F2FS

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F2FS

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- Unlike the Sprite LFS i-node map, the F2FS node address table (NAT) contains the addresses of all indirect addressing blocks. F2FS calls them "nodes."
F2FS

- What is the main motivation for F2FS *threaded logging*?
F2FS

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  - *It allows F2FS to keep working when there are no clean segments available.*
NFS

- What is the purpose of NFS *file generation numbers*? (10 points)

- Where are these numbers stored? (10 points)
What is the purpose of NFS *file generation numbers*? (10 points)

- *File generation numbers are used to detect stale file handles.*

Where are these numbers stored? (10 points)

- *In the i-node of every file.*
Consider a distributed file system implementing close-to-open consistency. Assuming that

- Alice opens the file at 9:30 AM, modifies it, and closes it at 10:15 AM,
- Bob opens the file at 10:00 AM, modifies it, and closes it at 10:20 AM,
- Carol opens the file at 10:25 AM, modifies it, and closes it at 10:45 AM,

Which of these three users would see his or her changes actually incorporated in the final version of the file?
NFS Evolution

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*Bob and Carlota*
Leases

Which of the three CAP properties is not satisfied by time-limited leases?

- Consistency
- Availability
- Partition tolerance
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Google file system

- In the Google File System, which metadata are **not** kept persistent by the master server?
Google File System

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- The locations of the chunk replicas.
Google File System

- How does the Google File System protect the contents of its data chunks against device failures?
Google file system

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  - *All chunks are replicated at least three times*
Ceph

- How does Ceph map objects into placement groups?
Ceph

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  - Through hashing.
What does Ceph do to speed up access to directories that are heavily written to?

- It hashes their contents over the cluster.