

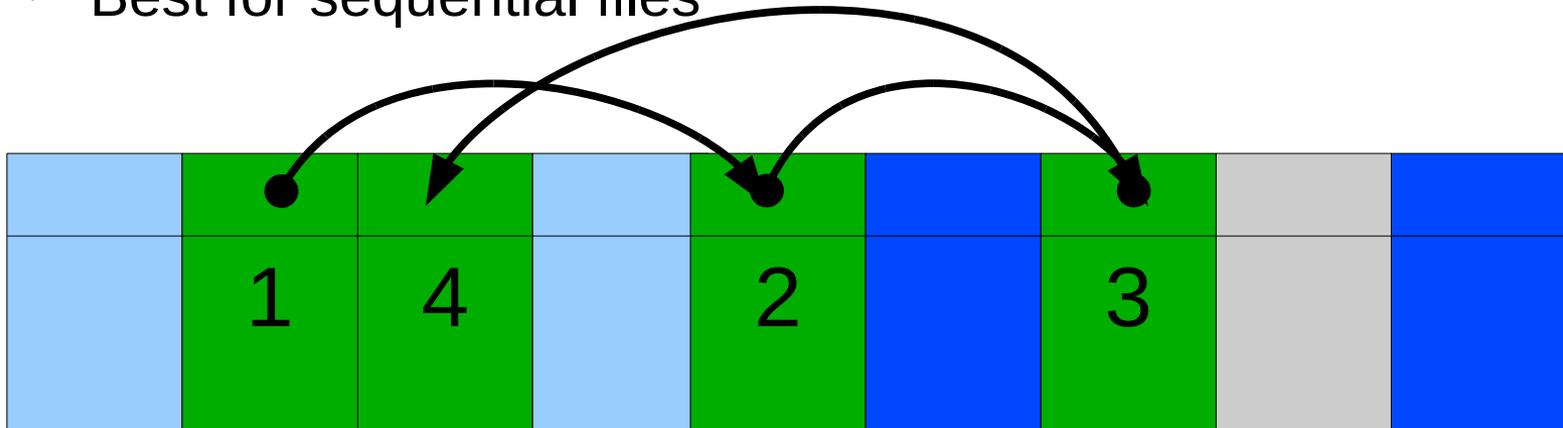
# Question 1

- Different physical nature of storage devices
  - Ext3 is optimised for magnetic disks
  - JFFS2 is optimised for flash memory devices
  - ISO9660 is optimised for CDROM
- Different storage capacities
  - FAT16 does not support drives >2GB
  - FAT32 becomes inefficient on drives >32GB
  - Btrfs is designed to scale to multi-TB disk arrays
- Different CPU and memory requirements
  - FAT16 is not suitable for modern PCs but is a good fit for many embedded devices
- Proprietary standards
  - NTFS may be a nice FS, but its specification is closed



## Question 2

- Each block contains a pointer to the next block in the chain. Free blocks are also linked in a chain.
  - ✓ Only single metadata entry per file
  - ✓ Best for sequential files



- ✗ Poor for random access
- ✗ Blocks end up scattered across the disk due to free list eventually being randomised

# Question 3

- Issues
  - Requires a lot of memory for large disks
    - $200\text{GB} = 200 \cdot 10^6 \cdot 1\text{K-blocks} \implies$   
 $200 \cdot 10^6 \text{ FAT entries} = 800\text{MB}$
  - Free block lookup is slow

