

ECE5658

Critiques - week11

Student info:

Name: Jaeyoun Nam

Student ID: 2014310198

Email: siisee111@gmail.com

1 TxFS: Leveraging File-System Crash Consistency to Provide ACID Transactions

(1) **summary of the paper:** There are many transactional file systems before, however this paper introduce novel approach to leverage ext4's journal. *TxFs* has lots of advantage such as simple API, high performance and low complexity. As the file system name (transaction) imply, *TxFs* guarantees strong crash consistency.

(2) **strengths/weakness of the paper:** This paper introduce file system, but their implementation LOC(line of code) is only about 5K. There are some local copies but no significant overhead. Limitation on transaction size and parallel transaction issue are still not resolved.

2 All File Systems Are Not Created Equal: On the Complexity of Crafting Crash-Consistent Applications

(1) **summary of the paper:** All file systems are not created equal, each file system guarantees different persistence properties. For example, a application can endure crash on A file system, but on B file system it could not be recovered. This paper introduce two tools to inspect these situations. The first one is Block Order Breaker (called BOB) for checking file system's persistence properties. And the second one is called ALICE for checking application's consistency protocol.

(2) **strengths/weakness of the paper:** These tools are useful and help to relieve kernel developers works and let application developers to know problem at once. However, these tools are not mature so problems from concurrency can not be detected. Also, ALICE can detect consistency weakness but it needs workloads that enlighten corner cases.