

PROJECT INTRODUCTION

Objectives

To facilitate multi-institutional resource sharing and provides a problem solving environment for computational intensive problems.

Project Investigator / Manager

Dr. Terence Hung
Institute of High Performance Computing
terence@ihpc.a-star.edu.sg

Period of Project

1 Dec 2003 – 30 Nov 2006

Website

<http://gridportal.ihpc.a-star.edu.sg:8080/portal>

Abstract

Problem Solving Environment provided by SER includes grid-enabled mesh & visualization utilities, grid-enabled commercial software and various convenience tools. The complication of the Grid environment is hidden by the portal. It provides single point of access to distributed resources and manages authentication and authorization features.

PROJECT DETAILS

Description

SER Grid facilitates coordinated sharing of dynamic, distributed resources like compute nodes, software, data and provides a Problem Solving Environment (PSE) for Computational Science and Engineering (CSE) processes. The Grid and the portal is developed using Globus toolkit, Java Commonality Grid toolkit and various open source frameworks from Apache.

Some of the tools available in the PSE are Grid-enabled mesh utilities, Fire Dynamics Simulator & Smokeview, an open source packages for fire and smoke simulation and visualization, grid-enabled commercial software for modeling and simulation like Femlab and Fluent. These tools are shown in Figures 2 and 3.

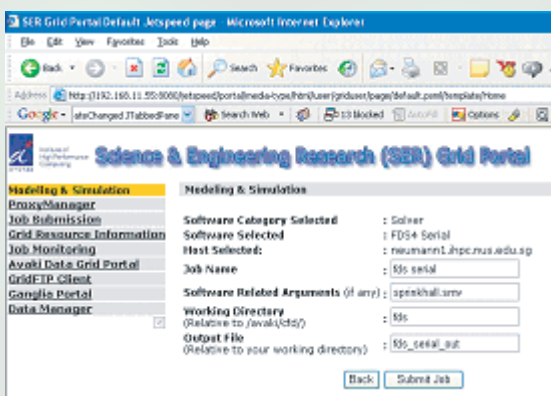


Figure 1. Science & Engineering Grid Portal

Processes involved in a typical CSE project lifecycle are modeling, meshing, numerical analysis and visualization. These processes are not only computational intensive but the persons involved and the resources required might be geographically distributed. PSE over the Grid is an excellent solution for this kind of problem.

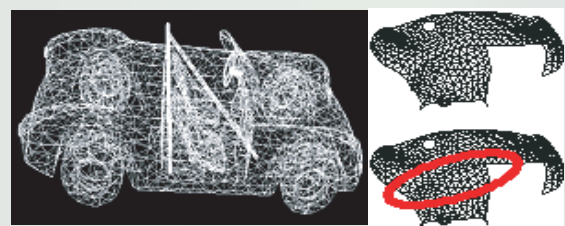


Figure 2. Mesh coarsening of a car model, Non-conforming edges repaired using mesh healing tools

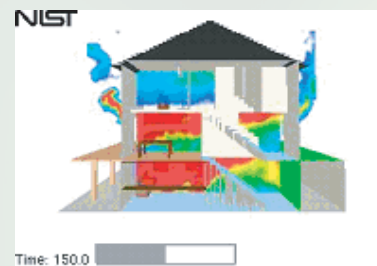


Figure 3. Fire Dynamics Simulator