



ACEYUS REPORTING

SAN Deployments – Best Practice

Aceyus, Inc.

June 2014

SAN DEPLOYMENT - BEST PRACTICE

To ensure the Aceyus Reporting platform meets customer expectations for high performance, we recommend that it be deployed within a well-designed, robust computing environment that is optimized for high volume data processing. Aceyus supplies a platform architecture that specifies the logical component design based on the characteristics of the customer environment. In addition, hardware specifications are offered to match expected processing requirements with related hardware for each component. Frequently, customer requirements dictate the use of SAN storage for the database components of the solution. Implementing SAN storage for the Aceyus Reporting platform can enhance the overall solution when following Aceyus Best Practices for SAN integrated database applications.

For the practical purpose of describing Aceyus recommendations, the following assumptions relative to the platform architecture have been made:

- The Aceyus Reporting platform is deployed with geographical diversity with redundant Core Vault server(s) located in separate data centers.
- Each data center has a separate SAN.
- Each side of the Vault database is deployed in a standard Microsoft SQL Failover Cluster Instance (FCI) configuration with shared SAN storage for local application resiliency and redundancy.
- The Vault cluster is configured for each server to perform a different primary function. One Vault server will act as the primary real-time database server in the cluster and another Vault server will act as the primary historical and detail database server in the cluster. In two-server Vault Clusters, the alternate server will be secondary for the respective primary server. In three-server Vault Clusters, the third server will serve as a secondary Vault server to either of the primary database servers. Other SQL FCI configurations may be recommended depending on the specific customer environment.
- Logically splitting storage over multiple storage device targets improves application performance via distributed I/O operations processing.
- Database server hardware will have limited Direct Attached Storage (DAS).
- In a design where Aceyus Data Collectors are deployed and connected to a SAN, the same storage design considerations will apply as described for Aceyus Vault database servers.

The following recommendations have been compiled to assist customers with design and implementation of SAN storage for Aceyus Reporting Applications. This information is limited to the specific recommendations for optimizing Aceyus Reporting applications and is intended as a supplement to the customer's existing policies and practices for SAN design and management.

1. **Implement, maintain and preserve drive and path allocations in a manner that will minimize SAN resource contention for Aceyus Reporting applications.**
 - a. Avoid implementing Aceyus storage co-located with other high performance or SAN resource intensive applications.
 - b. If additional storage is needed for any single storage location (as indicated in item 10), ensure that the expanded storage is not subject to access contention.
 - c. A switched SAN Fabric or Point-to-Point Fibre Channel connection to the storage device is highly recommended. Arbitrated Loop SAN connections are not recommended.
2. Multiple I/O paths between application host and SAN Fabric(s) to storage target(s).
3. Implement Temp DB on local DAS on the database application server.
4. Only RAID 5 or RAID 10 storage arrays are supported.
5. Separate dedicated RAID arrays for each Real-time data store.
6. Separate dedicated RAID arrays for each Historical data store.
7. Separate dedicated RAID arrays for each Real-time Log data store.
8. Separate dedicated RAID arrays for each Historical Log data store.
9. Dedicated Storage Array port that is employed by the Aceyus DB server for each Real-time and Historical Data LUN.
10. Back-ups should be configured to target a separate storage device that is accessed via a dedicated back-up port to avoid contention with application operations.
11. A sample recommended logical drive plan is shown below:

C:\ OS

D:\ APPS

H:\ HIST DATA

L:\ HIST LOGS (must be separate physical drive from data)

R:\ REAL TIME DATA

S:\ REAL TIME LOGS (must be separate physical drive from data)

T:\ TEMP DB (local DAS is preferred)

Z:\ BACKUPS (backup compression is recommended)