

The Academic Grid (A-Grid), A Learning Grid for Malaysia: Motivation and Future Plans

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A pre-requisite towards building a highly vibrant and successful Grid community is the availability of “human ware” nurtured and trained in all aspects of Grid computing; and for Malaysia, this is no exception. There is a need to build a truly distributed computing environment for students to learn about cluster and Grid computing right inside their computer lab facilities before going out to other computer facilities within the university campus, among Malaysian universities and eventually connected to Grid computing facilities outside the country. The students should feel comfortable to learn about Grid computing without having the fear of making mistakes and messing up the compute facilities of a production Grid. Students also need to realise that it is OK to make mistakes and one need only to turn off to restart/reboot and they can start all over again until successful.

Researchers from several participating leading universities in Malaysia who already have a relatively strong research on Grid computing since early 1990's held several discussions to come up with a plan for Grid in the academia. These researchers ranged from domain experts in areas such as bioinformatics, physics, mathematics, medicine and engineering, what can be termed as Grid users; as well as researchers from computer science that develops algorithms for computation and visualization to be applied in the bioinformatics; the so called Grid/Tool developers. The idea is to build the entire ecosystem of Grid computing infrastructure encompassing compute facilities in all participating Institutions of Higher Learning (IHLs) using MYREN connectivity as backbone for the sole purpose of providing students with a learning platform for Grid computing. In other words, it is an exercise to ‘gridify’ existing compute infrastructure (SMP's, small clusters, and PCs) that spread over the entire community of higher education institutions under the Ministry of Higher Education which comprised of universities, university colleges, community colleges, and polytechnics; and that is the very essence of Academic Grid (A-Grid).

The motivation to establish A-Grid is two-fold: it acts as (1) a platform for students to learn about Grid Computing, and (2) an infrastructure of distributed/Grid computing for e-learning. A-Grid can serve as a facility for performing tasks that necessitate large computational and data-intensive capabilities for intra- and inter-discipline research and exploring the application of GRID computing for e-Learning. It can also serve as a platform to bring together key players with complementary interests in Grid computing and e-Learning from technology-oriented disciplines including creative technology, social sciences, humanities, economics and finance, pedagogy, government or regulating bodies and students. On a slightly bigger scope, A-Grid can serve as a test-bed for Malaysian industry players interested in the development of the middleware and all

necessary grid-related tools, as well as suitable hardware for grid-technology in collaboration with researchers and students from IHLs through its Industry Liason Office (ILOs). It is envisaged that A-Grid can serve as meeting ground for users, developers and industry, all interested in promoting grid technology; naturally creating an interdisciplinary consortium of experts and further promote close interaction between the communities. The presentation will further elaborate the structure of A-Grid, its short-term and long-term plans, and most importantly its primary role as a learning Grid to train the necessary human ware for Grid in Malaysia.