

# A WORLD OF POSSIBILITIES:

Infocomm Development Authority Annual Report 2004/05



ISSN-0219-7286

Invisible lines of communication are now everywhere, linking all four corners of the globe and connecting people from all walks of life. Bridging physical boundaries with science and digital technology, the world is now smaller than ever. Information is no longer the realm of academics and researchers – it is available to anyone, anywhere, anytime. Talk to the world, and listen as it talks back to you through clear channels.

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## Crossing Continents, Connecting Businesses

The globalisation of businesses calls for a unique set of solutions that transcend geographical boundaries. With new e-commerce platforms, as well as local enterprise abilities such as e-SCM and ERP, organisations are no longer bound by physical borders. Exciting new markets such as China, India, the Middle East and the rest of the world are now easily within reach. Seal your next deal with infocomm – the key to infinite possibilities in business.



## Discover Through Imagination

Geography comes alive as students witness the formation of volcanoes through interactive multi-media applications direct from digitised textbooks. Sit in for lectures by a professor from an overseas institution, anywhere. Incorporating emerging technologies into education brings together researchers, industry developers and schools to throw open new possibilities in learning. With infocomm, the culture of the classroom will evolve into a living laboratory for students where the only limits are their imagination.



## Share the Passion

Sports fans don't have to be at the stadium to experience the excitement and exhilaration of the game. Through effective leverage on infocomm, it's now a totally different ball game. Catch all the action in real-time with 3G and broadband streaming technologies, and be virtually part of the game as you cheer on your team and connect with your fellow supporters throughout the world. With infocomm, you can always be there. Anytime, anywhere.



# CHAIRMAN'S MESSAGE

2004 was a positive year for our local ICT sector. According to an annual survey by IDA, revenue from our local infocomm industry grew by 5% to reach S\$34 billion last year. As a reflection of more good news ahead, companies surveyed also expect growth rates of around 4% for the next two years. This will in turn boost the demand of infocomm-related jobs in Singapore.

In 2004, IDA, guided by its "Connected Singapore" vision, continued to actively pursue new avenues to fuel our infocomm sector's growth, and forged strong government-industry partnerships to maintain our technological edge amidst rising competition. To this end, IDA embarked on several key initiatives.

## ENABLING KEY SECTORS

In 2004, IDA partnered with Alexandra Hospital to trial cutting-edge technologies at a new facility called the Northern General Hospital. This pilot aims to provide a long-term platform for the introduction of strategic biomedical and healthcare initiatives across the island. Five projects have been committed with an ICT spending of S\$7 million.

In the education sector, the Backpack.NET initiative has seen successful pilots conducted in selected schools where wireless and mobile computing technologies were used to enhance teaching and learning. The Backpack.NET Centre, launched at the National Institute of Education in March 2005, demonstrates how technology can be used to create the classroom of the future.

To enhance supply chain efficiency, IDA has devised a plan to use Radio Frequency Identification (RFID) technology in the logistics, high-tech, pharmaceutical and retail sectors. Since launching this plan in May 2004, RFID implementation projects worth S\$19 million in investments have been secured.

## BUILDING A NETWORKED GOVERNMENT

Under the e-Government Action Plan II, IDA, as the Government CIO has implemented 10 cross-agency integrated services by 2004. Online access to government services was increased with more than 1,200 self-service terminals being installed in public locations



by March 2005. Among those who needed to transact with the government in 2004, nine out of 10 did so at least once electronically. In line with the 3P (Public, Private and People) integration concept, the government is developing a national electronic bills payment hub. Consumers will no longer have to go to different Web sites to pay different organisations as the new system will consolidate all billings.

## KEEPING PACE WITH MARKET DEVELOPMENTS

During the year, IDA completed its triennial review of the Telecoms Competition Code. In February 2005, amendments to the Code were issued. These included removing unnecessary regulations in competitive market segments and strengthening regulatory provisions in segments with limited competition. IDA has also issued advisory guidelines on regulatory processes such as procedures for dispute resolution and assessment of proposed changes in ownership and consolidations.

As part of its efforts to enable the deployment of high-speed wireless technologies, IDA has issued six Wireless Broadband Access (WBA) spectrum rights in the 2.3 GHz and 2.5 GHz frequency bands in early 2005. This is expected to increase competition in the local broadband market and widen the choice of high-speed Internet services for businesses and consumers.

## BUILDING THE DIGITAL EXCHANGE

The Digital Exchange (DX) Partner Programme was launched where 61 companies signed up to develop the infrastructure for managing digital content in Singapore. In the area of computer games and animation, services such as utility-based remote rendering services and a one-stop deployment platform called the Games Exchange Alliance, were launched by IDA and its partners. This helps speed up the time-to-market for games publishers and distributors in the region.

