Decentralized, Energy-Efficient Workload Management in Enterprise Clouds

CloudSim[[1]](#footnote-1)-based incremental implementation and experimentation

# Scenario 01

The goal of this simple scenario is to allow us implement the basic structure for our CloudSim-based simulation experiments, which is a cluster of hosts organized in the Hypercube topology. The cluster is used to execute VM instances, which are spread across its nodes. Periodically and synchronously, all hosts in the cluster need to take a decision on whether to migrate (some of) their instances to (one or more of) their Hypercube neighbors or not, on the basis of information they exchange with each other.

To realize the scenario, implement the following functionality:

*Start a cluster of 2N hosts (N=1, 2, 3...), which are organized in the Hypercube topology. All hosts will have the same hardware capabilities (CPU, RAM, network, etc.). Assign a random number of VM instances to each host. Let the simulation run for a fixed duration. Every T seconds, let the simulation pause, and let each host query the current CPU usage of its immediate Hypercube neighbors.*

1. <http://www.cloudbus.org/cloudsim/> [↑](#footnote-ref-1)