.

Bulk provisioning interface

This interface supports efficient provisioning processes from the associated provisioning systems.

Management security

All Rhino management and provisioning functions are authenticated and encrypted to protect the security and integrity of the cluster in core network deployments.



About OpenCloud

OpenCloud was formed in New Zealand in 2000 to create open standard software technology that would revolutionise the portability and interoperability of services in telecommunications specifically in the evolution to IP and 3G IMS. OpenCloud works with partners to deliver, integrate and support end-to-end solutions incorporating OpenCloud products to network operators and service providers worldwide. OpenCloud has offices in: UK, New Zealand, Madrid, Tokyo, and San Francisco.

More Information

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ADDITIONAL RHINO O&M CAPABILITY

Single Image Management

The Rhino SLEE is managed as a single system image. Management operations are performed as part of a transaction, so that either all nodes perform the appropriate action, or the management operation 'rolls back'.

Management of the system is always available as each node provides a management service that receives management commands from the system administrator.

Clustering

The Rhino Application Server is a distributed system designed to run across multiple computers connected via an IP network. The set of connected computers running Rhino is known as a cluster. The Rhino Application Server cluster is managed as a single system image. Rhino clustering uses an N-way active cluster architecture where all the nodes are fully active, as opposed to an active-standby design which employs a live but in-active node that takes over if needed.

Management Control

Rhino provides a command line interface console and an HTML-based web browser-based console. These tools use the JMX interface that Rhino exposes. Rhino provides full support for management operations such operations as:

- Management of Deployable Units
- Management of SLEE Services
- Management of SLEE component trace level settings
- Management of usage information generated by SLEE Services
- Provisioning of Profile Tables
- Provisioning of Profiles
- Broadcast of JMX notifications carrying trace, alarm, usage, or SLEE state change information
- Management of Resource Adaptors
- Log configuration
- JDBC Resource Management
- Object Pool configuration
- Statistics monitoring
- On-line housekeeping

Management statistics

Rhino provides cluster statistics in real-time.

It is possible to monitor all aspects of Rhino: Activities, CPU-usage, Events, Lock Managers, MemDB-Local, MemDB-Replicated, Object Pools, Services, Staging Threads, System Info, Transactions

The management statistics show how the load is distributed between the nodes in the cluster and provides an important view into individual component behaviour in a clustered, fault tolerant scenario.

Rhino supports configurable threshold based alarms using the Rhino Application Server statistics. Threshold rules can be defined and configured to trigger alarms when certain conditions (including multiple, related conditions) are met, and to clear those alarms when certain counter conditions are met.

