IBM PowerHA SystemMirror for i

Integrated hardware-based HA/DR solutions designed for automation, simplicity, and economics

Highlights

Highly automated HA/DR solution

Switch and stay between sites with a single command

Available in Enterprise Pools 2.0

Three-site PowerHA clustering with DS8000s

IBM PowerHA SystemMirror for i is the IBM® Power® offering for high availability and disaster recovery. It's an IBM Storage-based clustering solution that is an integrated extension of the storage management architecture and the IBM i operating system. With a PowerHA cluster, you will have an HA/DR solution that removes the headaches and expense associated with 3rd party replication tools. PowerHA isn't a tool, it's a solution.

A PowerHA cluster has two major parts: storage and orchestration. The application libraries and data are moved out of SYSBAS and placed into a Storage Pool called an IASP, Independent Auxiliary Storage. SYSBAS objects such as user profiles are placed into the administrative domain which programmatically keeps them in synchronization across nodes in the cluster. It is necessary to separate the application and data into a set of volumes separate from the operating system volumes so that they can be shared with other systems in the cluster. When configured with an IBM Storage server, the IASP can be switched (LUN level switching) between partitions (nodes) in the cluster, and/or replicated to systems geographically dispersed. Since the production data is inherently kept synchronized between systems (nodes) at the storage layer, the role of PowerHA is to orchestrate/automate cluster operations such as failover/failback, FlashCopy/BRMS for automated offline backups, and more. Replication via storage server is accomplished with Metro Mirror or Global Mirror, the other option is Geographic Mirroring which enables you to replicate between an on-premises location to Power Virtual Server for your DR location. The key to understanding this technology from a data resiliency perspective is that all the data that paged out of memory to an IASP, including the local journals, is the data that is switched or replicated between nodes in the cluster. PowerHA solutions are continuously replacing logical replication tools because it is less expensive to acquire and maintain, and because companies are increasingly required to switch and stay between sites periodically. This is a simple operation for PowerHA but if you are still using logical replication, it is an onerous task heavily dependent on complex runbooks.

Setting Up an IASP

Setting up an IASP is a relatively simple process. Normally it's done during a three-day workshop working with IBM Technology Expert Labs or a Business Partner who specializes in PowerHA deployments. The actual project is more about integration testing. The production data has been relocated to a storage pool separate from the system ASP, we therefore need to validate that all applications and users are still working properly prior to moving into production.

Client Value

The two primary benefits gained by deploying a PowerHA SystemMirror solution are OpEx and CapEx.

The primary function of the PowerHA solution is to orchestrate switching production workloads between nodes in a cluster. The application data in the IASP is implicitly synchronized at the storage layer, therefore the role of PowerHA is to manage all aspects of switching between nodes which encompasses storage operations, IP switching, workload bring, as well as FlashCopy operations for automated offline backups.

Operationally, switching between nodes in a cluster whether planned or unplanned is automated. Since all the nodes in the cluster have an active operating system, software maintenance can be done concurrent to production. From a CapEx perspective, the PowerHA licensing can be characterized by N+1 which means that the secondary servers (CBUs) require only a single IBM i and PowerHA. This is because storage replication consumes no processing overhead. Contrast this with logical replication which can consume a significant share of processing overhead. Even with Geographic Mirroring, which is host based, typically consumes less than 10% of a processor.

Conclusion

IBM PowerHA SystemMirror for i is continuously replacing various 3rd party logical replication tools and the reasons why are clear: it's less expensive to purchase and maintain and it minimizes the role of IT administrators.

For more information

To learn more about IBM PowerHA SystemMirror for i, contact your IBM representative or IBM Business Partner, or visit https://www.ibm.com/products/powerha

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Produced in the
United States of America
April 2024