## OPENING UP NEW MARKETS

IDA's efforts in helping our local infocomm enterprises expand overseas have contributed to their export revenue of S\$13.8 million in the past year. In addition, IDA has been exploring new markets in the Middle East for business opportunities. To this end, Singapore and Kuwait have signed a Memorandum of Understanding where we will assist Kuwait in developing an e-Government strategy. IDA has also completed the implementation blueprint for Jordan's National IT Centre. Such projects open up business opportunities for our local enterprises.

Singapore also launched separate negotiations with Brunei, Indonesia and Malaysia to put in place Mutual Recognition Arrangements (MRAs). The MRAs will make telecommunications equipment more affordable by removing duplicative testing costs and help expedite mutual market access for manufacturers in these countries.

## ADDRESSING PUBLIC CONCERNS

A three-year Infocomm Security Masterplan was unveiled in February 2005 to address growing threats like computer viruses, hacking and cyber terrorism. The initiatives under this plan include the establishment of the National Cyber-threat Monitoring Centre and a public education programme to better equip Internet users with essential security know-how. In tackling spam, a multi-pronged approach comprising legislation, self-regulation and consumer education was also adopted in May 2004. IDA, together with the Attorney-General Chambers and the Ministry of Information, Communications and the Arts, is looking at enacting anti-spam legislation by 2005.

## STAYING AHEAD OF THE COMPETITION

For the financial year of 2005, IDA will continue to pursue initiatives to help Singapore's infocomm sector stay ahead of the competition.

- **Grow our local infocomm industry by exploring business opportunities** in new markets like the Middle East. According to a report by IDC, the MENA (Middle East and North Africa) region is now the third fastest-growing IT hotbed in the world, behind only China and India. It is expected

that the technology market in this region will grow from US\$6.9 billion in 2003 to US\$13.4 billion by 2008. IDA will be facilitating business exchange between our local infocomm companies and the Middle Eastern governments and companies.

- **Push for more innovative services in key sectors** like education, healthcare, logistics as well as the government. One key initiative that IDA will embark on for the government is the development of a Standard ICT Operating Environment (SOE). It comprises a standard desktop environment and a standard network environment that aims to enhance the operating efficiency in government and reduce the time needed to deploy new ICT services in government.
- **Promote Singapore's digital trading capabilities** where digital content can be localised in Singapore and re-distributed worldwide. This initiative, the Cross Continent Digital Content Transmission or CCTx, aims to develop a viable business model for digital delivery across continents from the United States to Asia. With more than 16 Gbps of extensive and direct Internet connectivity to over 20 countries, Singapore is well positioned to be a global digital trading hub.
- **Enhance Singapore's position as premier infocomm hub** by facilitating market development of new emerging technologies. With a new policy framework for Internet Protocol (IP) Telephony in place, IDA will issue licences and phone numbers to companies interested in offering IP Telephony services in Singapore. Growth in IP Telephony is expected to bring about reduced costs in providing telephone services, and in turn, translate to reduced prices and more service choices for businesses and consumers.

## A NEW VISION: iN2015

Taking a longer term view, IDA has embarked on an ambitious effort to develop the Intelligent Nation 2015 Masterplan (iN2015) that will look 10 years into the future and identify new possibilities and opportunities for Singapore. The vision is a nation where

our economic competitiveness and quality of life are enhanced by the pervasive use of intelligent technologies in our systems, infrastructure and even simple devices.

Government, industry and people collaboration are imperative in this endeavour. Chaired by IDA, a steering committee comprising government and industry leaders has been set up to map out the strategies and plans to realise that vision. Specifically, the committee will look into how infocomm technologies can create new value propositions and enhance the economic competitiveness of vertical sectors like education, finance, healthcare, logistics and high-tech manufacturing, digital media and entertainment, as well as tourism, hospitality and retail.

To support the development of these sectors, it is critical to map out the strategies for developing future national infocomm infrastructure, enterprises and manpower capabilities. Since March 2005, IDA and the Singapore Workforce Development Agency have been working with the industry to develop a National Infocomm Competency Framework to guide the professional development and career progression of infocomm professionals.

## ACKNOWLEDGMENTS

In conclusion, I would like to express my heartfelt gratitude to IDA staff, partners in the industry, associations and other agencies for their dedication, invaluable contributions and support in the past year. I would also like to show my appreciation to the Board of Directors for their time and effort in providing guidance and support to IDA.



