APPENDIX A

RAID Levels

The RAID arrays in Cisco storage systems can be configured in various RAID levels. Except where noted below, all RAID levels require a minimum of two disk drives. The levels available are:

RAID 0

RAID level 0 provides data striping. Blocks of data from each file are spread out across multiple disk drives. It does not provide redundancy. This improves the speed of both read and write operations, but does not provide fault tolerance. If one drive fails, all data in the array is lost.

RAID 1

RAID level 1 provides disk mirroring. Files are written identically to two or more disk drives. If one drive fails, the other drive still contains the data. This also improves the speed of read operations, but not write operations.

RAID 10

RAID level 10 is a combination of RAID levels 0 and 1. Data is both striped and mirrored. RAID level 10 is used whenever an even number of drives (minimum of four) is selected for a RAID 1 array.

RAID 4

RAID level 4 provides block level striping similar to RAID level 0, but with a dedicated parity disk. If a data disk fails, the parity data is used to recreate the data on the failed disk. Because there is only one parity disk, this RAID level can slow down write operations.

RAID 5

RAID level 5 provides data striping at the byte level and also stripe error correction information. Parity data, instead of being stored on only one disk, is distributed among all disks in the array. This level provides excellent performance and good fault tolerance. It is one of the most popular implementations of RAID.

RAID 6

RAID level 6 provides block level data striping with parity data distributed across all disks. For additional redundancy, each block of parity data exists on two disks in the array instead of only one. RAID level 6 requires a minimum of four disk drives.

Note RAID levels 2 and 3 are not available on Cisco storage systems.