Simulation Modeling Problem

# Harbor with Two Cranes [[1]](#footnote-1)

A small harbor unloads ships using two cranes mounted on a track. There is room at dockside for two ships. When two ships are present, each crane unloads one of them. When only one ship is present, both cranes work on unloading it, reducing the unloading time by half. If another ship arrives when there is only one being unloaded, then one crane will immediately begin unloading that ship, thus *increasing* the remaining unloading time of the first ship by a factor of two. Arriving ships wait in a first-in first-out queue if both positions dockside are taken. If a ship completes unloading when there are two present, then if there is a ship waiting, the first one begins unloading with the free crane. If the queue is empty, that crane switches back to unloading the remaining ship, thus decreasing again the remaining unloading time by half.

Formulate an Event Graph model for this situation.

1. Edward C. Russell, *Building Simulation Models with SIMSCRIPT II.5* (1983) ,CACI Inc., Los Angeles, CA [↑](#footnote-ref-1)