**LAM CHUAN LEONG**

Chairman, IDA

# BOARD OF DIRECTORS



**CHAIRMAN**  
**LAM Chuan Leong**  
Second Permanent Secretary  
(Special Projects)  
Ministry of Finance



**DEPUTY CHAIRMAN**  
**YONG Ying-I**  
Permanent Secretary  
Ministry of Health



**BOON Swan Foo**  
Managing Director  
A\*STAR



**CHAN Yeng Kit**  
Chief Executive Officer  
Infocomm Development  
Authority of Singapore  
(effective 3 January 2005)



**LIM Chin Hu**  
President &  
Chief Executive Officer  
Frontline Technologies  
Corporation Ltd



**LEONG Wai Leng**  
Deputy Chief Executive Officer  
Raffles Holdings Limited



**LOW Check Kian**  
Chairman  
NewSmith Capital Partners  
(Asia) Pte Ltd



**ONG Peng Tsin**  
President &  
Chief Executive Officer  
Encentuate Pte Ltd



**HENG Chiang Gnee**  
Chief Executive Officer  
(Designate)  
SembCorp Environmental  
Management Pte Ltd  
(effective 24 March 2005)



**Rupert G KEELEY**  
President &  
Chief Executive Officer  
Visa International,  
Asia Pacific Region



**Christopher CHIA**  
Chief Executive Officer  
Media Development Authority

**LEE Seiu Kin**  
Second Solicitor-General  
Attorney-General's Chambers



**Charles ORMISTON**  
Regional Head  
Greater China &  
South East Asia  
Bain & Company, Inc.



**SAW Ken Wye**  
President  
South East Asia  
Microsoft Operations Pte Ltd



**WONG Toon King**  
Co-Chairman &  
Chief Executive Officer  
Silkroute Holdings Pte Ltd



**SENG Han Thong**  
Assistant Secretary-General  
National Trades  
Union Congress



Not in picture:

**LIM Hock Chuan**  
Deputy Secretary  
(Planning, Policy & Operations)  
Ministry of Home Affairs  
(until 30 June 2004)

