Grid for Knowledge

By: C.A.Peter

A nation's wealth is in its Intellectual Property (IP). Knowledge drives innovation, development and the well-being of a country, and in Malaysia, there are initiatives to boost growth through information communication technology (ICT).

An ICT infrastructure is key to this development, and currently, work is underway to extend broadband infrastructure around the country. But more importantly, the nation must continue to strive to build a knowledge infrastructure, as according to MIMOS,

knowledge and innovation are important for long-term economic growth.

In its post-Budget 2008 comment, MIMOS lauded the Government's commitment to improve the competitiveness of indigenous industries through increased international marketing activities and the provision for research institutions to tap into new opportunities in the global knowledge-based economy. The R&D outfit says that this is in line with MIMOS' efforts to forge knowledge-based partnerships with globally competitive enterprises to ensure the growth of

indigenous industries of global standard.

Dato' Abdul Wahab Abdullah, President and Chief Executive Officer of MIMOS, said, 'It is also heartening to note the continuous recognition that human capital and knowledge development are the keys to differentiating Malaysia. The Government's concerted efforts to ensure an adequate supply of domain expert for the country through the establishment of Knowledge Workers Development Institute and the provision of financial assistance for employees to pursue Masters and Doctorate especially in high-tech as part of its efforts to enhance human resource development is a step in the right direction.'

He adds that a country's performance in a knowledge-driven economy is not simply measured by outputs in science and technology, but must also be judged in relation to increasing its overall competitiveness.

'It is research and technological advancement together with the availability of domain experts that are the key factors for innovation and competitiveness that will play a critical role in the transitioning of Malaysia towards an innovative, market-driven R&D and knowledge-driven economic powerhouse,' he says.

KNOWLEDGE GRID

To this end, MIMOS envisions grid computing technology to help fulfil these ambitions. Grid computing pools together computing power virtually to provide high-powered computing capabilities. This is important in the field of research, where vast amounts of data are generated. MIMOS envisions grid technology via KnowledgeGRID, which is aimed at providing a national infrastructure that maximises computing resources for research and industrial development.

According to MIMOS, KnowledgeGRID will provide computing resources and data capabilities to the nation's weather modelling, earthquake simulation, protein folding and drug

Dato' Abdul Wahab Abdullah, Y. Bhg. President and Chief Executive Officer of MIMOS

design research. For example, biotechnologists can use tools and applications which require compute-intensive power to carry out DNA research. KnowledgeGRID will accelerate the country's advancement in biotechnology and forecasting natural disasters, among others. Apart from the obvious computing capability, lower cost will be another significant advantage.

In the electronics industry, for example, grid computing can provide it access to design and simulation tools at high-end centralised design centres, therefore lowering the cost of ownership. It also enables the electronics industry to move up the value chain.

But how are these objectives going to be met, and is the infrastructure in the country ready to handle such a leap? Dato' Abdul Wahab explains MIMOS's vision of KnowledgeGRID, and how the objectives can be met in a one-on-one interview.

What are the specific challenges in developing ICT infrastructure in Malaysia?

The challenges in providing the ICT infrastructure is to ensure that there is a cost efficiency in putting the government funding that will help to accelerate the growth of our indigenous industry to match with other develop nations and turn our industry into global payers. MIMOS' focus is on driving globally recognised Centres of Excellence to promote and license MIMOS technologies or IPs to qualified indigenous ICT companies to strengthen their abilities to compete globally and move the Malaysian ICT industry higher up the value chain.

What are the steps that have been taken to overcome these issues?

MIMOS' focus is on market driven applied research and innovation that will help our industry be more competitive once the technology is introduced in the market. Intensive market research studies have been done to determine the technology, competitiveness and strategic national initiatives in defining the niche role Malaysia will play. This is in line with MIMOS' vision of becoming the premier applied research centre in frontier technologies by pioneering innovative ICT which generate IPs that can be commercialised.

As an R&D outfit, what kind of ICT infrastructure do you envision that will take the nation to the next level as a producer of technology?

KnowledgeGRID Malaysia (previously known as National Grid Computing) is envisioned to take Malaysia beyond the Internet. It will be the next Knowledge infrastructure for the nation that will increase Malaysia's competitiveness in technology advancement regionally and globally–transforming it from technology as tools to becoming an enabler and finally, as a sector.

