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PRESS RELEASE

TWO SCHOOLS SHOWCASE PC-GRID APPLICATIONS AT 2ND SG@SCHOOLS VACATION CAMP

SINGAPORE, 28 NOVEMBER 2006 – Hwa Chong Institution (HCI) and Raffles Institution (RI) today showcased their PC Grid applications at the second SG@Schools (also known as PC Grid Computing for Schools) vacation camp. The two-day-SG@Schools vacation camp is jointly organized by Defence Science & Technology Agency (DSTA), Ministry of Education (MOE), and National Grid Office (NGO).

The SG@Schools programme is an effort to reach out to schools using PC Grid Computing. Through this programme, students will be exposed to generating interesting solutions to solve computationally intensive problems in science and engineering. Some 70 students and teachers from 11 schools and junior colleges will be attending the vacation camp.

HCI and RI were chosen to develop new applications after receiving Grid training at the last vacation camp in December 2005. The success of the SG@Schools programme has resulted in NGO being named a Technology Partner under the Infocomm Development Authority's (IDA) Infocomm Clubs Programme, facilitating the participation of more students learning Grid Computing under the Co-Curricular Activity framework. Students in the programme will learn to develop Grid-enabled applications and run them on

the Grid. More information about SG@Schools programme is at Annex 1, and information on HCI's and RI's projects is in Annex 2.

Mr. Richard Lim, Chief Executive DSTA and Chairman of the National Grid Steering Committee, said: "For this year's vacation camp, we had again a strong show of support from the schools. I am encouraged that young Singaporeans are aware of the potential that Grid can bring into the future ICT and business environment and are keen to participate in the development efforts led by many leading industry players."

The next phase involves the development of applications to be used on the PC Grids that are part of the SG@Schools programme.

"By combining the existing PC-based computing resources in the schools, Grid Computing gives our students access to extraordinary computing power to solve challenging problems in various disciplines. In the area of the creative industry, for which the government is cultivating talent, Grid Computing can offer a practical solution to schools that want to venture into digital animation movie making which can be computationally intensive," commented Dr Koh Thiam Seng, Director of Educational Technology Division, MOE.

"With Grid Computing as part of the curriculum, infocomm club members can look forward to using this emerging technology to harness the power of computing for various school projects. IDA is pleased to welcome the National Grid Office as a partner of the Infocomm Clubs Programme," said Ms Seah Lye Khim, Director of Manpower Development, IDA.

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Background

The NGO was established by the Agency for Science, Technology and Research (A*STAR) in January 2003 to promote Grid Computing and to develop a cyber-infrastructure that steers Singapore towards a Grid-enabled economy where computing resources, services and intellectual property can be provisioned securely on a high-speed network.

The roles of the National Grid are:

1. To develop a cyber-infrastructure for science and engineering research and education; and
2. To promote the use of Grid Computing for research, academic, commerce and industry.

Annex 1: SG@Schools

Annex 2: School PC Grid Projects

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Annex 1: About SG@Schools Programme

The SG@Schools programme is an effort to reach out to schools using PC Grid Computing. Through participating in this programme, the students will be able to generate interesting solutions to solve computationally intensive problems in Science and Engineering by harnessing the enormous amount of processing cycles achieved through aggregating the available PCs in schools.

Grid Computing involves the aggregation, virtualization and sharing of compute resources for collaboration. A Grid makes compute resources (such as CPU, data, storage, instruments, and applications) securely and transparently accessible to authorized users and applications, across sites and between organizations.

Grid Computing runs the gamut from the humble low-end PC through clusters to supercomputers. Indeed, through the aggregation of a huge number of PCs, it is possible to obtain the computing power of a supercomputer. This is typically referred to as PC Grid Computing. In fact, with the proliferation of mobile computing devices, such as pocket digital assistants (or PDAs) and new generation mobile phones with PDA functionality, it is not unrealistic that Grids could even penetrate into the mobile device environment.

To bring greater awareness of grids, numerous initiatives and projects have been started to excite and engage the masses to contribute idle compute resources to solve complex, yet divisible problems for a common goal. Examples of such projects are seti@home (to look for extra-terrestials), folding@home (to understand protein folding, protein aggregation and related diseases), LigandFit@home (to help process molecular cancer research), Internet Mersenne Prime Numbers Search, cell computing (Japan), and korea@home.

To participate in any of the above projects, a user downloads a client software that runs on the PC as a screensaver. When a PC is idle, the screensaver is activated and it requests a task from its master server. Upon completion of the task, results are returned to the master server, and another task gets dispatched to the PC.

Annex 2: School PC Grid Projects

2.1 Speech Modeling (Hwa Chong Institution)

The project for HCI students was mooted by researchers from the Speech & Dialogue Processing Lab at Institute for Infocomm Research (I^2R). The module that was grid-enabled is known as "Multi-Pitch" which processes sound files to identify the unique persons' voices (frequencies) within them. This enables the identification of the segments of speech in recordings of meetings which can then be run through a separate speech recognition system subsequently. The sound files to be processed are huge and the processing is compute- intensive. Processing on the grid reduces the time to process tremendously and allow a quicker turnaround.

The project started in April 2006 and was completed in July 2006. The multi-pitch program is now able to run in a United Devices Grid MP environment.

The two students involved in this project are Li Rao and Shi Lin. Chia Heng Kian and Dr. Lim Jit Ning are the teachers-in-charge of this project.

The mentors are Dr. Ma Tin Lay Nwe and Dr. Dong Minghui from Institute for Infocomm Research. Ong Guan Sin from Singapore Computer Systems provided technical guidance on the grid enabling aspect.

2.2 Auto-Docking (Raffles Institution)

AutoDock is a popular application used in drug discovery process for simulated docking of flexible ligands to macromolecules. This involves large amount of computation power. Enabling it to run in a Grid environment and tapped on the vast amount of resources from such environment would reduce the time taken and carry out more processing to detect potential drug candidates.

The project which started in February 2006, completed in July 2006, having enabled the AutoDock executable to run in a United Devices Grid MP environment.

The three students involved in this project are Yong Kiam, Vincent & Jiahan. Mrs Aileen Chor is the teacher-in-charge of this project at RI.

The mentors are Dr. Bryan Lee (Bioinformatics Institute) and Zhang Xinhuai (National University of Singapore). Ong Guan Sin (Singapore Computer Systems) provided technical guidance on the grid enabling aspect.