**TAN Ching Yee**  
Chief Executive Officer  
Infocomm Development  
Authority of Singapore  
(until 2 January 2005)



# MEMBERS OF IDA BOARD SUB-COMMITTEES

## DEVELOPMENT SUB-COMMITTEE

CHAIRMAN

**SAW Ken Wye**

**Charles ORMISTON**

**ONG Peng Tsin**

**WONG Toon King**

**CHAN Yeng Kit**  
(effective 3 January 2005)

**TAN Ching Yee**  
(until 2 January 2005)

## FINANCE SUB-COMMITTEE

CHAIRMAN

**LOW Check Kian**

**Rupert G KEELEY**

**HENG Chiang Ngee**  
(effective 24 March 2005)

**LIM Hock Chuan**  
(until 30 June 2004)

## MANPOWER DEVELOPMENT & COMPENSATION SUB-COMMITTEE

CHAIRMAN

**YONG Ying-I**

**SENG Han Thong**

**Christopher CHIA**

## AUDIT SUB-COMMITTEE

CHAIRMAN

**LEONG Wai Leng**

**LEE Seiu Kin**

**LIM Chin Hu**

## STAFF COMMITTEE A

CHAIRMAN

**LAM Chuan Leong**

**YONG Ying-I**

**Rupert G KEELEY**

**CHAN Yeng Kit**  
(effective 3 January 2005)

**TAN Ching Yee**  
(until 2 January 2005)

# SENIOR MANAGEMENT

**1 CHAN Yeng Kit**  
Chief Executive Officer

**2 LEONG Keng Thai**  
Deputy Chief Executive/  
Director-General (Telecom)

**3 WU Choy Peng**  
Deputy Chief Executive/  
Government Chief  
Information Officer

**4 KHOONG Hock Yun**  
Assistant Chief Executive  
(Industry)

**5 TAN Geok Leng**  
Chief Technology Officer

**6 Andrew HAIRE**  
Assistant Director-General  
(Telecom)

**7 William HIOE**  
Senior Director  
(Planning Secretariat)

**8 ONG Lih Ling**  
Senior Director  
(Corporate Development)

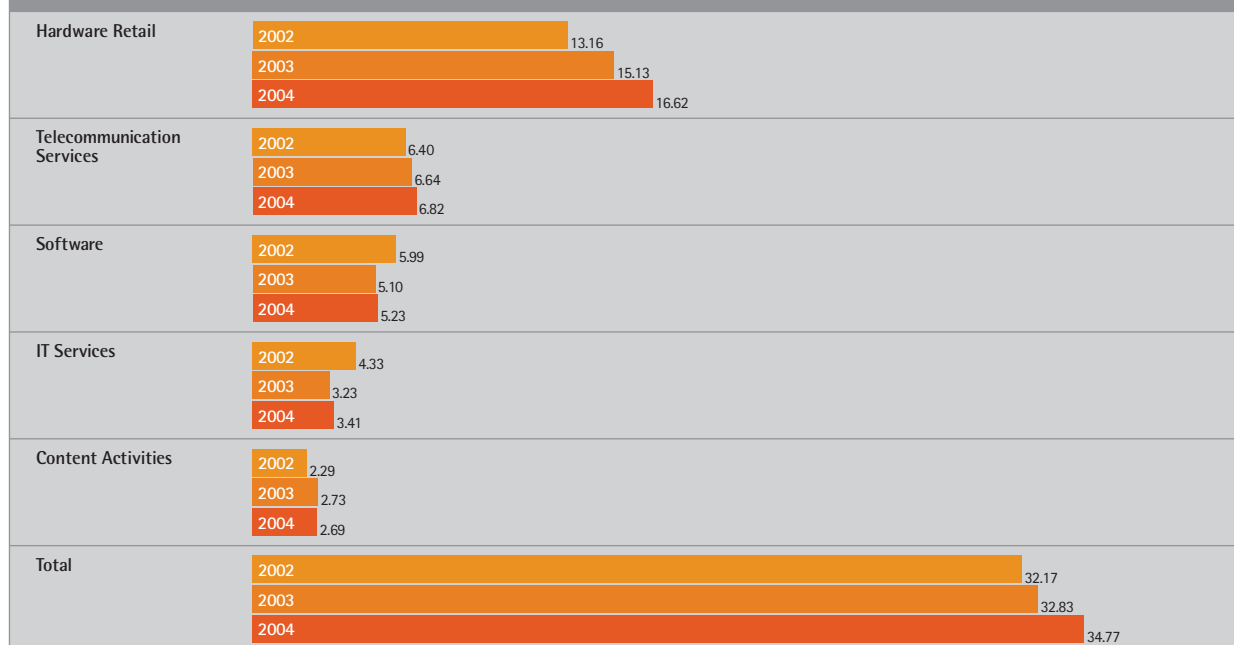


# INFOCOMM STATISTICS

## TOTAL INFOCOMM INDUSTRY REVENUE BY PRODUCTS AND SERVICES (2002-2004)

Source: Annual Survey on Infocomm Industry for 2004

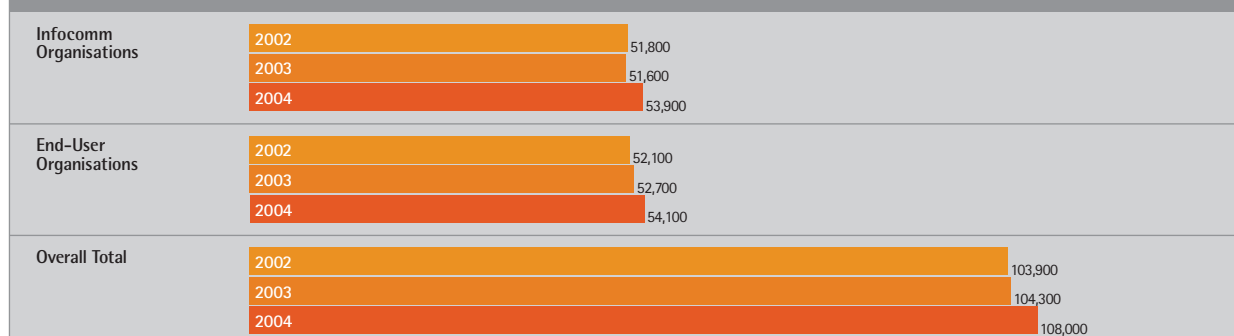
(Figures are in S\$billions)



Note: In 2002, there was a re-classification of product from software to hardware by a major player.

## NUMBER OF EMPLOYED INFOCOMM MANPOWER (2002-2004)

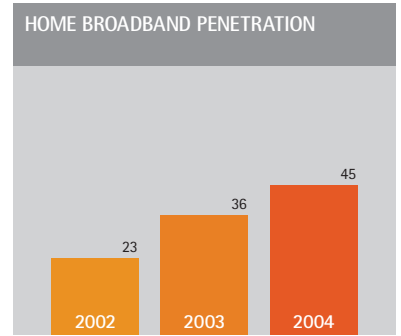
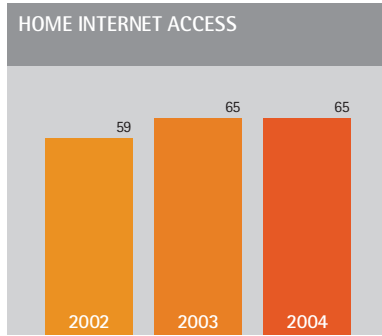
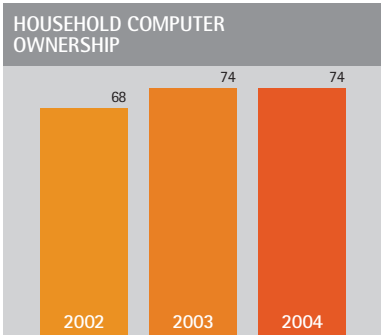
Source: Annual Survey on Infocomm Manpower for 2004



Note: Figures above are rounded to nearest hundred.

