

PROJECT INTRODUCTION

Objectives

To implement large scale CEM on a Grid Infrastructure so as to reduce time and cost, and provision for access to resources at several different locations with different owners.

Project Investigator / Manager

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

Period of Project

1 Oct 2003 – 31 Dec 2005

Website

<http://www.wesc.ac.uk/projectsite/gecem/>

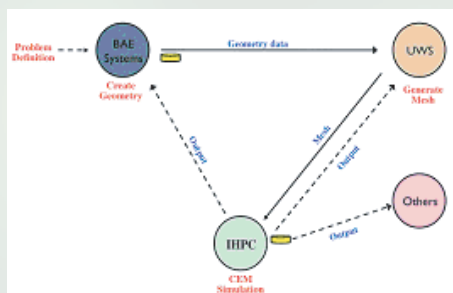
Abstract

IHPC, BAE Systems, HP Singapore, WeSC & Swansea teamed up for a project to utilise Grid Computing for the exploration of advanced, collaborative simulation and visualization in aerospace and defence design.

PROJECT DETAILS

Description

A secure functioning Grid providing basic facilities using Globus GT3 and GT4 middleware has been established between BAE Systems and Cardiff and Swansea Universities and IHPC. Methods for securing applications and data as they move around the system have been implemented.



The GECEM project provides an easy to use interface for designers and engineers to access remote services and support for collaboration via a Gridsphere web portal has been created. This portal has been designed to support the generation of computational meshes using a meshing service at University of Wales, Swansea, and the solution of CEM problems on this mesh using a supercomputer at IHPC.

The results are visualised collaboratively by the team at BAE Systems in Bristol and at Cardiff University.

For visualization, WeSC has developed a 3D visualization software system for viewing of 3D files in various file formats remotely and collaboratively. This system is called Resource Aware Visualization Environment (RAVE). IHPC has helped in the integration of RAVE into the GECEM portal via Gridsphere.

GECEM also provides single-sign on access to the workflow, allowing a researcher to move from mesh generation to CEM problem solver within a single environment. Visualization of example datasets has been achieved and this is accessible through the portal, allowing the researcher to seamlessly control the process from generating the original model to collaborative visualization of the results.

Collaborating Organizations:

- BAE Systems
- HP Singapore
- University of Wales (Swansea)
- Welsh e-Science Centre (Cardiff)