IBM PowerHA SystemMirror V7.2 for AIX

High availability designed for Power Systems

Highlights

- IBM® PowerHA® SystemMirror V7.2 is the Power Systems strategic high availability solution for mission critical environments.
- The new UI enables the monitoring and management of your clusters
- Optimized for cloud with role-based security, audit tracking, and HA zones
- Log analytics for diagnostics provides reports and recommendations
- AIX live update support and cluster wide update
- Automates IBM Power® Enterprise Pools and Elastic Capacity on Demand (CoD).
- Advanced capabilities such as HyperSwap enable continuous availability with DS8K storage.

The objective behind implementing PowerHA is to provide near-continuous application availability through both planned and unplanned outages. PowerHA V7 is dedicated to keeping mission critical operations on line 24x365 with simplicity, security and the highest levels of automation.

PowerHA SystemMirror V7 for AIX

PowerHA has provided an HA management platform for Power Systems for more than two decades. With each release, PowerHA becomes more powerful, more robust, and easier to use. The V7.2.2 enhancements feature the GUI/Dashboard which enables you to both monitor and manage your cluster or collection of clusters from a single screen. PowerHA monitors for numerous soft and hard errors within the cluster from various event sources, including problems that are severe enough to immobilize the system. Monitoring and event management is done at the kernel of the operating system (OS), and thus the cluster is not prone to job scheduling issues or other OS related operations. The new log analytics tool will analyze on or offline cluster log data producing reports with recommended actions thus compounding IT operational efficiency.

PowerHA V7.2 is focused on providing superior economic value, greater automation, and more advanced, robust clustering technology. PowerHA V7.2 integrates and manages Power Enterprise Pools and Elastic CoD as part of failover operations enabling the automated move of processor, memory and software entitlements between partitions in the cluster.

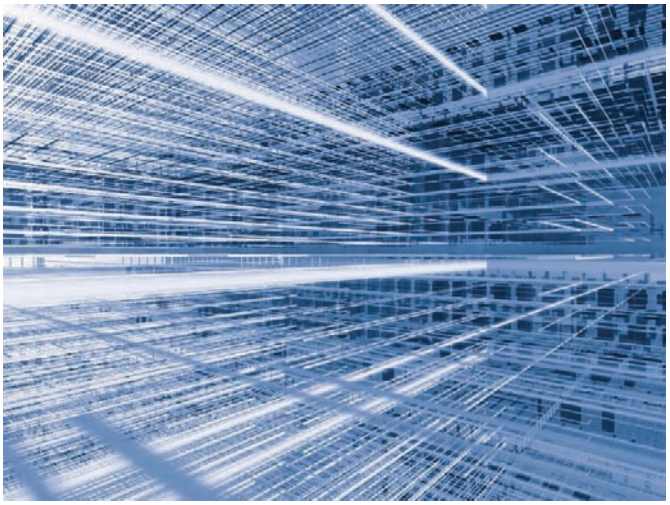
The easy update tool enables you to push updates to all of your cluster nodes or to roll them back. Cluster integrity was enhanced in V7.2 with failing node quarantine policies which ensure that an intermittent or failing node is isolated prior to a failover operation—thereby eliminating the possibility of partitioned cluster caused by a sick node returning during the failover process.

PowerHA V7 provides smart assists for easier, out-of-the-box high availability setup and application management for many well-known middleware products such as DB2®, SAP, NetWeaver and Oracle. The smart assists are high-availability agents for application deployment and management. Smart assists are used to define high-availability policies by discovering software that is deployed within the cluster. Discovery-based information helps define the high availability policy and provides periodic health monitoring, enabling middleware and resource dependencies to be restarted via the specified policy.

PowerHA SystemMirror V7 for AIX Enterprise Edition

The PowerHA SystemMirror V7 for AIX Enterprise Edition enables clients to readily extend their traditional data center cluster to incorporate a remote location for disaster recovery. The V7 cluster makes disaster recovery testing relatively simple while putting the operator in charge of managing failover policy and procedures.

PowerHA Enterprise Edition V7 supports HyperSwap configurations with the IBM DS8800 or DS8870 in a Metro Mirror configuration. This advanced technology provides the capability for a cluster to span two sites with the storage and servers cross coupled in a manner that for active-active workloads keeps the application resilient through either a storage server or a production server outage and for active-passive workloads through storage outages.



Geographically dispersed configurations can be deployed via a stretched cluster configuration defined as having a single cluster repository or via a linked cluster configuration with two independent yet linked cluster repositories. A stretch cluster can also be deployed with the Standard Edition and logical volume manager (LVM) mirroring in a cross-site mirror configuration. The stretched cluster configuration provides three levels of cluster communication redundancy via either unicast or multicast across the network, SAN fabric and repository disk.