### INFOCOMM USAGE IN SINGAPORE HOUSEHOLDS (2002-2004)

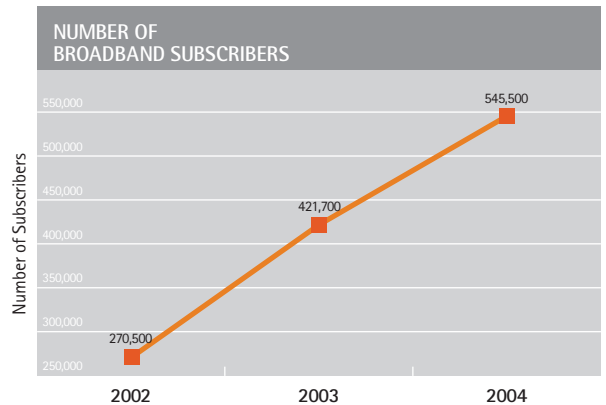
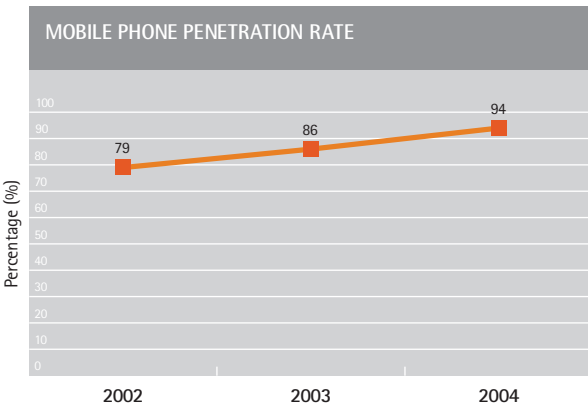
Source: Annual Survey on Infocomm Usage in Households and by Individuals for 2004



### USAGE OF INTERNET APPLICATIONS AND SERVICES BY USERS AGED 15 YEARS AND ABOVE

Source: Annual Survey on Infocomm Usage in Households and by Individuals for 2004

Application/Service	2003 (%)	2004 (%)
E-Mail	92%	95%
Chat/Instant Messaging	48%	54%
Internet SMS	39%	37%
Online Government Related Transactions	42%	56%
Online Information Retrieval/Search	64%	82%
Download Application Software	43%	62%
Upload & Download Documents from Office Server	37%	53%
Download and/or Upload Digital Photos	34%	48%
Audio Streaming/Download and/or Upload Music	37%	46%
Download/Play Online Games	48%	43%



# KEY HIGHLIGHTS IN FY2004

**20 April 2004 IDA AND SITF SET UP SINGAPORE SOLUTIONS CENTRE IN SHANGHAI** IDA and Singapore infocomm Technology Federation (SiTF) jointly set up the Singapore Solutions Centre (SSC) in Shanghai to help Singapore infocomm companies tap opportunities in the China market. The SSC is a one-stop centre for China companies and agencies that wish to find out more about the technologies, products and services that Singapore infocomm companies can offer; and help to identify partnership opportunities for the companies of both countries to work together.



**19 May 2004 SINGAPORE AND BRUNEI SIGNED THE SECOND TELECOMMUNICATIONS AGREEMENT** Singapore and Brunei signed the second ASEAN MOU for the Mutual Recognition Agreements (MRA) of telecommunications equipment conformity testing. Under this MOU, companies will save testing costs of up to S\$500 per model and get their products to market up to six weeks earlier.

**15 June 2004 SINGAPORE LAUNCHED INTEGRATED IT PLATFORM TO MANAGE TRADE INFORMATION** Singapore launched an integrated IT platform that manages the flow of trade-related information to help the nation be more competitive as a world class port and logistics hub. That platform will enable exchange of information between shippers, freight forwarders, carriers and financial institutions to facilitate the flow of goods within, through and out of Singapore.

**10 September 2004 IDA INCREASED COMPETITION IN INTERNATIONAL TELECOMS SERVICES** To enhance competition in the provision of telecoms services, such as international direct dialing and international private leased circuits, IDA gave operators greater access to submarine cable capacity that land at Singapore Telecommunication's submarine cable landing stations (SCLS). Access to the SCLS allows an operator to provide international telecoms, backhaul and transit services to businesses or to third parties.

**15 September 2004 SINGAPORE AND KUWAIT SIGNED E-GOVERNMENT AGREEMENT** Singapore and Kuwait signed a MOU to cooperate in e-Government planning. Some of the terms in the agreement include promotion of dialogue on e-Government issues and formation of working groups from both public and private sectors of both countries that have experience in e-Government planning and need analysis.

