

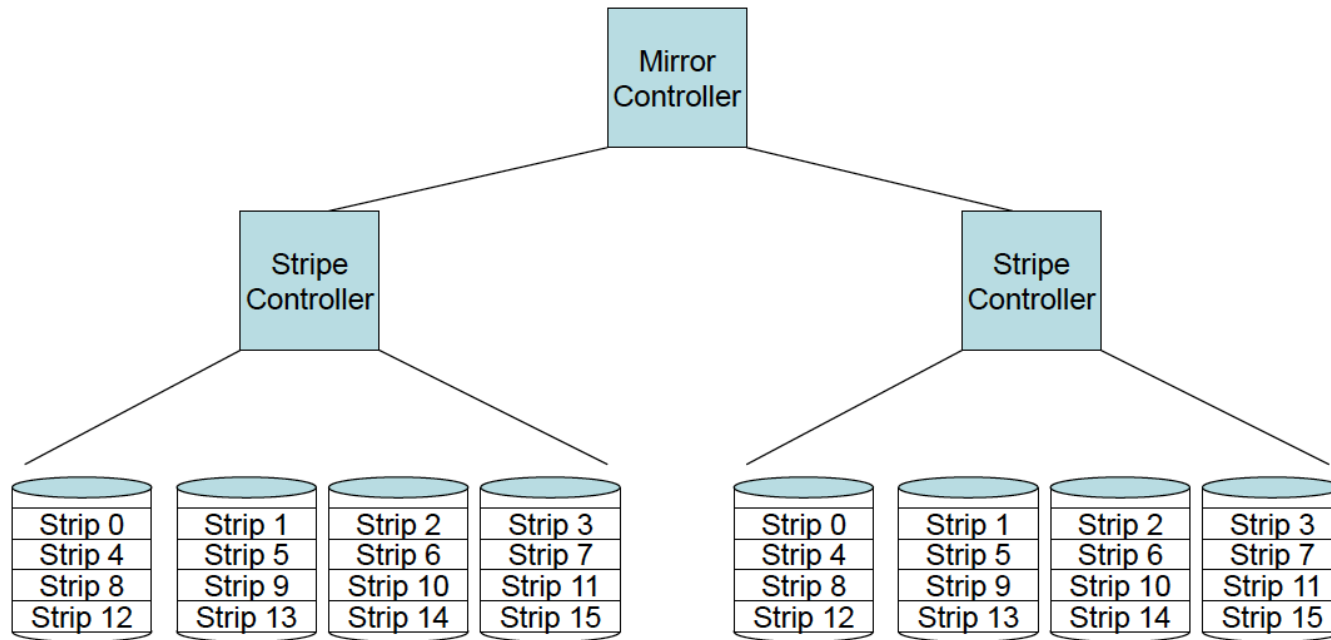
Uses dual-redundancy

- P is the same XOR function used in RAID5 and RAID4
- Q is based on a different error check scheme
 - Such as Reed-Solomon code
- missing data can be reconstructed from either parity

