UBIVERTEX - Letter of Intention

Institute/Company :

Name: Université Pierre et Marie Curie – Paris 6

Activity domain: University

Number of employees:　　☐ <50　　☐ <250　　X > 500

Name of the department/research team: Regal TEAM (LIP6 Lab)

Scientific contact

Name: Pierre Sens

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Challenge descriptions: **Distributed Algorithms for the Cloud**

Elasticity and SLA are two key features of clouds. Virtual machines (VM) which embed distributed application can be dynamically allocate and migrate according to load variations whereas distributed services must satisfy SLA constraints. Consequently, traditional distributed algorithms suitable for Grid must be rethought. In this project, we will address fundamental and practical aspects of distributed algorithms in the cloud.
We propose to define **new elastic distributed algorithms**.
We will target two fundamental problems which are building blocks for many distributed applications:

   (1) distributed agreement : Agreement problems constitute a fundamental class of problems in the context of distributed systems (Replication, Total Order Broadcast, and Consensus)

   (2) distributed locking: locking has been identified as highly challenging in Cloud and is a well-known bottleneck for the performance of complex applications of Clouds.

Type of commitment (internship, Phd grant, engineering staff):
1 internship, 1 Phd Student, 1 engineering staff

Number of persons involved in these challenges: 6

Signature of
Scientific Contact:
(Pierre Sens)

Signature of the
Project Coordinator:
(Pierre Sens)

Date:　 2 septembre 2011

Date: