Assignment

Title: Advantages & disadvantages o f RAID levels (0-6)

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Advantages & disadvantages o f RAID levels (0-6)

RAID-0
RAID level 0 uses Stripping, which means the data in RAID level 0 is split careally across all of the disks.

Advantages Of RAID level Raid 0

1. Raid- 0 offers great performance, both in read and write operations. There is no parity controls in Raid-0.
2. Complete utilization ofl storage as capacity. All storage is used, the is no overhead.
3. T h e technology is easy to implement.

Disadvantages of Raid- 0

It is not fault tolerant. If a single drive fails all data RAID- O array are lost. It should be used for mission critical system.

Raid level - 1
RAID level-1 uses mirroring with no parity, stripping of disc spaces across multiple disks.

Advantages RAID Level- 1
Raid- 1 is a very simple and easy technolog to use.Read operations are quite fast. RAID 1 has the advantage of providing improved read speeds and additional protection of the hard disks if the controller or the management software enables simultaneous access to more than one storage medium.

Disadvantages of Raid Level-1
RAID 1 has the advantage of providing improved read speeds and additional protection of the hard disks if the controller or the management software enables simultaneous access to more than one storage medium. Higher cost, as RAID level 1 requires double the amount of drives to achieve the desired capacity. It does not allow the swapping of the failed drive when it is hot. This means that the failed drive can be replaced only after powering down the computer to which it is connected. So, for a server that is used by many users simultaneously, this is not possible at all times

RAID Level 2
Redundancy through hamming code.

Advantages of RAID level 2
A hamming able and to detect Level on is code connect used single double bit. builds fault which is bit errores errors. tolerance Hamming connection code (ELL) used to maintain the based which integruity of data.

Disadvantages of RAID level 2

commericially is unviable as it is inefficient. Level-2 unviable Enthly level cost as it is very high- very high transfer data rate requirement of to justify very high ratio of ECC disks to data disks.

RAID Level - 3
Bit interleaved Parity RAID 3 combines parity and striping with stored parity bits on a dedicated disck.

Advantages of RAID Level 3
High throughput for transferring large amounts of data..

Disadvantages of RAID level - 3
Resistant to disk failure and breakdown which is a disadvantage. Disk failures leads to and RAID 3 failures may significantly. Throughput. The configuration may be too much it it a small file only requirement.

RAID Level -4
Block Level parity.

Advantages of RAID level-4
Data block striping which facilitates simultaneous 1/0 requests.Low storage overhead which lowers as more disks are added. Does not require synchronized controller.

Disadvantages RAID Level-4
Parity of drives may Lead to bottlenecks.Slow when randon writes, which result when a parcity for each mustbe result separately written for each write.

RAID Level 5
RAID 5 is the most secure RAID level.It combines block level stripping with distributed parity among seivers.

Advantages of RAID Level-5
Read data transactions are fast as compared to write data transactions that are somewhat slow due to the calculation of parity. It has a complex technology Data remains accessible even after the drive failure and during replacement of the failed hard drive because the storage controller rebuilds the data on the new drive.
Disadvantages of RAID Level-5
If one of the drives of large size in the array fails, replacing and restoring the data (or the rebuild time) may take one or more day, depending on the array load and speed of the controller. If another disk gets damaged or corrupt, your data gets lost forever.

RAID Level-6
Raid-6 is like Raid-5, but the parity data are written to two drives.

Advantages of RAID Level-6
Read data transactions are very fast. Data accessibility is high. Higher redundancy compared to RAID 5

Disadvantages of RAID Level-6

Due to double parity write data transactions are slow. Rebuilding RAID array takes longer time because of its complex structure.