Description

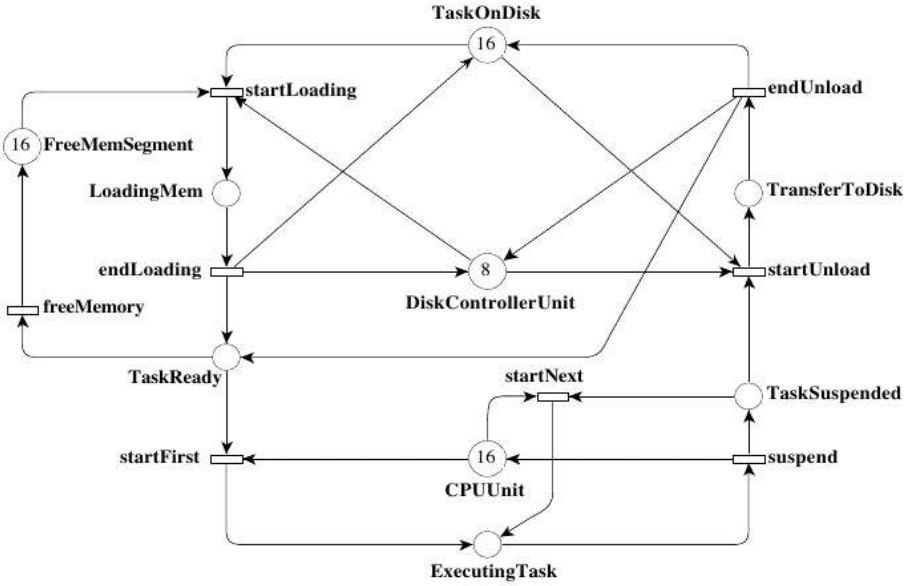
This Petri net models a simplified Operating System handling the execution of tasks on a machine with several so-called "memory segments", Disk controller units, and cores. The typical lifecycle of a task is the following:

1 A ask is loaded from disk to memory (requires a segment and a disk controller),

2 When the task is ready to execute, it can get a core, be suspended and get a core again as long as its execution is not finished. It can also be removed from the memory if some is needed otherwise

3 When the execution finishes, the task is saved back on the disk.

The system has several scaling parameters: M (memory segments), T (tasks), D (Disk controllers) and C (cores). However, to simplify this in the MCC, we reduce it to two parameters, MT and DC with the following correspondence: $M = T = MT$, $D = DC$ and $C = 2 \times DC$.



Graphical representation for $MT16$ and $DC = 8$

Scaling parameter

Parameter name	Parameter description	Chosen parameter values
MT and DC	MT to compute available tasks and memory and DC to compute available disk controllers and cores	(MT=16, DC=8), (MT=32, DC=8), (MT=32, DC=16), (MT=64, DC=16), (MT=64, DC=32), (MT=128, DC=32), (MT=128, DC=64), (MT=256, DC=64), (MT=256, DC=128), (MT=512, DC=128), (MT=512, DC=256), (MT=1024, DC=256), (MT=1024, DC=512), (MT=2048, DC=512), (MT=2048, DC=1024), (MT=4096, DC=1024), (MT=4096, DC=2048), (MT=8192, DC=2048), (MT=8192, DC=4096)

Objetivo: escrever esse modelo na ferramenta de verificação de modelo de sua preferência e elabore propriedades de deadlock freedom (safety) e liveness.
Entrega: README, relatório com o resumo sobre o trabalho e conclusões sobre o modelo, código criado.
Entregar a data descrita no moodle.
Individual ou em dupla.

Fonte: Fabrice Kordon