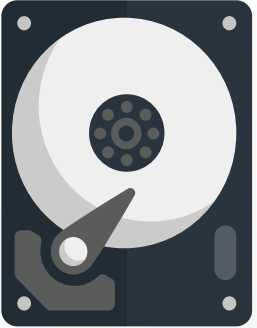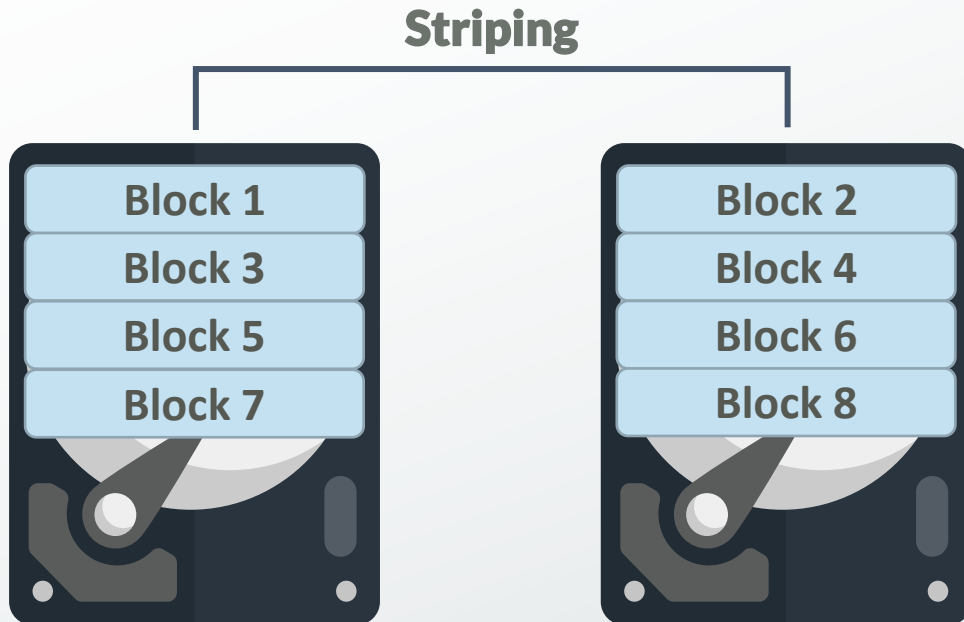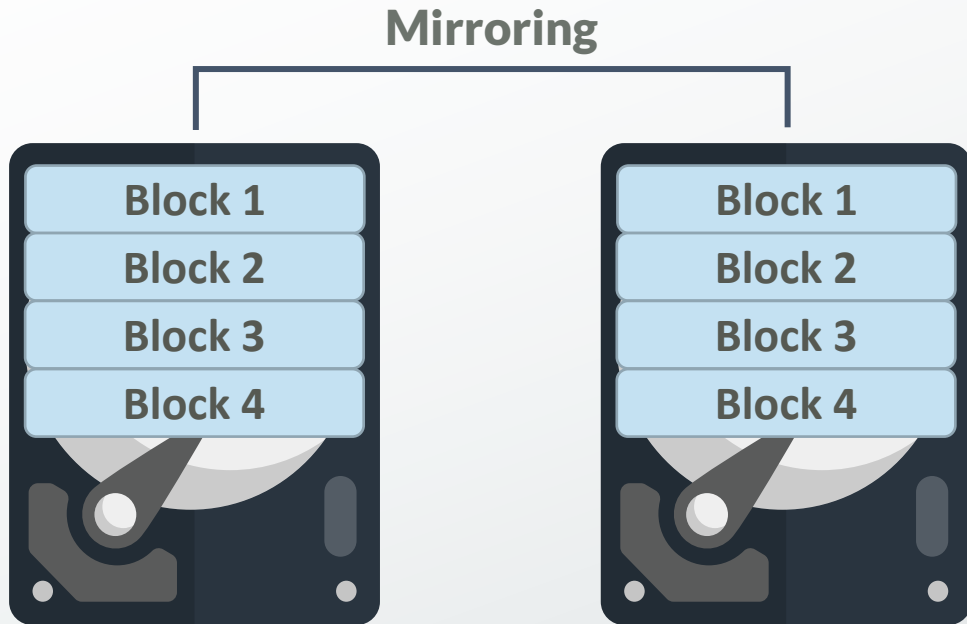# Introduction to RAID