**21 April 2004 SINGAPORE AND INDONESIA INKED TELECOMMUNICATIONS AGREEMENT** Singapore and Indonesia were the first two ASEAN countries to sign a Memorandum of Understanding (MOU) for telecommunications equipment conformity testing. The agreement offers businesses faster market entry of up to 45 days earlier and at reduced testing costs of up to S\$700 per model.

**16 June 2004 IDA LAUNCHED GAMES BAZAAR** IDA launched 'Games Bazaar', a scalable hosting platform that allows games companies, publishers and distributors to test and deploy their games titles regionally faster, at greater ease and without facing high initial capital costs. The Games Bazaar partners with SingTel EXPAN and Hewlett-Packard Singapore to help reduce the costs for the games deployment by offering a 'pay-as-you-use' hosting platform.



**5 May 2004 IDA REVEALED RFID DEVELOPMENT STRATEGY** IDA laid out a three-year, S\$10 million plan to develop Radio Frequency Identification (RFID) technology as an engine of growth for Singapore's ICT industry. It plans to bring together manufacturers, logistics service providers, retailers, infrastructure providers and solutions providers in the high-tech, pharmaceutical and fast moving consumer goods sectors to make them more competitive globally.

**21 July 2004 IDA AND ORACLE ANNOUNCED ENTERPRISE GRID TECHNOLOGY INITIATIVE** IDA and Oracle Singapore announced a S\$25 million initiative on enterprise grid technology. The collaboration, 'Enterprise-g @ Singapore', will help more than 30 local companies develop enterprise grid solutions; train 300 infocomm professionals; and also establish other cluster projects in key verticals, such as manufacturing, transportation and healthcare.

**17 September 2004 IDA ALLOWED OPERATORS TO CHOOSE MOBILE NUMBER LEVELS** To further boost Singapore's liberalised infocomm market status, IDA gave mobile operators more freedom to bid for the number levels they wish to acquire under a modified mobile number allocation procedure. IDA previously allocated mobile number levels in sequential order to operators on a first-come-first-served basis.

**12 May 2004 IDA AND IBM COLLABORATE TO BUILD ON-DEMAND CAPABILITIES** IBM Singapore and IDA announced initiatives to build on-demand capabilities for the local ICT industry. The three-year joint collaboration, with an initial investment of S\$40 million,



will focus on developing Singapore's human capital and the ICT market, and bringing innovative technologies to Singapore.

**20 August 2004 IDA AWARDED FIRST NATIONAL INFOCOMM SCHOLARSHIPS** IDA awarded 12 students with the first National Infocomm Scholarships. With a strong emphasis on industry attachment with the sponsoring infocomm companies, the scholarships give scholars exposure to real work situations and issues.

**1 October 2004 IDA LAUNCHED GAMES EXCHANGE ALLIANCE** IDA launched the Games Exchange Alliance (GXA), a Singapore-Inc network of companies. It aims to help games companies cross 'last-mile' commercialisation hurdles to place games titles into the hands of gamers in Asia. The GXA is part of IDA's Digital Exchange (DX) strategy to grow the value of digital transactions through Singapore from S\$150 million to S\$500 million by 2006.

**28 October 2004 SINGAPORE ANNOUNCED 3P INTEGRATION FOR E-SERVICE DELIVERY**

The government announced a new paradigm in its e-service delivery called "3P Integrate", which aims to bring customers increased convenience. Going beyond integration in government services, public agencies are encouraged to "start with the user in mind" and actively look for service integration opportunities with the private and people sectors.



**3 January 2005 MOBILE OPERATORS MET IDA'S REQUIREMENT FOR 3G ROLLOUT**

IDA announced that all three mobile operators, MobileOne, SingTel Mobile, and StarHub Mobile, have successfully met its licence requirement for nationwide rollout of 3G systems and services. It also allowed the mobile operators the flexibility to charge different prices for calls within and outside of their own networks.

**3 January 2005 SGNIC LAUNCHED SECOND-LEVEL DOMAIN NAMES**

The Singapore Network Information Centre (SGNIC) launched 5,923 second-level '.sg' domain names. Second-level '.sg' domain names like xyz.sg are shorter and easier to remember as compared to its third-level counterpart e.g. xyz.com.sg.

**25 February 2005 IDA RELEASED DETAILS FOR WIRELESS BROADBAND SPECTRUM RIGHTS**

IDA released licensing details for wireless broadband access (WBA) in the 2.3 GHz and 2.5 GHz frequency bands. All of the 140 MHz of WBA bandwidth will be divided into 25 lots to be allocated to successful applicants. Should there be more demand than supply, IDA will auction the allocated spectrum for WBA.