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The National Grid Initiative seems to have gone through a change. Is that a fair assessment, and if so, what are the changes and why?
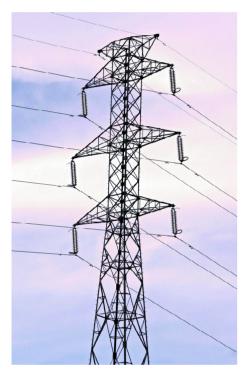
The only change the National Grid Initiative has gone through is focusing beyond the research community and reaching out to all the other sectors. It was previously known as the National Grid Computing Initiative. Today, it is known as KnowledgeGRID Malaysia due to the much more significant role it plays in providing the Knowledge infrastructure for the nation. We have received overwhelming response from industry players and the universities.

Today, KnowledgeGRID Malaysia is connected to 13 universities, namely, University of Malaya, Universiti Teknologi MARA, Universiti Sains Malaysia, Universiti Kebangsaan Malaysia, Universiti Putra Malaysia, University Utara Malaysia, Universiti Teknologi Malaysia, University Malaysia Sarawak, Universiti Tenaga Nasional, Multimedia University, International Islamic University Malaysia, MUST Ehsan Foundation and Universiti Kuala Lumpur, and industry players such as Perusahaan Otomobil Nasional Sdn Bhd (Proton) and Multimedia Development Corporation (MDeC).

KnowledgeGRID Malaysia aims to provide a national Knowledge-infrastructure as a key enabling

infrastructure for resource sharing and coordinated problem solving for national wealth and value creation towards realising a National Knowledge Infrastructure for the nation.

What are the updates?

Under the Ninth Malaysia Plan (9MP), MIMOS has been tasked to spearhead the KnowledgeGRID Malaysia initiative which is aimed at providing a national infrastructure that maximises high performance computing resources to accelerate research and industrial

development for national wealth and value creation.

The grid will be the next Knowledge infrastructure for the nation that will increase Malaysia's competitiveness in technology advancement regionally and globally. It will be the knowledge collaboration platform that brings super computing power to all sectors nationwide including industrial, government, agriculture, international community, education, research, financial and business, and enterprise segments.

Specifically, KnowledgeGRID Malaysia will provide computing resources and data capabilities to the nation's weather modelling, earthquake simulation and protein folding, DNA, and drug design research. This will

accelerate Malaysia's advancement in biotechnology, forecasting of natural disasters and animation content initiatives at significantly lower costs. KnowledgeGRID Malaysia will put Malaysia on a higher pedestal on the world map, especially in the ICT arena, in line with more advanced countries.

To date, MIMOS has forged research collaborations in frontier technologies with the previously mentioned 13 local universities who serve as MIMOS virtual research centres and will undertake basic research in frontier technologies to complement MIMOS' applied research in frontier technologies to build technology competencies in driving centres of excellence.

MIMOS is also piloting the KnowledgeGRID with the animation industry for rendering and simulation; while Proton is also piloting KnowledgeGRID in the making of the national car. MIMOS has also partnered multinational companies such as IBM, Altair Engineering, SGI, and Cisco to provide affordable tools and resources for local researchers and industry players to jumpstart into the K-economy.

Phase One of the National Roll-out Plans involves linking all the local universities to undertake basic research in collaboration with MIMOS which is undertaking applied research. It also includes hooking up selected industry

players to run pilots on the grid. For example, Proton used the grid for crash tests and developing simulation models for the making of its car models.

Phase Two, expected to be rolled out in 2008, will involve major industry players; grid-enabling all

Ministry of Science, Technology and Innovation (MOSTI) agencies; and connecting all State ICT Centres as well as all Skill Development Centres to the grid.

By early 2009, the National Roll Out (Phase 3) will see KnowledgeGRID Malaysia providing content, applications, services and computational power to all sectors in Malaysia. Malaysia will be the first to have the national grid infrastructure that goes beyond and provide access to the grid to communities nationwide through the telecentres.

What does grid infrastructure entail? How far have we come, and what more needs to be done in order to fulfil the national objectives?

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