

## **Master thesis opportunity at IRIT-Toulouse (France)**

**Subject:** Energy-aware task management in hybrid environment: Cloud and Cluster

**Keywords:** Placement, Load Balancing, Energy, Performance evaluation, Large Scale Algorithmic, Virtualization

### **Context:**

This master thesis is part of the SOP Project. The SOP project concerns the development of new runtime models for personal users: The user does not manage his/her machine but subscribe a rent providing him with a light computer connected to the provider. The user chooses the applications he/she wants to use and gains access transparently to the appropriate services, wherever located. Hence the project aims at proposing a SAAS/Cloud computing platform, fully autonomously managed without human intervention.

In this master thesis, we will work on the dynamic management of services (may be composed of several interdependent individual tasks) proposed to the users. These services can be executed either on dedicated cloud or on the users resources.

We aim at providing services to users optimizing several objectives related to the experience of the user (performance, latency, cost, ...) while reducing the overall energy consumption at its maximum, leading to necessary trade-off studies.

Works in this master will consist to propose a distributed decision making : distributed algorithm for placement, re-placement and scheduling of services in heterogeneous systems. This will be built on previous works on energy-aware service allocation.

The student will be hosted at IRIT Laboratory ([www.irit.fr](http://www.irit.fr)) in the SEPIA team. It is fully funded by the SOP project.

**Please note that a full funding for a PhD. thesis is available following this internship. The Master student is expected to continue in PhD. in the project if results are satisfactory.**

### **Requirements:**

- Programming skills in C/C++/Java
- Fluent in English, French is bonus

### **Application:**

Applications have to be sent as soon as possible.

Start date is expected as soon as possible, from February 1st onward.

Duration: 4 to 6 months.

A detailed CV with academic results is expected.

### **Contact:**

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