**8 March 2005 IDA LAUNCHED FIFTH INFOCOMM TECHNOLOGY ROADMAP**

IDA unveiled its fifth and most significant Infocomm Technology Roadmap (ITR5) to date. The inaugural 10-year Technology Roadmap explores next era technologies such as sensor technology, biocomputing and nanotechnology; and the impact they will have on the infocomm sector and society.

**18 November 2004 ALEXANDRA HOSPITAL, IDA AND MICROSOFT DEVELOP HEALTHCARE.NET**

Alexandra Hospital, IDA and Microsoft signed a Memorandum of Intent (MOI) to work together to develop Alexandra Hospital's vision of a hassle-free hospital. Under the agreement, Alexandra Hospital will work with the partners over the next three years to streamline its processes and enhance patient services with the help of technology.

**28 January 2005 SINGAPORE AND MALAYSIA SIGNED THIRD ASEAN TELECOMMUNICATIONS ACCORD**

Singapore signed the third Mutual Recognition Arrangements (MRA) for telecommunications equipment with Malaysia. Under the agreement, telecommunications equipment companies can expect to shave off testing costs of up to S\$1,200 per model and will be able to get their products to market up to 30 days earlier when the MRA is implemented.



**2 December 2004 IDA DEVELOPED BPO CAPABILITIES**

IDA announced that it has set aside S\$12 million to develop the capabilities of Singapore's Business Process Outsourcing (BPO) industry over the next two years. It aims to help companies seed 20 projects worth more than S\$10 million in the next two years. The key strategies include developing training programmes, where IDA will provide training support under existing manpower development schemes. In addition, IDA will help local companies certify their capabilities through the establishment of code of practice for critical BPO activities to ensure quality of service provision.



**18 February 2005 IDA AMENDED TELECOMS COMPETITION CODE**

IDA amended the Telecoms Competition Code to enhance competition by removing unnecessary regulations in competitive market segments, and strengthening regulatory provisions in segments with limited competition. It also issued advisory guidelines on regulatory processes such as procedures for dispute resolution and assessment of proposed changes in ownership and consolidations.

**9 March 2005 SINGAPORE GAINED TOP SPOT IN GLOBAL IT REPORT**

The World Economic Forum's Global Information Technology Report singled out Singapore as the world's most successful economy in exploiting infocomm developments. Singapore also topped the rankings of the Networked Readiness Index 2004-2005 for the first time. The Index measures the ability of individuals and government to tap into the potential of infocomm technology, as well as the government usage of infocomm technology.

**22 February 2005 SINGAPORE UNVEILED INFOCOMM SECURITY MASTERPLAN**

The Government announced that it will spearhead a national effort to maintain a secure infocomm environment for the government, businesses and individuals, and defend Singapore's critical infrastructure from cyber attacks. It will set aside S\$38 million over the next three years to build capabilities in managing cyber threats and enhancing cyberspace security.



The rapid pace of technological development not only brings about new challenges but also opens up new possibilities and opportunities for both individuals and businesses.

## Creating New Business Opportunities



## To keep pace with the changing infocomm landscape and to harness its potential for the benefit of Singaporeans and our economy, IDA unveiled its "Connected Singapore" vision, outlining key focal points for the future in March 2003.

Guided by this blueprint, IDA has, and continues to embark on initiatives to empower Singaporeans with convenient access to infocomm products and services. On the business front, IDA's strategies will focus on using infocomm as an agent for change to enhance business processes and optimise existing resources. In addition, the vision details strategies to strengthen

infocomm's contribution to our local economy through seizing the early-mover advantage in the emerging areas such as digital content creation and distribution.

With these growth objectives in mind, IDA led the way over the past year with the following:

- Making Singapore a Digital Exchange Hub
- Tapping into new engines of infocomm growth
- Facilitating overseas market access and international cooperation
- Strengthening Singapore's infocomm capabilities
- Making Singapore a conducive infocomm hub

### DIGITAL EXCHANGE

A key strategy in the Connected Singapore game plan is "Digital Exchange", a plan to develop Singapore into the epicentre for digital content trading and distribution. Over the past year, IDA continues to introduce programmes to strengthen our infrastructure and other capabilities in the digital realm.

In June 2004, IDA launched the Games Bazaar to boost Singapore's appeal as a location to host and manage online games. Introduced in partnership with SingTel EXPAN and Hewlett-Packard Singapore, Games Bazaar is a scalable hosting platform that allows games companies, publishers and distributors to test and deploy their offerings around the region with greater

speed and less upfront costs. As an added incentive, the two companies will help companies absorb up to 80% of their hosting costs for the first six months after signing up for the programme. The initiative was also spotlighted at the Game Developers Conference 2005 in San Jose as a rapid deployment option for U.S. companies hoping to broaden their reach to the Asian gaming population. Since its inception, four companies have deployed their games through the Games Bazaar, while 12 companies have used the platform to test-bed their games in the region.

