Paper summary

A centralized server can be unreliable and expensive to scale and can act as a single point of failure, severely affecting availability. The serverless network file system achieves better performance and scalability by removing the central server and employing redundancy. Here, it consists of multiple nodes in the system which act as peers to provide all file system services. In case of failure of any node, another node can assume its role. The peers should be trusted and connected via a high-speed network. XFS takes heavy inspiration from RAIDs, LFS, and Zebra and compares its performance with AFS and NFS. XFS locates data and metadata in the dynamic environment with the help of the manager map, the IMAP, file directories, and the stripe group map, which provide cache consistency and dynamic reconfiguration. Few issues like log cleaning, incomplete prototype implementation are pending and need to be resolved in future implementation. However, XFS proves to be a promising solution for a scalable system based on the performance results.

Strengths

1. The motivation of using prior ideas such as RAID, Zebra, LFS, or adopting new changes is clearly stated.
2. Performance comparison between AFS, NFS, and XFS (fig 9, 10, 11) was helpful.
3. Good use of diagrams, especially in Section 3.
4. Neatly arranged paper.
5. It acted as the foundation for peer-to-peer file systems and horizontal scaling.

Weaknesses

1. The security section could have been explored in more depth.
2. Only microbenchmarks were provided.
3. Prototype Status is incomplete.

Comments for author

1. An incredible amalgamation of old and new ideas to make the new file system!
2. What precautions can the system take to sustain itself in a hostile environment?
3. What are the workloads where a centralized system may perform better than XFS?