Tolerates up to two failing disks

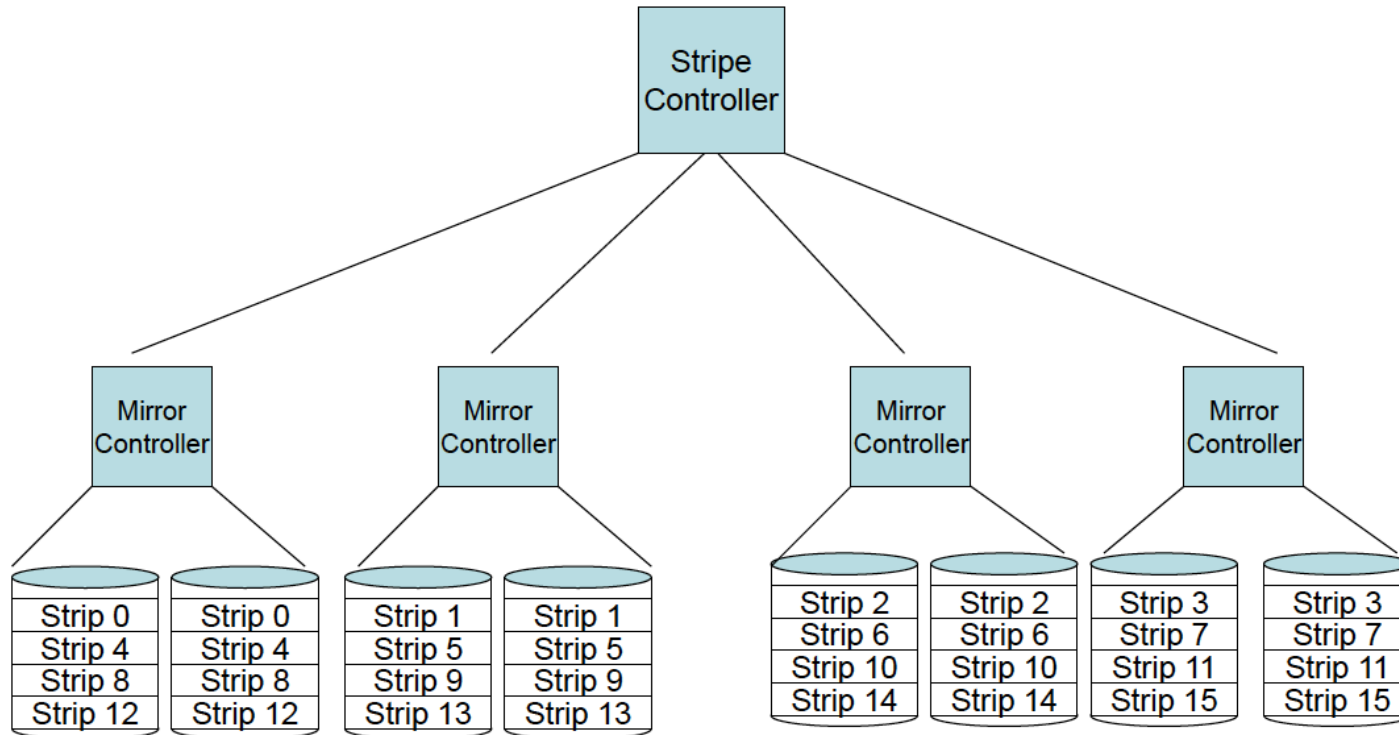
Access heads on separate disks operate independently

I/O requests to separate disks can be handled in parallel



More recent systems combine levels: e.g. Mirrored RAID0 systems (01)

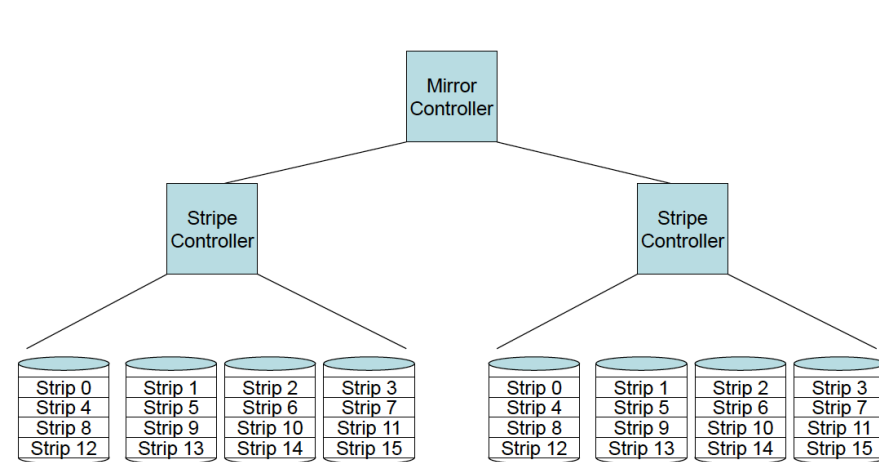
Each stripe controller makes its 4 disks appear as a single disk to mirror controller
mirror controller makes the mirrored pair appear as a single disk to the I/O system



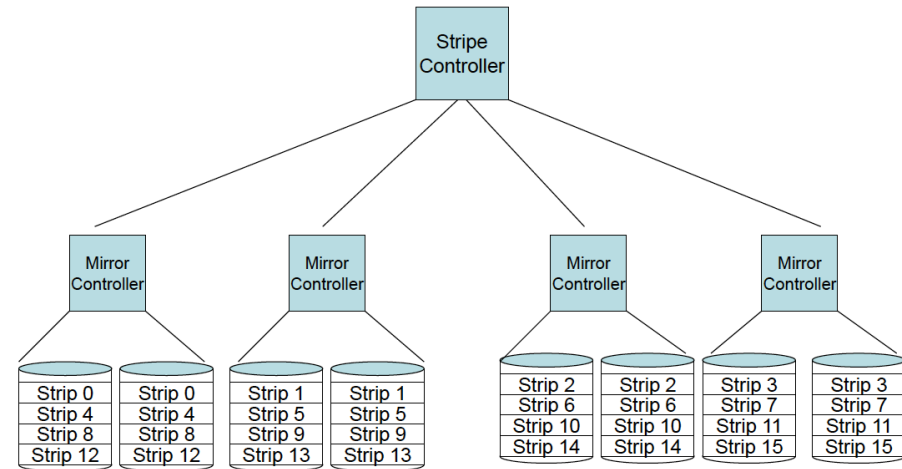
Striped Mirrored RAID0 systems (01)

