

SURAggrid Application Description

Application Name	Parallel Binomial Tree Option Price Valuations	
Application Area	Computational Finance	
Keywords	Option Pricing, Parallel, Grid Computing, Binomial Tree Model	
Project/Dept. Affiliation	Computer Science, Office of Computing and Communications Services	
Specific Objective for Using SURAggrid	This project feature both hardware independent as well as hardware dependent implementations, and therefore, can greatly benefit from the wide variety of parallel systems that become accessible via SURAggrid.	
Originating institution	Old Dominion University	
Primary Application Contact Name, Email	Prof. Mohammad Zubair, zubair@cs.odu.edu Prof. Ravi Mukkamala, mukka@cs.odu.edu	
Technical Contact: Name, Email	Mahantesh Halappanavar, mhalappa@odu.edu Amit Kumar, ahkumar@odu.edu	
Participating sites	Old Dominion University	
Application Description	This project focuses on specialized implementations for binomial tree option price valuations. In particular, we exploit the memory hierarchy, as well as communication systems in a parallel system. We also propose to implement a hybrid OpenMP – MPI based implementation that also exploits memory hierarchy. We will also attempt to solve a two-dimensional space of number of problems and the problem size that will exploit the topology of a grid to maximize throughput.	
Do you have HPC available at your institution?	Yes	
Are you interested in contributing a resource to SURAggrid?	Yes	
	Initial (Test)	Future (Production)
What are the anticipated system requirements for SURAggrid nodes running this application?	Hybrid architectures	Depends on the progress
Have you attended any HPC or Grid training? If so, which ones?	Grid School	
Grid focus (data sharing, computation, access to unique resources, collaboration)	Access to unique resources	Collaboration, collective resource usage
Does your application have any network dependencies (bandwidth, latency, multicast, other)?	Latency	Latency (maybe bandwidth)
What is the expected frequency of application run (one-time, occasional, monthly, weekly, daily...)?	Initially few times	Depends on the progress
Describe expected application invocation mechanism (by user submitting job, programmatically by some event or timing...)	Manually/scripts/Portal	Grid App
Estimated start date for application run	07 February 2008.	
Is this application open to others to use with their own data or revisions?	Not yet	
Do you have an access to a Certificate Authority? If yes, location is your Certificate Policy and Certificate Practice?	Yes	

SURAggrid Application Description

Contact for your CA?	
Are you targeting any particular SURAggrid resource? Why?	Yes. IBM p5 575 for hybrid architecture.
Additional comments	