CEE 5390 - Modeling and Simulation in CEE

The Deja-Vu Homework

April 2, 2008

Problem 1

An airlines reservation system has n computers, $(n-k)$ on-line and k backup. The operating computer fails after an exponentially distributed duration having parameter μ and is replaced by the standby. There is one repair facility, and the repair facility times are exponentially distributed with parameter λ. The system fails if $k \geq k_0$. Let $X(t)$ be the number of computers in operating condition at time t. Then find the following:

- Draw a state space diagram - i.e. a diagram of all possible states and all possible transitions between them
- Draw the Stochastic Petri Net to represent the problem.

Problem 2

Develop a state space diagram and a Stochastic Petri Net for the truck and loader problem. (1 Excavator, n number of trucks in continuous operation as discussed in class).