Each mirror controller makes its 2 disks appear as a single disk to the stripe controller

Stripe controller makes the 4 striped disks appear as a single disk to the I/O system



RAID 01

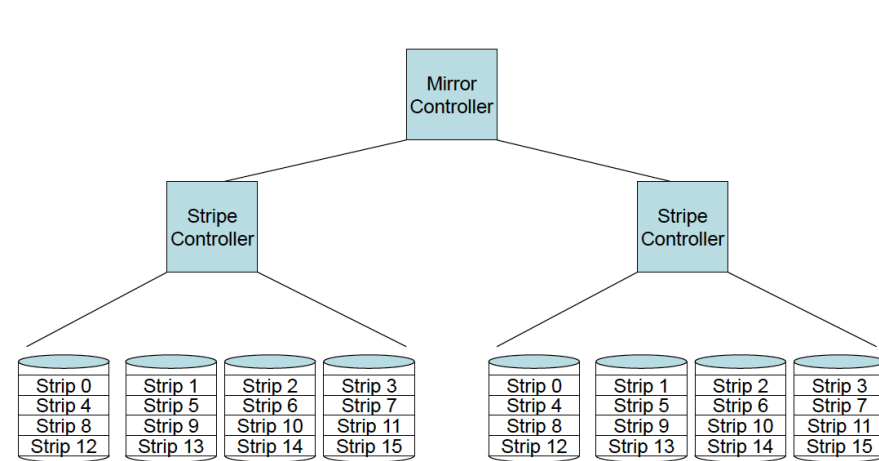


RAID 10

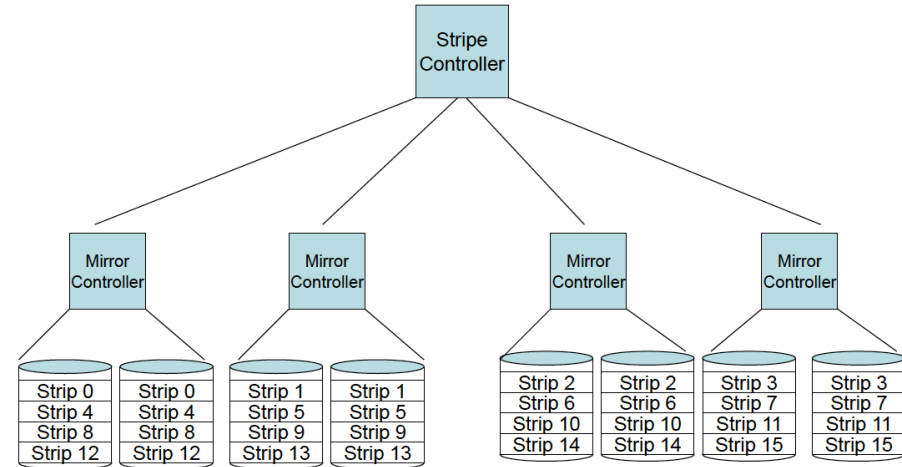
Expense:

