

# Rationale behind multi-level index files

- **Most files are small**  
~2K is the most common size
- **Average file size is growing**  
Almost 200K is the average
- **Most bytes are stored in large files**  
A few big files use most of space
- **File systems contains lots of files**  
Almost 100K on average
- **File systems are roughly half full**  
Even as disks grow, file systems remain ~50% full
- **Directories are typically small**  
Many have few entries; most have 20 or fewer

# Directories

**Directories** serve two purposes

- For users, they provide a structured way to organize files by using digestible names rather than inode numbers directly
- For the File System, they provide a convenient naming interface that allows the separation of logical file organization from physical file placement on the disk