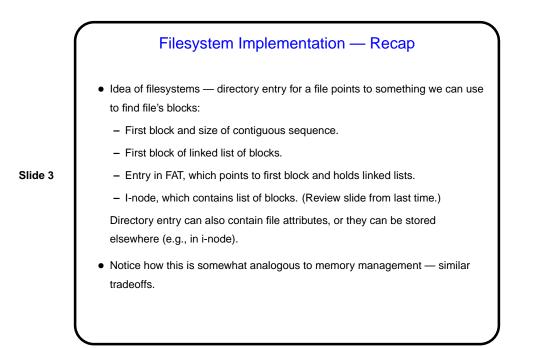
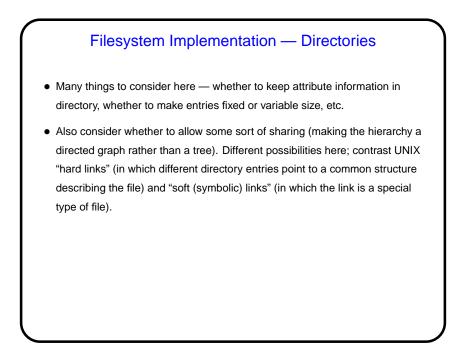
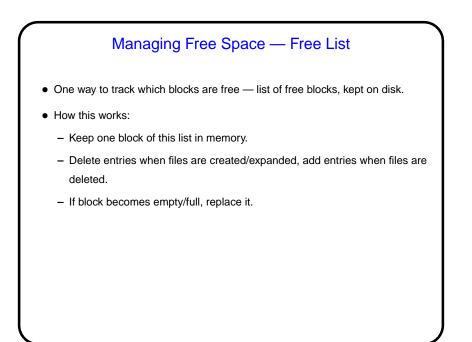
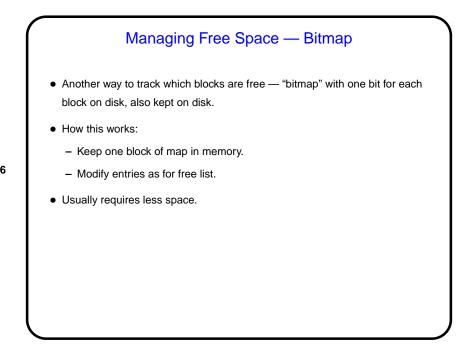


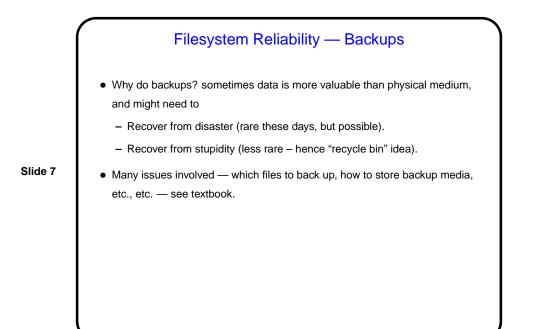
Minute Essay From Last Lecture — Some Responses
Would be good for big audio/video files, or anything where pauses in obtaining next part of file would be a problem.
(Is it a good idea, though, to insist that *all* files be allocated this way? Are there other solutions to the problem of providing fast access?)

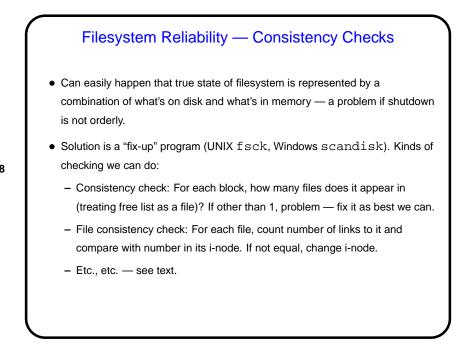


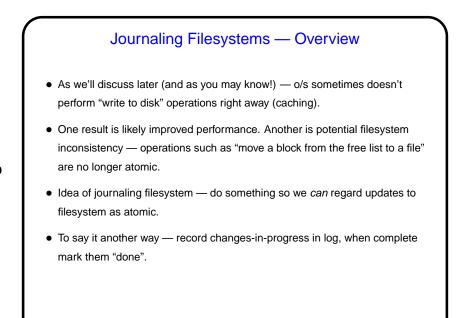










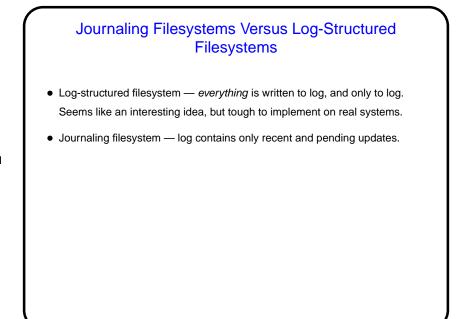


Slide 10

Journaling Filesystems, Continued
Can record "data", "metadata" (directory info, free list, etc.), or both.
"Undo logging" versus "redo logging":

Undo logging: First copy old data to log, then write new data (possibly many blocks) to disk. If something goes wrong during update, "roll back" by copying old data from log.
Redo logging: First write new data to log (i.e., record changes we're going to make), then write new data to disk. If something goes wrong during update, complete the update using data in log.

A key benefit — after a system crash, we should only have to look at the log for incomplete updates, rather than doing a full filesystem consistency check.



Filesystems — Quotas Why have quotas? Disk space is cheap, right? yes, but more space used means more to back up, and on multi-user systems there are fairness issues, and the possibility that one careless user will affect others. Implementation involves keeping track, for each user, of space used versus space allowed. Must be updated every time a file is changed/created/deleted. Some systems allow "grace period", but eventually all will disallow, for user over quota, creation of new files or expansion of existing files.