3 controllers are needed for the level 01 system

5 controllers are needed for the level 10 system



RAID 01

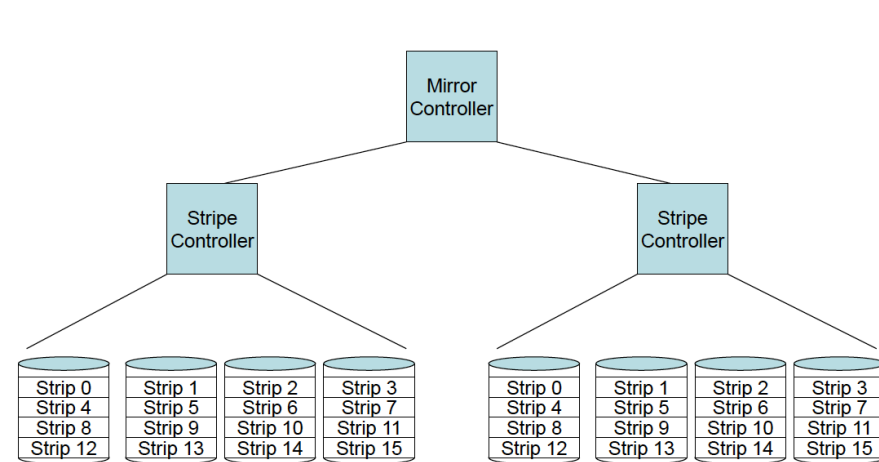


RAID 10

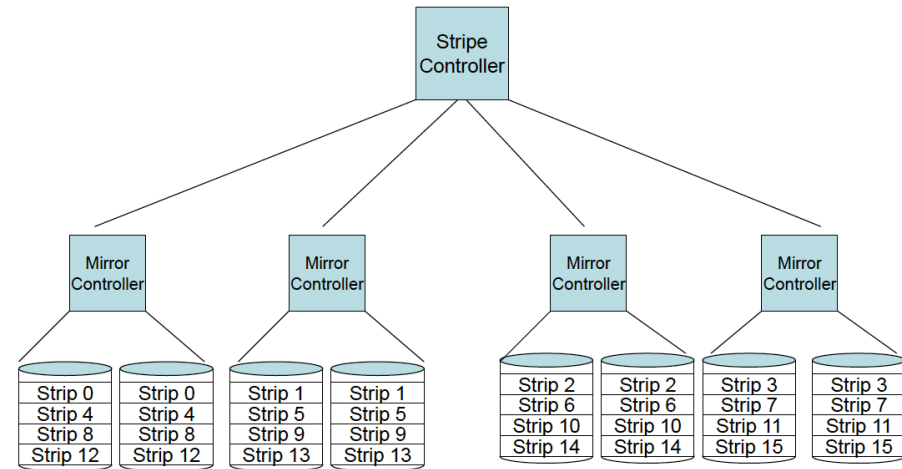
Expense:

3 controllers are needed for the level 01 system

5 controllers are needed for the level 10 system



RAID 01

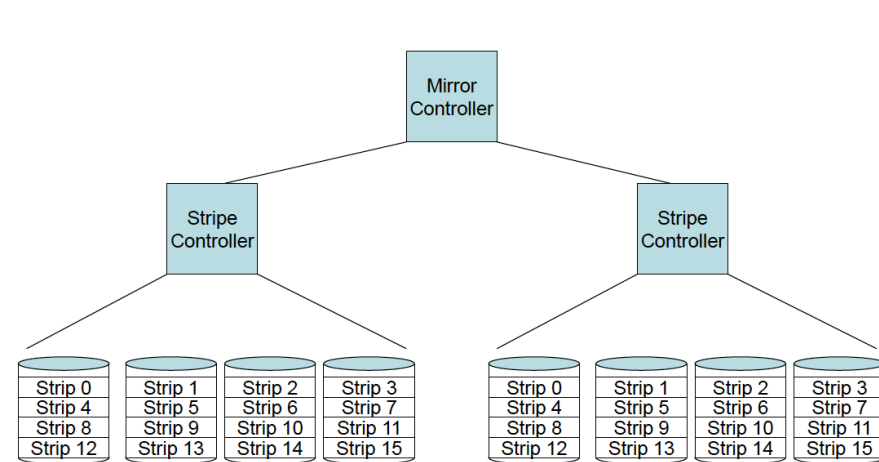


RAID 10

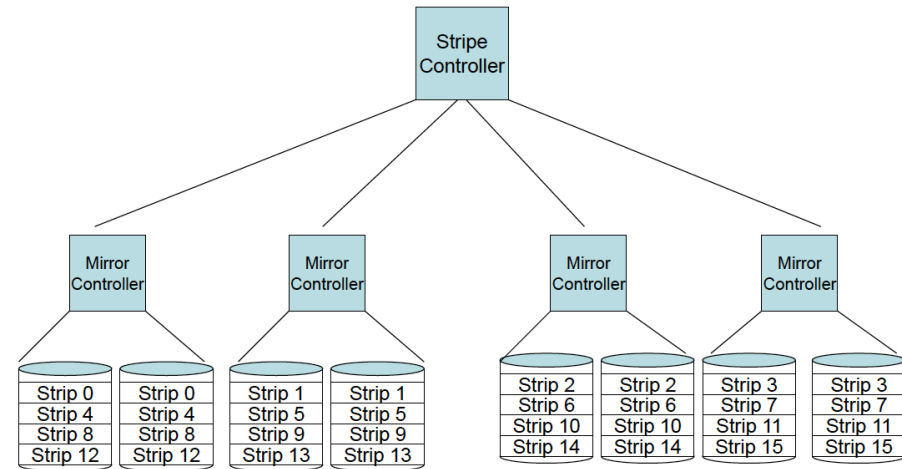
Reliability:

RAID01 is inoperable if a disk fails in each striped group even if the two disks are not mirror images

Both mirror images must fail for RAID10 to stop operating



RAID 01



RAID 10

Time required for restoration

All disks within a group would be re-written for RAID01

Only mirror image of failed disk would be re-written for RAID10

