Homework 2
CSC 469/585 High Performance and Availability Computing

Due date: January 28, 2009

1) Assume that you have to design an e-commerce system to meet the following requirements.
   a. Availability at least 99.5%
   b. an average capacity of 10000 users/hours.
   c. Each user's session typically requires 5 browsing requests and one DB commit transaction. (You can make an assumption that 5 reading request = 1 DB commit)
   d. We expect a growth 10% each year
   e. The system longevity is 5 years.
   f. The system cost should be as optimal as possible.
   g. Consider work duration is 8-5pm. At the peak hour, the load is 50% more than at an average hour.

   Provide a document that describes your system design, performance, reliability and cost analysis, structure, and rationale. You should also include diagrams, calculations that provide your detailed design and analysis including targets and budgets/estimate.

Other considerations/assumptions:

Server	(Availability A_i)	Cost per server	Capacity Trans/hours	2 x A_i	3 x A_i	4 x A_i
A	99.5 %	50,000	10,000	.999	.9995	.9999
B	95 %	10,000	7,000	.99	.995	.9995
C	90 %	5,000	5,000	.95	.992	.995