Journaling Modes

Journaling has cost - one write = two disk writes (two seeks with hard disks)

➡ Several journaling modes balance consistency and performance

- **Data journalling** - journal all writes, including file data
  - ◉ expensive to journal data

- **Metadata journaling** - journal only metadata
  Used by most FS (IBM JFS, SGI XFS, NTFS)
  - ◉ file may contain garbage data

- **Ordered mode** - write file data to real FS first, then journal metadata
  Default mode for ext3
  - ◉ old file may contain new data