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Grid computing makes inroads into public agencies

The National Library Board (NLB) and educational institutions such as Raffles Institution (RI) are tapping on the enormous computing power available through the National Grid Pilot Platform (NGPP) for compute-intensive services.

Previously available only to the research and development community, grid computing is now making inroads into public agencies. Said Dr Lee Hing Yan, Programme Director of the National Grid Office (<http://www.ngp.org.sg/>), "Public agencies are becoming more aware of what the grid can offer. They begin with less sensitive applications such as Singapore Land Authority's land data hub, and NLB's Web Archive Singapore (WAS). Once confidence is assured, they will embark upon other projects."

WAS is an initiative to archive "snapshots" of some 70,000 Singapore-registered websites that are of historical, heritage and informational value.

"Taking snapshots of the Singapore web domain, and preserving that as heritage allows Singaporeans and future generations to have an understanding of the evolution of our digital culture," says Mr Raju BLN, Director of Digital Library Services at the NLB. "By tapping on the Grid's immense computing and processing resources to index and archive these .sg sites, we are able to increase the rate of web crawling by as much as eight times."



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To tap on the NGPP for web crawling and indexing of the .sg websites, NLB tweaked its web-archiving applications to use more than 30 computers for the WAS project. "The IT investments into new equipment and bandwidth will be significant if we were to do it on our own. It is more economical to tap on NGPP's grid resources as they are readily available, says Mr Raju.

NLB is targeting to complete taking a snapshot of the Singapore web domain in eight to nine months. "If NLB were to do it based on existing resources, it will take about 70 months," said Mr Raju.

The speed and power of the NGPP were also the main draw for students of RI, who chose to work on grid-enabling AutoDock - a popular simulation-based application used in the drug discovery process.

Said student Mr Chang Su Jian, "Drug discovery is traditionally the bottle-neck of any drug development cycle because the docking process in which a candidate binds to a protein ligand is extremely specific, and therefore only obtainable through trial-and-error experiments in the wet lab. By simulating this process, AutoDock significantly speeds up the entire drug development cycle."

According to Mr Chang, AutoDock is computationally intensive and requires high performance computing. "This comes at a high cost since clusters and supercomputers are by no means cheap to build and maintain," said Mr Chang. "As such, a grid is a very effective yet low-cost solution to such high performance computing problems. AutoDock running on a grid environment allows for a quantum leap in scientific research."

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Both NLB and RI have been using the distributed computing power of the NGPP. According to Dr Lee, a separate grid infrastructure will be established for public agencies and business users. This will be available for use next year.