## Introduction

This Model form is a short description of the Neo election protocol model that comes, for the Model Checking Contest 2012 @ Petri Nets, with: a set of PNML files, a set of properties to be checked (possibly one file per model instance) and an optional set of properties concerning the model (invariants, etc. – possibly one file per model instance). For Coloured Nets, equivalent PNML P/T net files are proposed too.

Neo election protocol
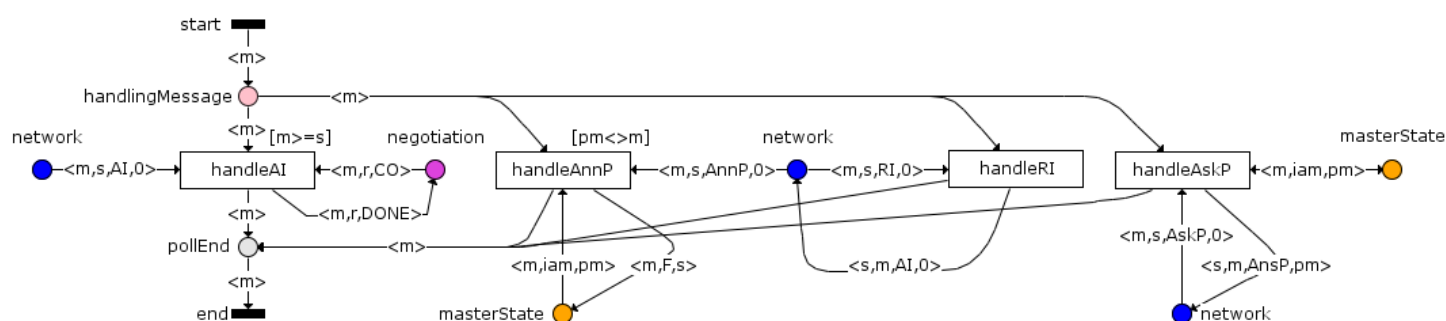
Presentation

Description: The Neo protocol aims at managing large distributed databases on clusters of workstations. The machines on the cluster may have several roles. This model focusses on master nodes which handle the communications between all nodes, and in particular requests for accessing database objects. Prior to that all master nodes agree on a primary master which will be the operating one, the other master nodes being secondary, waiting to replace the primary master if needed.

The Petri net of this case study models the election protocol which has the particularity of allowing dynamic joining and leaving the cluster. The sub-net represented in the figure models a part of the procedure used by network nodes to handle incoming messages.

A detailed description is given in the referenced paper.

Origin: `http://www-lipn.univ-paris13.fr/~petrucci/PAPERS/61280145.pdf`

Scaling parameter

Name	Description	Values
N	number of network nodes participating to the election	2, 3, 4, 5, 6, 7, 8

Information about the Model

Data on the Model

Number of places	Number of transitions	Number of arcs	Scaling parameter value
18	22	98	2

Stated Properties

safe	✔	free choice	✗	event graph	✗
deadlock	✔	state machine	✗	reversible	✔

Other Properties (not mandatory)