- **RAID**: Redundant Array of Independent Disks

  o Utilization of two or more physical hard drives to increase performance and/or fault tolerance.

  o Combines multiple physical disks into a single logical drive.

- There are multiple different types of RAID.

  o We'll take a look at RAID 0, 1, and 5.

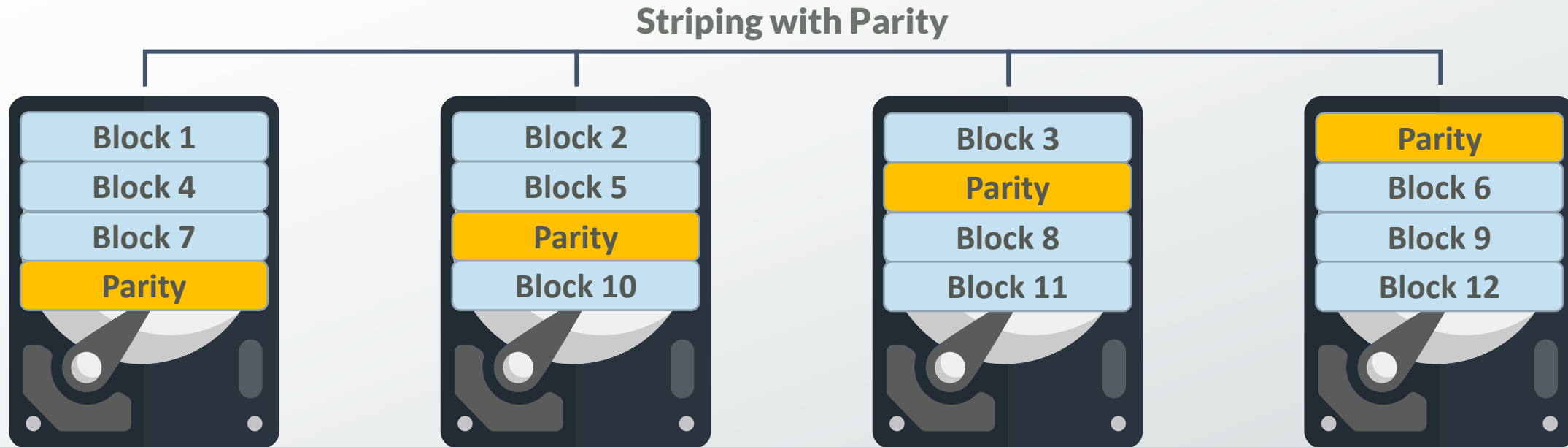# RAID 0: Striping

Striping

| Block 1 |
| Block 3 |
| Block 5 |
| Block 7 |

| Block 2 |
| Block 4 |
| Block 6 |
| Block 8 |

- Stripes (spreads) data across multiple disks to increase performance.

- Doesn't provide any fault tolerance redundancy.

RAID 1: Mirroring

Mirroring

Block 1	Block 1
Block 2	Block 2
Block 3	Block 3
Block 4	Block 4

- Duplicates data (mirrors) on both drives.
- Designed to provide data redundancy and fault tolerance.

RAID 5: Striping with Parity

Striping with Parity

Block 1	Block 2	Block 3	Parity
Block 4	Block 5	Parity	Block 6
Block 7	Parity	Block 8	Block 9
Parity	Block 10	Block 11	Block 12

- Stripes (spreads) data across multiple disks to increase performance.

- Uses parity across all drives to reconstruct data if one of the drives fails.

- Designed to provide improved performance and fault tolerance.