

RAID 1 – Mirroring

No redundancy

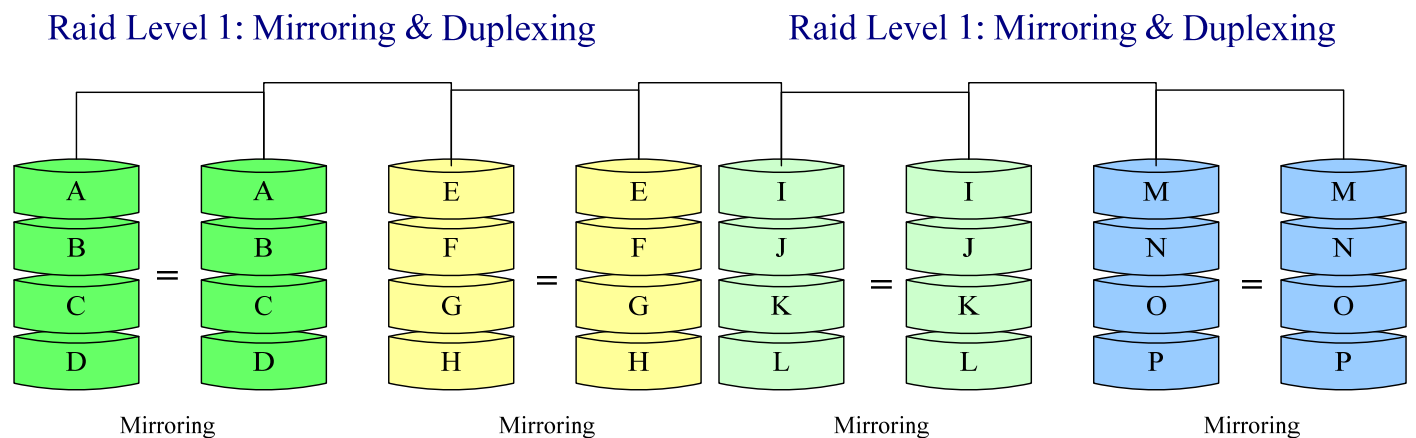
No fault tolerance

- Full redundancy!
- Provide good fault tolerance
- Works ok if one disk in a pair is down
- One write = a physical write on each disk
- One read = either read both or read the less busy one
- Could double the read rate (parallel reads)

Zero recovery time in case of disk failure, just use copy

Storage capacity = 50% of total size of array

- Writes are serialized at some level between the two disks
- In case of crash or power failure, both disks are NOT in inconsistent state
- This makes writes slower than just writing to one disk
- A write request does not return until both copies have been updated
- Transfer rate = same as one disk



Notes

RAID level 1 comes at a high cost because you write the same information to all of the disks in the array, which wastes drive space. For example, if you have RAID level 1 set up so that your root (/) partition exists on two 40G drives, you have 80G total but are only able to access 40G of that 80G. The other 40G acts like a mirror of the first 40G.

Parity information is calculated based on the contents of the rest of the member disks in the array. This information can then be used to reconstruct data when one disk in the array fails. The reconstructed data can then be used to satisfy I/O requests to the failed disk before it is replaced and to repopulate the failed disk after it has been replaced.

RAID level 4 takes up the same amount of space as RAID level 5, but level 5 has more advantages than level 4. For this reason, level 4 is not suggested.