NEW CLASS – SPRING ‘10

CS395T The Semantic Web, Ontologies and Cloud Databases
Prof. Daniel P. Miranker
Mondays 3:30 – 6:30

The evolution of computing as a utility provided by a distributed network of computers brings with it new problems and opportunities in data management and data integration. This topics course will cover two contrasting developments. Cloud Databases (attribute/value stores), are nascent commercial services created and offered by some of the most famous companies. These systems provide low-level interfaces. The Semantic Web is a related collection of technologies ratified by the W3C that includes, in principle, the association of metadata encoded as an ontology with each and every web site. The promise is that that will enable, high-level interfaces that prove to be the basis for much improved document search, and automatic integration of distributed data. Although aspects of the Semantic Web are now gaining commercial traction, the larger promise is still largely the province of research projects. Curiously, these developments are intersecting in a movement called NOSQL, “a database movement which began in early to mid 2009 and which promotes non-relational data stores that do not need a fixed schema”, and hence are both harbingers of a new era of databases beginning from a fresh start (i.e. no SQL).

Organization:

Professor Miranker will present a small number of formal introductory lectures on the basic technologies. Subsequently students will present papers in round-robin fashion. This will comprise one or two presentations depending on the size of the class. A partial, preliminary reading list is below. Grading will be based on presentations, class participation and a term project. A list of term projects is available upon request (Miranker@cs). The list is not posted publicly as these areas are new and moving quickly, and a number of projects on the list are novel ideas that could easily lead to publication. Students may also organize their own projects and are encouraged to nominate papers.

Cloud Databases:


available key-value store. SIGOPS Oper. Syst. Rev. 41, 6 (Oct. 2007), 205-220.


Zhou Wei, Guillaume Pierre and Chi-Hung Chi. Scalable Transactions for Web Applications in the Cloud. In proc. of the Euro-Par Conference, January 2009

The Semantic Web:


