Name:

CS 6/73201

Final Exam

Advanced OS

Monday 12 December 2005

1. Explain how the SUN NFS virtual file system co-exists with and interacts with the UNIX file system. (15 points)

- 2. Two semantic models used in distributed file systems are UNIX semantics and session semantics.
 - a. Briefly define each of these models. (10 points)

b. If the file data is cached, which cache modification policy is most appropriate for each of these semantic models and why? (6 points)

- 3. Two process migration mechanisms are total freeze and pre-transfer.
 - a. Briefly define each of these mechanisms. (10 points)

b. Which has less freeze time? Explain. (6 points)

4. Three sender-initiated load distribution algorithms were studied by Eager, Lazowska, and Zohorjan, which differ only in their location policy. Would the use of broadcast or multicast (broadcast to a specific subset of notes) improve any of these three location policies or would that only decrease performance? Explain. (13 points)

5. Why do receiver-initiated load distribution algorithms tend to be stable at high system loads, whereas sender-initiated load distribution algorithms are unstable at high system loads? (15 points)

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6. Define strict memory consistency, and explain why it is impossible to achieve in a distributed system with shared memory. (15 points)

7. How does a polyalphabetic cipher such as the vigenere cipher improve on the Caesar cipher? (10 points)

8. Define private key cryptography, and explain the key distribution problem. (15 points)

9. What is an embedded system? (10 points)