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1. How to recover data from a damaged RAID 5 and/or 6?

Here are the steps to recover data from a damaged RAID 5 and/or 6:

* Create read-only (write-protected) disk copies of each of the array's healthy hard drives.
* Make any necessary repairs after diagnosing any damaged drives, then take as complete of a disk image of each one as you can.
* Find out which drive (if any) is outdated and must be excluded by examining the RAID metadata on each drive.
* Determine the geometry, drive order, parity, rotation, stripe size, and RAID algorithm of the RAID array using the metadata on each disk.
* Find the logical units on the array by simulating the physical RAID 5 array.
* Find the filesystem geometry within these logical units.
* To ensure that the array has been appropriately reconstructed, extract and test sample files.
* If necessary, run a raw scan of the RAID 5 array to pick up any files which may have disappeared due to filesystem damage.
* Extract all available data from the RAID 5/6 array.

1. Differentiate the Fiber Channel Over Ethernet and iSCSI.

iSCSI is an IP-based storage protocol that uses TCP/IP (Transmission Control Protocol/Internet Protocol) to transport SCSI commands and data over Ethernet networks. It is designed to make storage area network (SAN) technology accessible and affordable using standard Ethernet infrastructure. One or more controllers (circuit boards with cable connectors), one or more copper wire ribbon cables with numerous hard drive connectors, and a group of hard drives were all components of a standard SCSI (often pronounced "skuz-ee") subsystem implementation. The relatively straightforward command set used to control the hard drives and the number of devices that may be connected to a controller (16 or more) are some of SCSI's key characteristics.

To get around some of the drawbacks of the SCSI physical layer, Fiber Channel Over Ethernet was created to be based on relatively recent multi-mode fiber optic cabling as the physical transport, at least in longer distance scenarios. FC can really go small distances on copper lines, but fiber optics has far more forgiving distance restrictions. FCoE is a protocol that encapsulates Fiber Channel frames within Ethernet frames. It allows for the convergence of storage and data networking onto a single Ethernet infrastructure. FCoE is primarily used to transport Fiber Channel traffic over Ethernet, preserving the characteristics and reliability of traditional Fiber Channel.

1. Advantages and Disadvantages of the ff:
   * Direct Attached Storage

Advantage: Use of DAS systems is straightforward, and the technology is readily accessible. When compared to SAN or NAS, it performs far better, but the storage capacity cannot be increased.

Disadvantage: One drawback is that only the apps operating on the specific server or desktop machine can directly access the data; other user groups are not able to do so. Additionally, DAS lacks the necessary network hardware and operating system to enable independent sharing of storage resources.

* + Storage Area Network

Advantage: Since SAN operates on a different network than direct-attached storage, it functions similarly. In other words, it can shift LAN resources, resulting in the creation of a fast, well-organized environment that each client's operating system can access. As a result, it also enables rapid data storage. The network-connected devices can scale because they don't need to consume any local storage when using a SAN. The data can be quickly replicated if the SAN needs to be moved, which will shorten the recovery process's turnaround time.

Disadvantage: A SAN has drawbacks because of the complexity of its implementation because it consists of intricate and sophisticated interconnected devices. Additionally, even though the storage pool is shared by numerous servers, each one is extremely complicated and might end up costing a lot of money.

* + Network Attached Storage

Advantage: Because NAS systems are easy to use, an IT specialist is frequently not needed, which is good for small business owners. NAS can replace direct-attached storage (DAS) since it is affordable, easy to use, and secure for data backup. Additionally, because NAS systems are always available, it is simple for staff members to work together, serve clients, and enable collaborative development initiatives. The NAS system functions similarly to the Cloud in that it may be accessed from a distance with a network connection. As a result, the personnel can work whenever they choose from any location.

Disadvantage: The NAS appliance's resources are limited, and as more users request access, it will become unable to keep up, resulting in sluggish performance and user annoyance. Due to the difficulties of low throughput and high latency, NAS systems cannot be easily scaled up or out, and NAS protocols like Network File System (NFS) and SMB are too slow for high-performance applications. Additionally, NAS depends on a network since files are shared across a local area network (LAN).

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