

Grids In Action

AeroGenome – Crunching on a PC Grid

Scientists at the Genome Institute of Singapore (GIS) led by Drs Ruan Yijun and Patrick Tan Boon Ooi recently completed a pilot grid research program to study the bacterial microorganisms found in the air in Singapore.

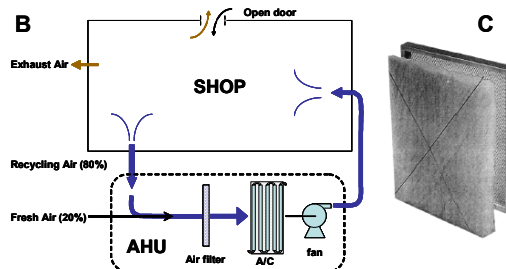
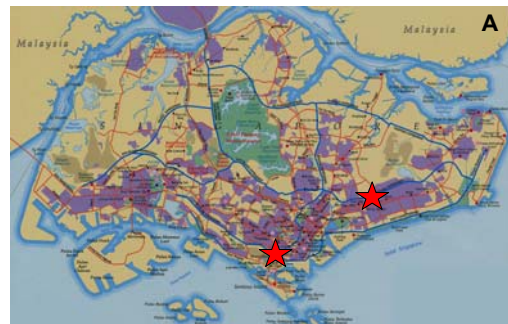
Air quality plays a significant role in public and environmental health but very little is currently known about micro-organisms in the air of urbanized cities. The research team at GIS used the latest DNA sequencing technology, and overcame the major challenge of analyzing and identifying the thousands of bacterial species through the computing resources made available on the Grid.

The sequencing process resulted in huge amounts of data. Initially a pilot data set of 20,000 DNA sequences was matched against a huge database of some 3 million known sequences, using a single run on isolated computing resources. It took an entire month.

There is a need to shorten this process significantly. It soon became clear that a totally new type computing infrastructure was required to handle data of this scale.

The analysis was repeated on the Tera-scale Campus Grid at NUS (TCG@NUS), tapping into pre-existing compute resources across the National University of Singapore. The entire query was remarkably shortened to less than two days.

“By tapping into the existing network of compute resources, Grid computing is a cost-effective way to enable large-scale research computation that was previously not possible or too time consuming to perform,” explained Mrs. Tan Chee Kiow, Deputy Director of NUS Computer Centre and a member of the National Grid Governance Council.



With the success of this pilot grid-enabled trial, the GIS team plans to scale up its study on micro-organisms in the air involving analysis of data sets about times larger. The team also has plans to do similar analysis of other environments.

For enquiries, please contact Mr. Daniel Lum, Senior Officer, Office of Corporate Communications, Genome Institute of Singapore at Tel: (65) 6478-8013 or Email: lumd@gis.a-star.edu.sg.

Digital Media Grid - Interested Parties are Welcome

After a 3-month proof-of-concept that involved making available licenses of mental ray animation rendering software, courtesy of Berlin-based mental images GmbH, for use by several digital media companies, the idea of rendering over a Grid infrastructure has now moved to its next phase.

From January 2006 onwards, 64 commercial licenses of mental ray are at the disposal, without charge, to digital media companies and independent animators to undertake their production work. This is made possible by funding provided by the Infocomm Development Authority and the Media Development Authority.

Potential users can use the software in several ways. Users who have adequate hardware can tap on the pool of floating licenses to run on their PCs or servers. Users can also choose to run the rendering on compute resources at the National Grid Pilot Platform. For more details, please contact Mr. Jon Lau Khee Erng, Assistant Head (Technical), National Grid Office at Tel: (65) 6874-8542 or Email: jonlau@ngp.org.sg.



Defense Science & Technology Agency (DSTA) provided S\$120K funding for a year-long program on promoting PC Grid Computing to students. It started with a 2-day vacation camp on 06 – 07 Dec 2005 for 56 students and 11 teachers from 9 schools. The event was organized jointly by DSTA, MOE and NGO, and was supported by NUS and Singapore Computer Systems. After the camp, Hwa Chong Institution and Raffles Institution/Raffles Junior College will set up a PC Grid using PCs available in the schools and to develop two new Grid-enabled applications.

Mr. Richard Lim, Chairman of the National Grid Steering Committee, said, 'Through participating in this program, 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.'

Enabling Grids for E-science (EGEE) Tutorial

The National Grid Office will hold a 2-day EGEE Tutorial on 09 – 10 Feb 2006. The course will be conducted by Dr. Valeria Ardizzone (Italy), Dr. Emidio Giogio (Italy) and Dr. Ruediger Berlich (Germany). The course will provide in-depth coverage of the EGEE gLite middleware and offer practical hand-on exercises on GILDA for those who are keen in application development on the EGEE infrastructure. It will also be an excellent opportunity to explore collaboration possibility between Singapore and EGEE projects.

