ECE5658: Operating Systems Design – Paper Critique

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이성우

1. All File Systems Are Not Created Equal: On the Complexity of Crafting Crash-Consistent Applications, OSDI 2014

- This paper analyzed how application-level consistency is significantly dependent upon file system mechanism first and proposed the scheme that test the persistence properties in file system and the framework that analyze application-level protocols and detects dangerous properties for data consistency. This paper analyzes about that in detail with passion. I think this paper can be improved by scaling out to other level from storage to block layer. This is because the vulnerabilities can be not only from the application-level.

2. TxFS: Leveraging File-System Crash Consistency to Provide ACID Transactions, ATC 2018

- This paper proposed the TxFS which leverages file-system crash consistency to provide ACID transaction just as the title. This TxFS shows the possibility to avoid the misunderstood of consistency problems. The transaction is an intuitive way to atomic update a persistent state. However, it is not supported by file system level well. So, this paper introduces the transactional file system based on ext4 to be practical to transaction. I think that this can be improved with consideration of application such as database application which provides transaction ACID. It is because that the mechanisms from both application and file system can be overlapped and degrades the overall performance.