

# Symmetrical Data Access (SDA)

## Embedded Data Service

### SDA delivers powerful benefits including:

- **Simultaneously read from and write to the same volume from multiple hosts**
- **Active/active controller configuration for data integrity and availability**
- **Cache coherency between two controllers for robust recovery**
- **Applications:**
  - Web servers
  - Database
  - Streaming media
  - Clusters
  - Shared SAN file system

In today's highly optimized environments where user's applications require multiple servers to access the same LUN on shared storage at the same time, iQstor's Symmetrical Data Access (SDA) feature offers a robust yet affordable solution. SDA provides cache coherency between the two controllers to provide ubiquitous read and write data access to any volume over all host paths, allowing multiple hosts to read from and write to the same LUN simultaneously. SDA is perfect for multiple editors working on a video project in multimedia applications that requires fast access to same data. SDA coordinates access to a LUN and ensures that reads and writes are consistent among all the hosts.

SDA also addresses the requirement of many high-availability applications providing active/active controller failover and multipath I/O (MPIO) for path failover between the host servers and storage system for greater availability and load balancing.

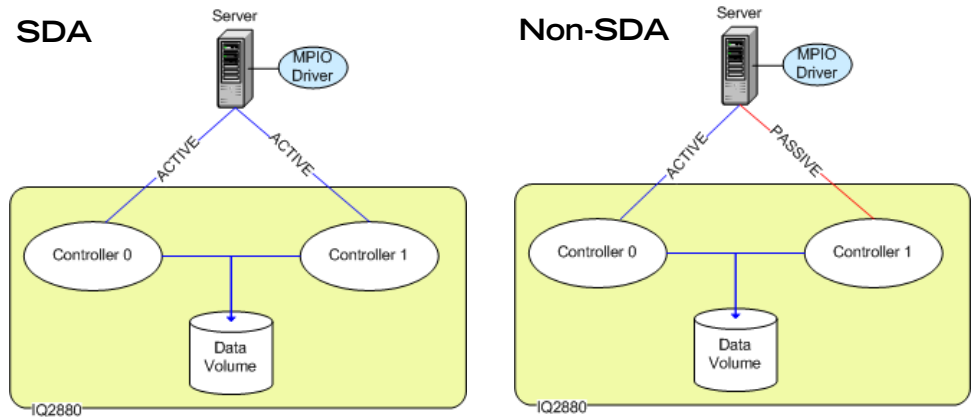
### **Active/Active Controller Configuration**

iQstor storage systems deploy dual controllers that can be configured in an active/active mode in which the contents of a controller's cache is mirrored to the other controller for data integrity and availability, as well as maintaining cache coherency.

The active/active configuration enables both controllers to be active in order to boost performance during normal operation. Caching is also another cost-effective way to increase performance. However, unless the controllers are configured in active/active mode and designed with cache coherency capability and robust recovery mechanisms, caching may cause incorrect data to be delivered to applications and corrupt databases if a component in the I/O path fails.

## Multi-Server Instant Path Failover and Volume Sharing

SDA is beneficial when more than one server is connecting to the same volume over different controller paths with failover. In a non-SDA environment, the single active path must be shared among all attached servers. Issues could arise if communication between the servers fails and each one tries to independently access the same volume over different controllers simultaneously. SAN sharing, clustering or similar path management software must be used in either configuration to coordinate I/O between servers.



## I/O Load Balancing

I/O Load balancing over two controllers can provide higher availability, increased resource utilization and data access. Load balancing to the same volume over different controllers is not possible without SDA. This configuration provides path failover for redundancy in addition to load balancing to achieve optimal resource utilization, throughput and response time. The standard round-robin load balancing configuration will rotate through all available paths toggling I/O over each path in turn.

