

Graduate Operating Systems (Storage & File Systems)

Fall 2020

Paper Reviews

- What is the **problem**?
 - Title, abstract, introduction
- What is the **solution** (idea/innovation) and how does it improve upon the state of the art?
 - Introduction, approach, related work
- What is the **technical approach**?
 - Design/implementation sections
- How is the work being **evaluated**?
 - Simulation, experimentation, results, discussion

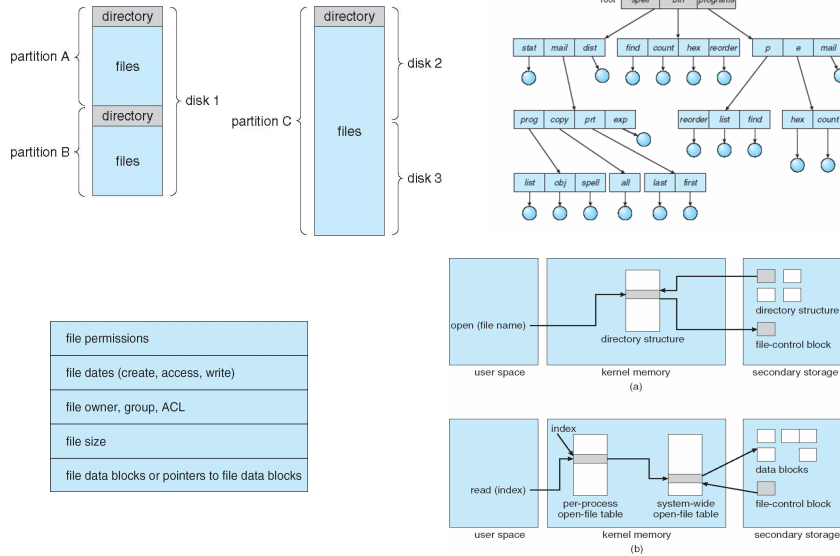
Critical Review

- Is this really important? Timely? What will be the societal impact?
- Is this really a good idea? Feasible? Done before? Do they focus on the right questions?
- Are there problems in the solution? Too many (unrealistic) assumptions? Errors in the math?
- Are the experiments designed appropriately? Do they measure what the authors' claim? Do they correctly interpret the results? Do they forget to measure something else?
- How does it fit into prior/related work? Do they cite the right references? What's next (future work, open issues)?

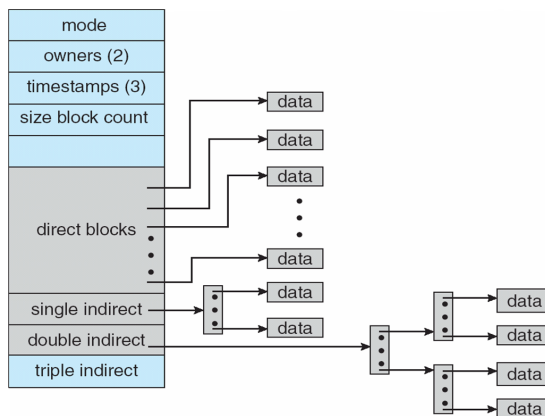
Paper Types & Reviewing

- Journals
- Conferences/Workshops (TPC)
- Online repositories (arXiv)
- <https://authorservices.wiley.com/Reviewers/journal-reviewers/how-to-perform-a-peer-review/step-by-step-guide-to-reviewing-a-manuscript.html>
- <https://www.journals.elsevier.com/applied-soft-computing/news/tips-and-advice-when-you-review-a-scientific-paper>

FS Review



FS Review



Paper “FFS”

- What is “throughput”?
- What is “locality of reference”?
- Disk organization: blocks
- What is “mapping of files”?
- What is “paging”?
- What is a “superblock”?
- What is a “free list”?
- What is an “inode”?
- Consecutive vs. non-consecutive allocation
- What is a “disk seek”?
- **Small or large block size?**

Paper “FFS”

- Reliability
- **Block sizes 521 & 4096 (pros/cons?)**
- What is a “cylinder group”? Why consecutive?
- **Bit map vs. free list (pros/cons?)**
- Static number of inodes
- Random superblock placement
- **What does Table I show?**
- Internal vs external fragmentation
- Fragments & block map
- Free space reserve

Paper “FFS”

- Abstraction (“files”)
- Consequences of exposing disk characteristics?
- Global layout policies: localize related and spread out unrelated data
- Local layout policies: use rotationally optimal positions
- What is a “quadratic hash”?

Paper “FFS”

- Results: Table II
- Additional file system changes
 - File locking (hard/advisory; shared/exclusive)
 - Symbolic links

Summary “FFS”

- Variable block sizes
- Cylinder groups
- Block fragments
- File system layout changes
- New semantics (locks, etc.)
- Pros & cons?
- 1984 vs today?