

PROJECT INTRODUCTION

Objectives

NUSgrid is an infrastructure development project connecting various Unix-based compute resources belonging to departments and organizations across National University of Singapore (NUS). Through resource sharing, it aims to create a virtualized pool of computing power larger than that available at any one location, thus giving NUS researchers faster and greater access to compute resources for their research needs.

Project Investigator / Manager

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Period of Project

Jan 2003 – Dec 2006

Website

<http://panther8.nus.edu.sg>

Abstract

NUSgrid is built with Globus Toolkit, an open sourced middleware from Argonne National Lab (USA). As of Aug 2005, five server/workstation clusters have been connected, with more to be added. A general computing environment, accessible through a web portal, has been developed. It will be continually improved to include more resources and functionality for high performance computing.

PROJECT DETAILS

Description

In 2003, Computer Centre, Computational Science Department and Engineering IT Unit at NUS agreed to work together to develop the first computational Grid on campus. Each organization contributed compute resources and the project was lead by Computer Centre. This computational Grid would be a test bed for various new distributed and other computing technologies such as Grid Computing, web services and virtualization.

The project has the following features:

- Low infrastructure cost: Existing compute servers connected through campus network. Open sourced grid middleware, APIs, web/ database servers. Low cost portal server.
- Development of local expertise in Grid infrastructure setup and deployment.
- Development of local expertise in Grid portal design/ development and application porting/ enablement.
- Value added developments such as a secure framework for user activities from portal to remote servers and a Grid metascheduler/ virtualization framework.
- Supports serial, parallel and parametric user written codes and a few popular, technical/ scientific commercial applications.
- Portal for convenient access and use of NUSgrid resources.



NUSgrid Portal provides an integrated environment for users to create, launch and manage jobs and obtain resource information. Through easy, click and fill in menus, users may navigate the various work flows and portal functions described.

NUSgrid Portal was launched in early Oct 2005. Future works include expanding server and application support, upgrading the grid middleware and exploring its new capabilities, improving portal performance and expanding the virtualization framework.

Through these efforts, NUSgrid also aims to be a channel for NUS researchers to connect with the worldwide research / academic community engaged in Grid Computing and its research.