

# Parallel and Distributed Algorithms and Programs

## TP n°5 - Simulation & benchmarking using Simgrid

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All documents are available on my website : <http://hadriencroubois.com/#Teaching>

### Simgrid

Simgrid is a parallel platform simulator developed by Inria. We will be using it to specify the characteristics of the infrastructure supposedly running our algorithms and evaluate their efficiency.

Using Simgrid is as simple as changing your MPI library. By compiling your program with `mpicc` (instead on `mpicc`) and running it using `mpirun` you will be able to specify many parameters that would otherwise be defined by the system you are using.

With this lecture comes an archive containing an installation script and examples : <http://shared.hadriencroubois.com/teaching/2015-AlgoPar/tp5-simgrid/tp5-simgrid.tar.gz>

#### Question

- a) Start by installing simgrid onto your accounts and verify that everything is working properly.
- b) Considering the examples of the archive and the documentation available online (<http://simgrid.gforge.inria.fr/documentation.html>), how could you customize the following parameters :
  - CPU frequency (computing power)
  - Bandwidth
  - Latency
  - Number of nodes
  - Network topology

### Benchmark your applications

#### Question

- a) Considering the algorithms designed in previous classes, propose a benchmarking protocol that would show the strength and weaknesses of your different implementations.
- b) What result do you expect from this protocol?
- c) Run you protocol using Simgrid and analyse the results. Graphs are welcome!