

Red Hat Linux Clusters

INTRODUCTION

Red Hat Cluster Suite provides continued application operation in the event of a server failure. Typically, a cluster is a collection of two to eight servers that are connected to a storage system. Red Hat Clusters provide network load balancing and heterogeneous file serving for NFS and CIFS systems. A common partition accessible by all servers is called a quorum partition and stores the static application service definitions and dynamic service state. It is the only partition that is shared concurrently by the servers in the cluster. Upon server failure, the applications are migrated and restarted on a server pre-specified by the System Administrator or randomly selected by the Cluster Manager. The failover server has access to the current state of data on the shared external storage partition. FlashDisk is an ideal companion storage unit for Red Hat Clusters since it offers up to 8 host ports in the storage array. Thus clusters of up to eight servers can easily be connected to a single FlashDisk unit in either Fibre Channel or SCSI to create a very effective and very low cost cluster that requires no expensive external switches.

Winchester Systems is very proud to report that the entire line of FlashDisk storage products have been Red Hat qualified. In fact, Red Hat software engineers actually developed the Cluster Suite software directly on FlashDisk.

WHY RED HAT LINUX CLUSTERS

- High availability server environment
- Network load balancing
- Heterogeneous file sharing NFS/CIFS
- Workgroup productivity

REQUIREMENTS

- Disk array with multiple ports
- Red Hat Linux Cluster Software
- High availability
- Low cost

TYPICAL ENVIRONMENTS

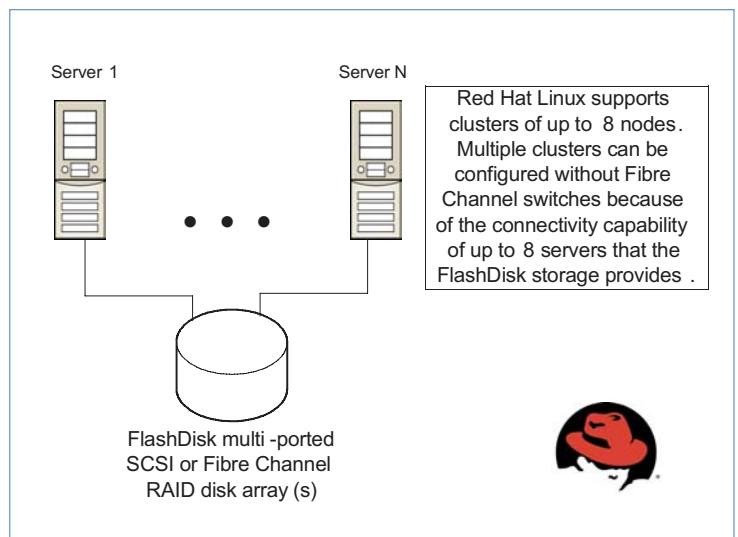
- Linux development environments
- Linux application environments

BENEFITS

- High availability server access
- High productivity
- Low cost

HOW IT WORKS

Red Hat Linux Cluster Software is installed in each of the servers to be clustered. The FlashDisk storage array is connected to each of the servers and the storage is partitioned into desired logical volumes. Each volume is assigned to various servers according to the needs of the applications. Red Hat Linux Cluster Software coordinates access to the quorum partition and stores all the configuration information here. During operation, this quorum partition coordinates access from the multiple servers to ensure that only one server can write to a partition at one time. This creates a classical control system (known as a semaphore) that is necessary for any cluster operating system to function. Finally, the Red Hat Cluster Software monitors server heartbeats to detect server failures. Upon failure, the cluster software will follow scripted directions to restart applications running on the failed server.



The diagram shows how Red Hat Linux Cluster software, multiple servers and a FlashDisk multi-hosted storage array can create a variety of cluster configurations. Shown here are four 2-node clusters, two 4-node clusters or a single 8-node cluster. Any other combination of up to eight nodes is all possible.