

Homework 3
CS 670 Distributed Operating Systems Theory
(Due on 3/3/06 in class)
(10 points)

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1. Consider the following simple method to collect a global snapshot (it may not always collect a consistent global snapshot): Initiator process takes its snapshot and broadcasts a request to take snapshot. When some other process receives this request, it takes a snapshot. Channels are not FIFO.

Prove that such a collected distributed snapshot will be consistent iff the following holds (assume there are n processes in the system and Vt_i denotes the vector timestamp of the snapshot taken process p_i): (5+5)

$$(Vt_1[1], Vt_2[2], \dots, Vt_n[n]) = \max(Vt_1, Vt_2, \dots, Vt_n)$$

Don't worry about channel states.