Solution Brief

ClusterLion for SAP HANA

Simplifying your SAP HANA Infrastructure

The main advantages:

- Linux single systems are easy to manage, errors are reduced, and highest availability is achieved
- No third data center necessary (low TCO)
- Easy installation due to preconfigured components
- Monitoring of Linux single systems
- No shared block devices necessary
- Detailed recording of events
- Monitoring of important processes and network connections
- Several instances can be monitored with one installation

ProLion and NetApp

NetApp MetroCluster is a non-disruptive, high-availability solution for transparent storage failover between two data centers. For several years now, the industry-wide known ClusterLion solution from ProLion has been available specifically for MetroCluster. It effectively prevents the occurrence of split-brain scenarios during synchronous data mirroring and guarantees automatic storage failover. Therefore it is already being used by many customers and partners as a standard solution for "lights-out operation".

High-availability SAP landscapes

SAP is the market leader and de facto standard for enterprise resource planning systems. SAP rounds out its product portfolio with numerous other applications around the digital core that enable customers to integrate their (IT) processes into SAP standard software end-to-end. Process management in production lines or the management of hospital beds are just two examples where system failures cannot be tolerated. These environments require well thought-out HA and DR strategies, which in most cases come with a high degree of infrastructure automation. ClusterLion is a solution that detects and reacts to failure scenarios either on the storage or on the application level by initiating a failover of the respective system if required for non-disruptive operation.

ClusterLion for SAP HANA was especially designed for monitoring SAP HANA in-memory databases. SAP HANA System Replication allows data to be automatically replicated to one or more additional nodes asynchronously or synchronously. For synchronous replication, ClusterLion for SAP HANA enables an automated failover process that is completely transparent for users and connected systems. ClusterLion for SAP HANA thus enables "lights-out operation" and zero downtime on SAP HANA System Replication systems.

Fully automated failover

Most HA solutions for highly available HANA systems are currently based on a Linux failover cluster setup. This approach is complex, difficult to maintain and requires regular testing of the (automated) switchover process. In practice, lack of testing - often due to the high degree of complexity - leads to a situation where the automated switchover does not work when it is needed - namely when no IT staff is available, e.g. on weekends or holidays.

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ProLion

Reduced complexity

ClusterLion for SAP HANA, on the other hand, significantly reduces the complexity compared to traditional failover cluster solutions. The architecture of ClusterLion for SAP HANA is based on independent agents that query all necessary status values of the SAP HANA instance(s) being monitored. In order to analyze these metrics, the ClusterLion solution uses an independent decision-making instance, which is either operated on-premises in a DR data center of the customer or can be obtained as a cloud service directly from ProLion. This highly secure and fail-safe service detects in real time if a problem occurs on one of the systems and controls the failover process via the local agents.

This solution eliminates the need for a traditional Linux failover cluster as each host is individually monitored by the ClusterLion for SAP HANA agents.

The architecture shown in Figure 1 enables to monitor several SAP HANA System Replication installations simultaneously with one ClusterLion installation. The configuration can be adjusted at any time during operation to easily integrate dynamically created instances for tests.

Environment Integrationen

To be able to respond as quickly as possible, the ClusterLion for SAP HANA continuously monitors all processes and network connections of the HANA systems. If a problem is detected on the primary system and data consistency is given on the secondary system, a fully automated switch-over process is initiated - provided this has been configured. An important part of this switching process is the shutdown of the problematic host. This effectively prevents a split-brain scenario before the take-over command is issued.

Various interfaces are supported, which are provided by the infrastructure manufacturers for a shutdown of the host. For virtualized environments e.g. VMware vCenter or IBM HMC and for bare metal machines via their respective management interfaces.

What customers say about ClusterLion for MetroCluster:

"The proposal to couple NetApp MetroCluster with ClusterLion was worth its weight in gold. If an error with failover occurs, this process is 100% automated. No matter how many times we forced a failover, there was zero milliseconds of outage. MetroCluster and ClusterLion; it just works and it's simple."

Head of IT at Frankfurter Volksbank, Steffen Nagel

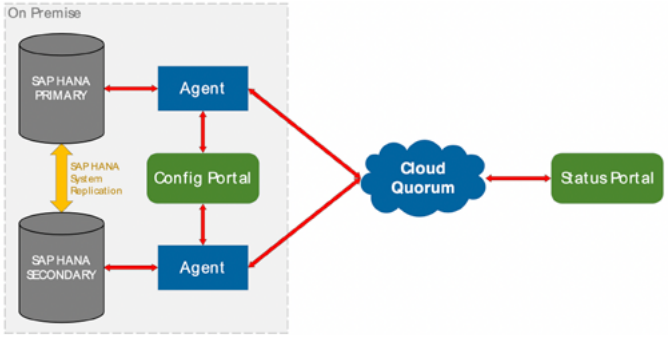

Figure 1) Schematic architecture of the ClusterLion for SAP HANA

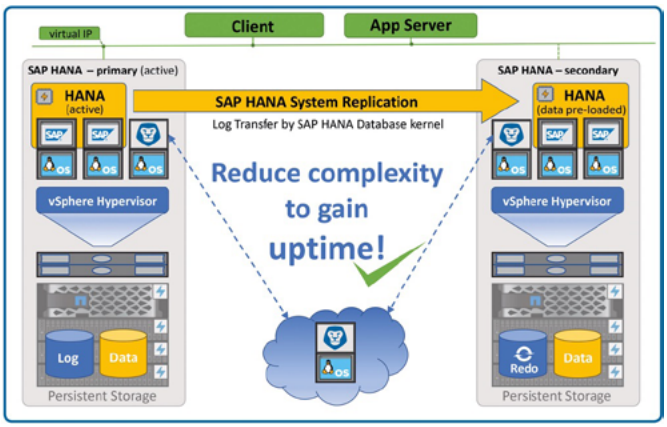

Figure 2) HANA System Replication with CluterLion for SAP HANA

About ProLion

ProLion is a highly innovative company based in Austria that focuses on storage technologies. ProLion has many years of experience in providing a fully automated switching solution for NetApp MetroCluster. The product "ClusterLion for MetroCluster" is considered a trusted appliance by customers around the world. The data security and analysis software products are also widely used in enterprise business and offer significant advantages for storage systems.

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit **www.netapp.com**. #DataDriven