The tutorial costs S\$399 (including GST) per person. Course materials, lunch & tea break will be provided. For more information, please peruse the course details at <http://www.ngpp.ngp.org.sg/>

Competency Certification



The Grid Computing Competency Certification (GCCC) Part 1 successfully obtained accreditation from the National Infocomm Competency Centre, while the appointed service provider Singapore Polytechnic obtained CITREP funding support from Infocomm Development Authority of Singapore (IDA). The GCCC program was officially launched on 10 Oct 2005, which was followed by the MOU signing with Singapore Polytechnic. The first course will be held in Jan 2006.

The GCCC Committee completed the syllabus for the Part 2 of the certification course aimed at Grid Architects. It will continue work on the syllabi for Grid Programmers, Digital Media and Bioinformatics.

Mr Khoong Hock Yun, Assistant Chief Executive (Infrastructure and Manpower Development), IDA, said "The launch of the GCCC program helps our ICT professionals gain access to credible certifications as they seek to enhance their competency in Grid Computing. A pool of highly trained ICT professionals will form the critical foundation block as Singapore seeks to tap on the greater ICT growth potential resulting from the paradigm shift brought about by Grid Computing."

For more details on GCCC Part 1 course, please contact Mr. Tony Ng, Lecturer, School of Media & Infocomm Technology, Singapore Polytechnic at Tel: (65) 6870-4669 or Email: tonyng@sp.edu.sg.

NEW! National Grid Seminars for the Layman

Together with the National Library Board and the Imperial College Alumni Association (Singapore), the National Grid Office will launch a new lecture series for the layman. The following lectures have been scheduled:



07 Feb 2006 'Grid Computing - New Frontiers'

by Dr. Ruediger Berlich (Institute for Scientific Computing, Germany).

Grid is at the onset of mainstream commercial adoption. Learn where we are headed in science and industry from a leading Open Source community expert. Apart from a general introduction to Grid Computing, issues to be covered in this talk include use cases and deployment scenarios of Grid computing in business and science, convergence of Grid and web services standards and specific technical and political hurdles that Grid computing has to face on its way to mainstream adoption.

The talk comprises a demonstration of the Grid techniques developed as part of the largest European Union Grid initiative, EGEE ("Enabling Grids for E-Science").

07 Mar 2006 'Romance of the PC Grid' by Assoc. Professor Tan Tin Wee (National University of Singapore).

This series of lectures will be held at 7 pm in the Possibility Room, Level 5, NLB Building, 100 Victoria Street. Admission is Free. All are Welcome.

National Grid Seminars for the Techie

16 Jan 2006 - Optimal Resource Management – Zones & Containers
by Liang Seng Quee (Sun Microsystems)

16 Jan 2006 - Virtual Infrastructure – The Next Generation Data Center
by Lee Poh Wah (VMWare)

19 Jan 2006 - Key Issues in Grid Computing
by Dr. David Walker (Welsh e-Science Centre & Cardiff University, UK)

07 Feb 2006 - Using Virtualisation Techniques in a Grid Environment
by Dr. Ruediger Berlich (Institute for Scientific Computing, Germany)

07 Feb 2006 Microsoft Virtual Server 2005 R2 - An Introduction & Real World Applications
by Arnold Clemente (Microsoft)

Please register a place with Ms. Vasugi (email: vasu@ngp.org.sg). Except for the lecture by Dr. David Walker (which will be held at the Institute of High Performance Computing), all lectures will be held at the Institute for Infocomm Research, 21 Heng Mui Keng Terrace, Singapore 119613.

GridAsia 2006

Preparation for GridAsia 2006 has begun. The second event in the GridAsia series will be jointly organized by Agency for Science, Technology And Research (A*STAR), Infocomm Development Authority (IDA), Nanyang Technological University (NTU), National Grid Office (NGO), National University of Singapore (NUS), and Singapore Management University (SMU).



We expect a total turnout of more than 600 delegates to participate in the conference, symposia, workshops, tutorials, presentations and special session discussions, fostering active interchange of research ideas and experience. The programme and social events lined up will provide an invigorating brew of networking opportunities.

With the ardent support of industry as in sponsorship, providing speakers and panelists as well as organizing co-located workshops, the inaugural GridAsia event on 02 – 06 May 2005 at the Biopolis was a resounding success. Of the 600 attendees, one third came from 20 countries – as near as Malaysia, Thailand and Australia to as far as USA, Switzerland and Russia.

GridAsia 2006 will be held on the new premises of the SMU in downtown Singapore. The international academic & research track will comprise the 6th International Symposium on Cluster Computing & the Grid (CCGrid 2006) and 3rd International Workshop on Grid Economics & Business Models (GECOM 2006). The technical track will consist of Rocks-A-Palooza II (2nd Rocks Developers' All Hands Meeting), Sun HPC Consortium Meeting, Adaptive Enterprise @ SG workshop, domain-specific symposia on life sciences, physical sciences, digital media and manufacturing, as well as software and ICT vendor-organized workshops.

The industry track will have presentations by ICT and user communities and panel discussions. There will also be an exhibition for both research & commercial offerings

Published by the National Grid Office (NGO). The mission of the National Grid in Singapore is 'to facilitate the seamless use of an integrated cyber-infrastructure in a secure, effective and efficient manner to advance scientific, engineering & bio-medical R&D, with the longer goal of transforming the Singapore economy using the Grid.'

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