

2.2.1 Nodes

Each IBM SAN Volume Controller hardware unit is called a *node*. Each node is an individual server in a SAN Volume Controller clustered system on which SAN Volume Controller software runs. The node provides the virtualization for a set of volumes, cache, and copy services functions. The SVC nodes are deployed in pairs (*cluster*), and one or multiple pairs constitute a *clustered system* or *system*. A system can consist of one pair and a maximum of four pairs.

One of the nodes within the system is known as the *configuration node*. The configuration node manages the configuration activity for the system. If this node fails, the system chooses a new node to become the configuration node.

Because the active nodes are installed in pairs, each node provides a failover function to its partner node if a node fails.

2.2.2 I/O Groups

Each pair of SVC nodes is also referred to as an *I/O Group*. An SVC clustered system can have one up to four I/O Groups.

A specific *volume* is always presented to a host server by a single I/O Group of the system. The I/O Group can be changed.

When a host server performs I/O to one of its volumes, all the I/Os for a specific volume are directed to one specific I/O Group in the system. Under normal conditions, the I/Os for that specific volume are always processed by the same node within the I/O Group. This node is referred to as the *preferred node* for this specific volume.

Both nodes of an I/O Group act as the preferred node for their own specific subset of the total number of volumes that the I/O Group presents to the host servers. However, both nodes also act as failover nodes for their respective partner node within the I/O Group. Therefore, a node takes over the I/O workload from its partner node when required.

In an SVC-based environment, the I/O handling for a volume can switch between the two nodes of the I/O Group. So, it is advised that servers are connected to two different fabrics through different FC HBAs to use multipath drivers to give redundancy.

The SVC I/O Groups are connected to the SAN so that all application servers that are accessing volumes from this I/O Group have access to this group. Up to 512 host server objects can be defined per I/O Group. The host server objects can access volumes that are provided by this specific I/O Group.

If required, host servers can be mapped to more than one I/O Group within the SVC system. Therefore, they can access volumes from separate I/O Groups. You can move volumes between I/O Groups to redistribute the load between the I/O Groups. Modifying the I/O Group that services the volume can be done concurrently with I/O operations if the host supports nondisruptive volume moves.

It also requires a rescan at the host level to ensure that the multipathing driver is notified that the allocation of the preferred node changed, and the ports (by which the volume is accessed) changed. This modification can be done in the situation where one pair of nodes becomes overused.