- The Enterprise Edition with the Geographic Logical Volume Manager (GLVM) component provides host-based synchronous and asynchronous data replication and failover to remote sites. You can economically deploy your own disaster recovery solution with the GLVM configuration wizard.
- The Enterprise Edition supports IBM Storage Systems DS8800, SAN Volume Controller (SVC,) V7000 and XIV with either IBM TotalStorage Global Mirror or Metro Mirror, enabling automatic failover between geographically dispersed data centers. The Enterprise Edition also supports replication with select storage server subsystems from EMC and Hitachi.

PowerHA SystemMirror enhancements and capabilities

PowerHA SystemMirror V7.2 is all about automation, data integrity and security:

- UI/ dashboard enables IT operators to monitor and manage a cluster or a group of clusters from one interface.
- Security management provided via user role policies and audit logs
- Multi-tenant/management in cloud environments via cluster zones and access authority
- Automated Log analytics produces reports and provides recommended actions.
- Easy update command to push cluster wide updates as well as rollbacks
- Integrated and automated support for Power Enterprise Pools and Elastic Capacity on Demand
- Automated support for live partition mobility and AIX live update operations
- Fencing disks or disk groups preventing accidental access
- Resource group policy definition enable relationship management between multiple resource groups
- Resource relationship management such as “start after” and “stop after” dependencies are supported
- Cluster wide AIX and PowerHA verification checking.
- Quarantine processing for the isolation of a sick or intermittent node before a failover operation
- Integration of cluster-aware AIX and PowerHA SystemMirror V7 to provide kernel-based monitoring and event management, meaning minimal administration and immediate cluster-wide communications.
- Centralized cluster storage repository for inter-node synchronization minimizes the administration responsibility associated with monitoring and maintaining individual nodes for configuration consistency.
- PowerHA SystemMirror smart assists enable faster installation and application management by automating setup with resource dependency discovery and management.
- AIX LVM split-site mirroring for continuous availability against storage failures.
- PowerHA SystemMirror Enterprise Edition provides a portfolio of tools that perform operator driven automatic recovery of hardware and software failures across disparate geographic distances. This portfolio includes:
  - GLVM for host-based synchronous and asynchronous remote data mirroring over IP
  - Support for IBM System Storage® Metro Mirror and Global Mirror for DS8800 and SAN Volume Controller, XIV and V7000 as well 3rd party storage from EMC, Hitachi and HP
  - Easily move workload & Service IP address (same ones or different ones) between remote sites

Complementary cluster software

IBM also offers a broad range of additional tools to aid in efficiently building, managing and expanding high-availability clusters in AIX environments. These include:

- PowerVM® enables you to move running workloads via live partition mobility between servers to maximize availability by avoiding planned downtime and to dynamically adjust server capability to meet changing workload demands
- Geographically dispersed resiliency (GDR) provides easy to use, simple, low-cost disaster recovery for your entire data center Power Systems environment
- General parallel file system (GPFS™)
- Tivoli Storage Manager provides enterprise management of backup and recovery to tape or disk
- GLVM provides AIX host-based mirroring over IP networks
- Workload Manager for AIX provides resource balancing between applications

Gaining the IBM advantage

High availability solutions from IBM provide clients with the confidence that comes from integrated design and testing. This reduces the risk of failures resulting from combining disparate components from multiple vendors and can be a critical factor for business environments. IBM high availability solutions provide the advantage of IBM Power Systems, the AIX or IBM i operating systems, IBM Storage offerings and PowerHA SystemMirror software.

IBM Power servers with PowerHA SystemMirror clusters are backed by comprehensive offerings and resources that provide value at every stage of IT implementation. These include IBM High Availability Cluster Implementation Services, an offering that provides basic and customized assistance for installation of PowerHA SystemMirror clusters. This service is customizable with the following elements:

- High availability cluster Proof of Concept (POC) review
- Planning and design of an availability cluster
- Installation and configuration of an availability cluster
- Application integration assistance for DB2, Oracle, WebSphere, SAP, Enterprise Content Manager
- Development and execution of a cluster test plan
- Enhanced monitoring and reporting setup
- Operations planning and operations documentation development
- Migration and upgrades services
- The Power Systems High Availability Center of Competence (HACoC)

Based on an assessment of the complete system environment, IBM availability experts can design a client solution to meet your target availability level for on-demand business needs.

For more information

To learn more about PowerHA SystemMirror solutions, contact your IBM marketing representative or IBM Business Partner or visit the following websites:

- **ibm.com**/power/software/availability
- **ibm.com**/power/software
- **ibm.com**/power
- Redbooks: redbooks.ibm.com

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