CSE Recitation-6

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Question1: Use your own word to describe different ...?

- **First Level RAID:** It uses the disk data mirroring to achieve data redundancy, in pairs of independent disk to produce mutually data backup.When the raw data is busy or wrong, it can read data directly from the mirror copy. RAID 1 is often used in the preservation of critical data.
- **Second Level RAID:** RAID 2 uses Hamming codes to correct errors in the event of data errors. RAID2 is designed for computers that require continuous access to large amounts of data.
- **Third Level RAID:** RAID3 uses Parity check instead of Hamming code for error correction and detection compared with RAID 2.RAID3 is suitable for large file types and high security requirements of the application.
- **Fourth Level RAID:** RAID 4 no longer spread the mdtvtdual transfer informanon across several disks, but keep each mdrvrdual unit in a single disk. RAID4 is suitable for situations where fast read speed is required.
- **Fifth Level RAID:** RAID 5 doesn't backup data, the data and its corresponding parity information are stored in the RAID5 to form the various disks, and the parity information and the corresponding data are stored in different disk. RAID 5 is suitable for protecting data when needing high security.
- In order to improve the efficiency of IO sketch, improve the ability to find errors to correct errors, in order to apply a broader scene

Question2: Modern RAID arrays use parity information ...?

- The most significant drawback of RAID5 is the "write hole", because it cannot provide any security mechanism to ensure that the when writing check codes, it will not fail. And if the power outage happens at this time, it will cause uncorrectness of parity, then when we use this error parity to update the new data block, it will be a big mistake. And the user does not know this event.
- **How to solve?** We can use dynamic stripe to avoid reading the old data - modify the parity-write data RAID write disk mode, but by full stripe write to write data to complete the operation. This one-time write to ensure that even if the power outage happens, there will not be inconsistent situation. Either write success, or do nothing.