

Project proposal

<i>Project title</i>	High Performance Cloud Computing: The Management of Complex Scientific and Engineering Problems
<i>First Supervisor</i>	Professor <input type="checkbox"/> Souheil Khaddaj
<i>Second Supervisor</i>	tbcb
<i>School</i>	Computing and Information Systems <input type="checkbox"/>
<i>Other member of supervisory team (no more than three KU supervisors in total)</i>	
<i>Specific requirements beyond 2:1 degree</i>	

Project summary (max 4,000 characters)

MSc by Research

The solution of many large scale complex scientific and engineering problems often depend on the availability of high-performance computing infrastructures. Historically, this has been addressed by acquiring and configuring computing facilities such as high performance clusters and super computers, which require additional technical support in order to operate and continuous maintenance and upgrades. Recently, Cloud Computing has emerged as a new large-scale distributed computing paradigm which can offer an alternative to traditional infrastructures. Thus, the aim of this project is to design and develop a new generic decision making Cloud broker for the management of scientific and engineering applications. Unlike traditional management approaches it is a combination of two brokers; a local broker that optimises the usage of local resources, typically in a private Cloud, and a global broker that manages Cloud bursting when external resources, typically public Clouds, are needed. The broker's other main function is to ensure meeting the diverse user requirements and its novelties sit in the ability to use a multitude of software engineering quality attributes for decision making, a set of quality guidelines from the user and applying a reinforcement model to validate these guidelines, when required.