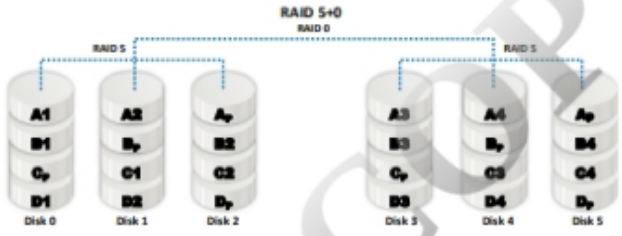
RAID Level 50: Mirroring and Striping Across Multiple RAID Levels

- RAID 50 is a combination of **RAID 0 striping** and the distributed parity of **RAID 5**
- It is **more fault tolerant** than RAID 5 but uses twice the parity overhead
- A minimum of **6 drives** are required for setup. A drive from each segment can fail and the array will recover. If more than one drive fails in a segment, the array will stop functioning
- This RAID level offers greater reads and writes compared to RAID 5 and the highest levels of **redundancy** and **performance**



Selecting an Appropriate Backup Method

- Select the backup method according the organization's requirements and based on its **cost** and **ability**

Hot Backup (Online)

- Backup the data when the application, database or system is **running** and available to users
- Used when service level **down time** is not allowed

Advantage:

- Immediate data backup **switch over** is possible

Disadvantage:

- Very **expensive**

Cold Backup (Offline)

- Backup the data when the application, database or system is **not running** (shutdown) and is not available to users
- Used when a service level down time is allowed, and a **full backup** is required

Advantage:

- **Least expensive**

Disadvantage:

- Switching over the data backup requires additional time

Warm Backup (Nearline)

- A **combination** of both a hot and cold backup

Advantages:

- **Less expensive** than a hot backup
- Switching over the data backup takes less time compared to a cold backup but more time than a hot backup

Disadvantage:

- **Less accessible** than hot backup

Notes: _____

Choosing the Backup Location

Onsite Data Backup	Offsite Data Backup	Cloud Data Backup
Only storing backup data at **onsite data** storage	Storing backup data in **remote locations** in fire-proof, indestructible safes	Storing backup data on storage provided by an **online backup** provider
Advantages: Onsite backup data can be easily accessed and **restored** **Less expensive**	**Advantage:** Data is secured from **physical security** threats such as fire or floods	**Advantages:** The data is **encrypted** and free from physical security threats Data can be freely **accessed**
Disadvantage: Risk of data loss risk is greater	**Disadvantage:** Problems with a regular **data backup schedule**	**Disadvantages:** **No direct control** of the backup data **More time needed** for backup

Data Recovery

- Data recovery is a process for the recovery of data that may have been accidentally or intentionally **deleted** or **corrupted**
- Deleted items include files, folders, and partitions from electronic storage media (hard drives, removable media, optical devices, and other storage media)
- The majority of lost data is **recoverable**. However, there are situations where the damage to the data is permanent and irreversible
- When attempting to recover data from a target, use a variety of data recovery tools

Notes: