Computing and Information Grid Development in Thailand

Sornthep Vannarat, Suriya U-ruekolan, and, Naiyana Sahavechaphan

National Electronics and Computer Technology Center, Thailand

In this talk, I report development of Computing and Information Grid in Thailand in the pass year. National Electronics and Computer Technology Center (NECTEC) continues its effort in building computing infrastructure for computational science and engineering. It has invested in a new small 4-node cluster with 64 2.9 GHz Intel Xeon processing cores and 256 GB of RAM. NECTEC also continue to explore computing techniques such as topology aware multilevel parallelization for the development of Grid applications such as computational fluid dynamics and render farm.

Since April, 2008, NECTEC has joined EUAsiaGrid, which is a two year collaborative project among research institutes from European and Asian countries. NECTEC is mainly interested in computational chemistry applications, and, disaster mitigation and environmental applications. It has users of chemistry packages such as Gaussian, Turbomole, Sybyl, and Amber. NECTEC has joined the EGEE Gaussian VO and successfully submitted test jobs. It is now planning to explore the capacity of the VO computing resource. Simulation of disaster events is a common interest of NECTEC and other computational science research groups in Thailand. However, the work in this area should be considered as being in the early stage.

Information Grid is a framework and a prototype system for flexible integration of information from heterogeneous sources leveraging the tremendous benefit of sharing of information across different organizations. Recently, Information Grid has been deployed to provide information such as research project and oil price especially for its proof of concept. Its application is now moved toward for realistic usage under two significant projects: (1) National Health Information System project. Here, “Metadata Conversion Tool” is being developed to facilitate the transformation of health information into a standard format and would further be integrated with Information Grid as the virtual health repository. In addition, the performance of Grid Security protocol on Information Grid is investigated. The most applicable one would then be implemented on it such that it is capable of providing not only public information to any users but also secure information to specific users; and (2) Virtual Agriculture Knowledge Repository and Services Project. Here, Information Grid is being acted as the virtual repository of Problem-Methodology-huMan (PMM) information (under rice domain) extracted from textual information available on Web sites. Based on Information Grid client API, its application is also being developed to visualize PMM information.

Thai National Grid Project (TNGP) has ended its three-year phase, and, the project has been evaluated as very successful. It has conducted more than 100 seminars, workshops and training events

to disseminate the basic knowledge of Grid computing technology to more than 3,500 people. The number of participating institutes expanded from 14 in the first year to 22. It has 18 international collaborations and more than 40 domestic R&D projects utilizing the infrastructure and technology, producing 133 pieces of outputs such as application programs and publications. After the project ended, Thai Grid research community and the government agencies are working together to find a new funding source for the next phase. NECTEC is taking an active role in this process.