Ivy: A Read/Write Peer-to-Peer File System

Athicha Muthitacharoen, Robert Morris, Thomer M. Gil, and Benjie Chen

OSDI 2002

Scriber: Chun-Xun Lin

Quick Review

- Consists of a set of logs & one log per participant
- Logs are stored in DHash (distributed hash table)
- Supports read/write
- Allows meta-data consistency without lock
- Users can choose which logs to trust

Pros & Cons

- **Pros**
  - No centralized server
  - Achieve meta-data consistency without lock
  - Provide NFS-like semantics
  - Provide tools to resolve conflict
- **Cons**
  - Slower than NFS
  - Rely on users to exclude malicious behaviors
  - Cannot resolve concurrent update conflict

Questions

- The performance of Ivy is slower than NFS and is the system useful ?
  - The log compaction technique in Cassandra could be used to improve Ivy's performance.
  - Distributed hash table does not consider network latency when distributing the data blocks. This might be a direction for improving Ivy's performance.
- Compared with other distributed file systems such as HDFS ?
  - Both systems are designed under different considerations and they have own strengths (e.g., w/ and w/o central server, programming paradigm support, etc.). Users can select which system to use based on their needs.