

Headline	Building An Innovative Eco-system	Language	ENGLISH
Date	07. Sep 2008	Page No	28-31
Media Title	Surf	Article Size	2297 cm2
Section	NEWS	Frequency	Bi-Monthly
Circulation	10000	Color	Full Color
Readership	30000	AdValue	16207.41

Building an Innovative Eco-System

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FEATURE

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Charles F. Moreira

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The three reached an understanding on 30 June – in conjunction with the MIMOS Technology Preview 2008 showcase – to collaborate on the Eco-System for Industry Development initiative which begins from an idea, through components manufacturing and or systems integration and later value added by service providers before being supplied to customers through fulfillment agents, while MAVCAP could consider providing the venture funding.

They will focus on helping companies develop products and services in fields of information and communications technology

(ICT), manufacturing, semiconductors, electronics, as well as business process outsourcing.

Companies wishing to license technologies from MIMOS must firstly be Malaysian. They must also have domain expertise in the technology area which they want to license to ensure they can develop a competitive product meeting demands of domestic and international markets.

MIMOS is developing a portfolio of technologies in-house and within local universities. This approach will spare companies from having to go through the long gestation period of technology and resultant market uncertainty. MIMOS will help them further by conducting market research.

In conjunction with Technology Preview 2008, MIMOS awarded various technology licenses based on its own research to 11 recipients from various local industries.

Alam Teknokrat (a.k.a. Skali) was awarded the Semantic Web Portal; Biforst Technology was awarded Semantic Logistic



▲ FTEC rep with their products

Management; Bill Adam Associates was awarded Semantic Travel Recommender; InfoValley Life Sciences was awarded Semantic Infostiology; and In-Fusion Solutions was awarded Semantic Medical Informatics.

Ecos Sensetech was awarded MSCAN Platform for Pollution Management – MIMOS' Wireless Sensor Network System; My Datacet Technology was awarded Intelligent Surveillance Platform of Physical Security (CCTV); Pernec Integrated Network Systems was awarded WiWi (a Wi-Fi-WiMAX hybrid) based on IPv6 (Internet Protocol version 6) and semantic technology; and Jaring Communications was awarded Grid Computing which enables shared computing power between geographically dispersed computers.

FTEC System and MIMOS will collaborate to develop the iDOLA mobile touchscreen PCs, a new version of the MIMOS' Ma Cik PC, designed for lifestyle and educational use and based on IPv6.

Lastly MIMOS Smart Computing was awarded the Jen-ii – the first Ma Cik PC of touchscreen design for senior citizens. It has simple computing functions, costs an affordable RM500 and can be used to check up on information such as grocery prices, schedules of community events and for e-mail.

WiMAX and IPv6

At one of the breakout sessions, Dr. Mazlan Abbas, head of MIMOS Wireless Communications Cluster said it has developed



▲ Dr. Mazlan Abbas with iDOLA PC and Nokia N770

an IPv6 wireless communication stack which developers can use as a basis for their applications.

IPv6 is a new Internet Protocol which supports up to 3.4×10^{38} address or about 80 billion billion billion times more addresses than the current IPv4, which supports just under 4.3 billion addresses.

In theory, that means 52 billion billion billion IP addresses for each of the 6.5 billion persons on Earth; practically more than enough unique IP addresses for almost every thing on Earth as well.

IPv6 has the benefits of mobility, multicasting, IP Security, authentication, peer-to-peer communication and enables operation of a low power personal area network termed 6Low PAN.

"That means each IPv6 enabled device can communicate directly peer-to-peer with others within IPv6 coverage anywhere

in the world without requiring a free or paid VoIP or messaging service provider as an intermediary," said Mazlan.

While telcos or ISP will still be required to provide the connection to the Internet, their role will mainly be as bit-pipe providers.

MIMOS' development projects include optimising the features for network mobility, optimised multi-casting, IP security (IPSec), authentication, authorisation and accounting (AAA), 6Low PAN, enterprise gateway and advanced mobility. Most of them should be available by the end of the year.

IPv6 allows people to seamlessly roam between private to public networks while in the midst of communication, between WiFi, WiMAX and HSPA networks.

The multi-casting capabilities enabled by the Source-Specific Multi-Casting protocol in IPv6 resolves bandwidth issues espe-

cially with streaming videos and audio by working a bit like satellite broadcasting where a one stream can be received by many simultaneous viewers, thus optimising bandwidth.

On the other hand with IPv4, each video stream consumes a unique amount of bandwidth – such as 300Kbps each in some cases. As more viewers start watching even the same video at the same time, each individual stream adds to the cumulative bandwidth demand on the network.

Turning research Into Practical Use

The technology recipients can take these building blocks from MIMOS and use it in their particular equipment.

Examples include the iDOLA PC touchscreen PC developed by MIMOS in collaboration with Intel. It is powered by Intel's Atom low-powered processor with touchscreen and supports IPv6.

In the pipeline are WiWi, wireless mesh and IP Multimedia Subsystem (IMS).

A key benefit of wireless mesh networks are self-healing capability, where it has redundancy to enable continued communications when a part of the mesh has broken down and it can automatically restore full operation and traffic distribution.

"Wireless mesh networks were created to reduce dependency on backhaul networks, especially where there's poor quality backhaul or none at all and while there's been much hype over WiFi meshes, it suffers from capacity limitations, so people

are looking into deploying WiMAX in the mesh," said Dr David Chieng of BT Wireless Broadband.

That's exactly what WiWi does by having distributed WiFi hotspots all connected by WiMAX backhaul.

"MIMOS chose WiMAX since it allows operators to provide connectivity at lower infrastructure costs especially in rural areas," said Faisal bin Ahmad, senior manager, MIMOS Technology Portfolio Management.

The government has identified three zones to be served with broadband.

Zone 1 covering 50% of households by 2010 includes "high impact areas" where speeds range up to over 10 Mbps over fibre into homes, VDSL, HSPA+, WiMAX and ADSL2.

Zone 2 – is served by "medium impact service providing speeds under 2 Mbps broadband access to the general population using technologies such as WiMAX and HSPA+.

Zone 3 covers unserved or underserved areas usually subsidized by Universal Service Provision (USP) funding, where speeds are typically over 384 Kbps.

Fixed connections can only achieve 48.03% penetration in Zone 1, 19.83 penetration in Zone 2 and 32.14% penetration in Zone 3, so MIMOS chose WiMAX to reach the rest.

"WiMAX also is an open technology which no one company can dominate or monopolise. Asia is looking at the WiMAX option because of its minimum of royalties on intellectual property," said Faisal. **S**



▲ Faisal bin Ahmad – MIMOS