

CS 550 HW#3

Name (please print) _____

Instructions:

- *Due date: 11:25AM on Tuesday, 04/05/11*
- *This is individual written assignment; any information outside the lecture notes and text book should be cited.*
- *Both hardcopy and softcopy are required (India students and remote students only need to submit softcopy). Please drop your hardcopy to TA's mailbox (2nd floor of computer science department), and submit the softcopy to "Digital Drop Box" on the Blackboard.*
- *Name your file as this rule: "LastName_FirstName_[HW or PA number]". E.g. "John_Doe_HW3". (HW for Written Assignment, PA for Programming Assignment).*
- *For all programming assignments and projects, please submit the hardcopy of your documentation only. You don't need to submit the hardcopy of your source code. In the meantime, please zip all files (source code, documentation and etc.) and submit it to BB.*
- *Late submission will be penalized at 10% per day.*

8.2. Q: What makes the fail-stop model in the case of crash failures so difficult to implement?

8.7. Q: For each of the following applications, do you think at-least-once semantics or at most once semantics is best? Discuss.

- a) Reading and writing files from a file server.
- b) Compiling a program.
- c) Remote banking.

8.16. Q: In the two-phase commit protocol, why can blocking never be completely eliminated, even when the participants elect a new coordinator?

8.19. Q: Explain how the write-ahead log in distributed transactions can be used to recover from failures.

9.15. Q: How can an organization enforce the use of a Web proxy gateway and prevent its users to directly access external Web servers?

9.18. Q: Name a few advantages and disadvantages of using centralized servers for key management.

11.2. Q: Explain whether or not NFS is to be considered a distributed file system.

11.3. Q: Despite that GFS scales well, it could be argued that the master is still a potential bottleneck. What would be a reasonable alternative to replace it?

11.10. Q: Taking into account cache coherence as discussed in Chap. 7, which kind of cache-coherence protocol does NFS implement?

11.11. Q: Does NFS implement entry consistency?