

## PROJECT INTRODUCTION

### Objectives

To harness idle compute cycles of large number of PCs on a university campus, with the aim to create a new computing capability that will enable large scale computation and to allow researchers to push the boundary of research computation.

### Project Investigator / Manager

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### Period of Project

Jan 2005 – Dec 2007

### Website

[http://www.nus.edu.sg/comcen/svu/about\\_PCGrid.html](http://www.nus.edu.sg/comcen/svu/about_PCGrid.html)

### Abstract

TCG@NUS PC Grid is being built with the GridMP middleware platform from the United Devices (UD). As of Sep 2005, more than 1000 PCs from 12 departments had been linked up for research computing. Applications from life science, financial engineering, statistical analysis and image processing/rendering have been Grid-enabled. Encouraging performance results have been produced in the initial runs.

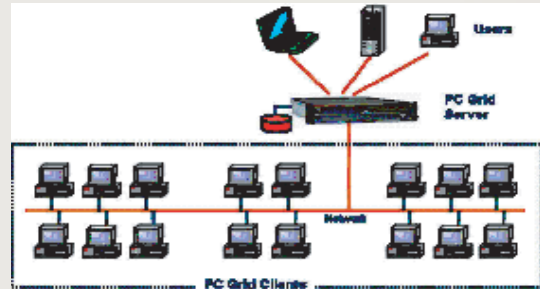
## PROJECT DETAILS

### Description

At the end of 2004, a university-industry collaboration was established between NUS and Singapore Computer Systems to develop the largest PC Grid in the region, TCG@NUS (Tera-Scale Campus Grid at NUS). The plan is to link up 800 PCs in the 1st phase and up to 3000 PCs subsequently to support research computing on campus.

The project involves the following:

- The use of the UD Grid MP Platform middleware (<http://www.ud.com/home.htm>) to link up and Grid-enable PCs located across campus to form a large virtual supercomputer.
- Porting and Grid-enabling of suitable applications. Before an application can run in parallel mode on the PC Grid, it has to be Grid-enabled. The effort includes writing a script/wrapper program to split the application into multiple tasks (or workunits). User jobs are then submitted through the PC Grid server/portal and resources will be allocated automatically by the Grid middleware.
- Portal and interface development to enable easy access by the users.



The PC Grid Computing is most suitable for running data parallel and parametric study type of applications. Application areas include the Life Science/Bioinformatics Research, Financial/Statistical Computation and Digital/Image Processing and other Computational Science and Engineering research.

It has been shown that PC Grid can provide new computing capability that enables research computation which was previously not possible or too time consuming to run on the traditional servers or small clusters.

### Collaborating Organization:

Singapore Computer Systems Ltd