To catalyse the development of our games industry, IDA also launched the Games Exchange Alliance (GXA) in October 2004.

The GXA blends the complimentary strengths of multiple companies in the areas such as games distribution, hosting, localisation and marketing into a consolidated group. With 13 members so far, the effort is expected to help shorten the time-to-market needed for games companies to extend their products beyond Singapore shores to the rest of Asia. Early successes of this alliance include Teckwah Online with the introduction of an online games distribution platform called Noribox. Multinational games publishers such as 10tacle Studios have already committed to using Noribox while others like Vivendi Universal Games and Eidos are currently testing the platform.

### WHY SINGAPORE IS 'GAME' ENOUGH?

- Singapore is the most connected city in Asia with more than 16 Gbps of extensive and direct Internet connectivity to over 20 countries. This comprises 6 Gbps to the USA and over 8 Gbps to countries such as Australia, Hong Kong, India, Japan, Korea, Malaysia and Vietnam.
- Singapore's direct Internet connectivity to major ASEAN countries is at least 100 Mbps per country.
- Singapore's network infrastructure is particularly well-suited for digital delivery of data centre space with its 26 Tbps of submarine cable capacity and international and regional telecoms connectivity to more than 100 countries.
- Singapore is ranked as the forerunner in ICT adoption in the World Economic Forum's 2005 Global Information Technology Report.
- In January 2005, Singapore was ranked as one of the Top Seven Intelligent Communities in the World by Intelligent Communities Forum for its Digital Exchange vision, excellent infocomm infrastructure and global connectivity.
- Singapore was also ranked first in Asia for Intellectual Property Rights Protection by PERC 2004 and the 2003 Global Corruption Report, making it an ideal location for companies to securely store and distribute their digital content.



Playing online games in a cyber cafe



## CONNECTING WITH NEW 'HOTSPOTS'

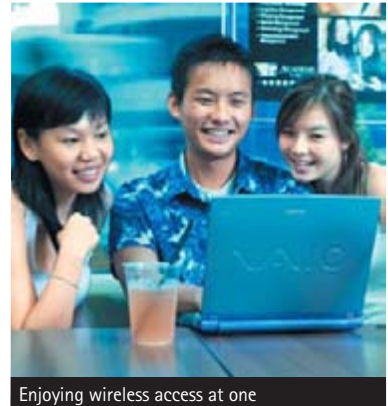
Another key strategy under the Connected Singapore vision seeks to strengthen infocomm's contributions to our local economy. This goal will be achieved by seeding new activities, fueling local technological innovations, spurring developments in emerging technologies as well as helping local ICT companies expand into overseas markets.

Promising technology trends IDA has leveraged in the last financial year include:

- **Business Process Outsourcing/ Business Continuity**

To enhance our attractiveness in the Business Process Outsourcing (BPO) sector, IDA announced in December 2004 that it will spend S\$12 million over the next two years to develop local capabilities in this market, particularly in the provision of high-end BPO services.

The key strategies outlined in this plan include the launch of training programmes under IDA's existing manpower development schemes. Through these initiatives, 1,000 infocomm professionals will be trained in BPO service provision by 2006. IDA will also help companies innovate their BPO service delivery capabilities and



Enjoying wireless access at one of the many Singapore cafes

promote research and development of outsourcing technologies. IDA aims to help companies seed 20 projects worth S\$10 million in two years through these efforts.

In line with the growing popularity of BPO services, the demand for business continuity/disaster recovery (BC/DR) services are also on the rise. To stamp our mark on this emerging market, IDA revealed that the BC/DR Working Group of the Information Technology Standards Committee has developed the world's first industry standard for BC/DR.

The industry standard lays out requirements, such as stipulations for operating, monitoring, maintaining and upkeeping BC/DR services offered to clients. This helps ensure that service providers are equipped to provide a trusted operating environment to secure and recover critical data for their customers when a crisis strikes. So far, seven companies, including Hewlett-Packard, IBM, NCS and Singapore Computer Systems, have received certificates of achievement for the BC/DR Service Provider category while Equinix, SingTel and StarHub are certified in the DR Facility category.



Empowering employees in the office with infocomm technology



Dr Balaji Sadasivan, Senior Minister of State for Information, Communications and the Arts and Health, observed that Singapore has strong qualities to let it carve a niche for itself in the BPO industry

- **Web Services**

In June 2004, IDA pointed out at the WEAVE (Web Services Add Value to Enterprises) Seminar that Web Services is gaining momentum in Singapore.

According to IDA's latest survey on Infocomm Usage among businesses, 12% of enterprises surveyed said they are now deploying Web Services, compared to 8% last year. Companies that are embracing Web Services are also looking at industry-wide deployment. This is to optimise the potential of Web Services since it integrates between various machines and across different platforms.

Under the WEAVE initiative, 45 companies have since embarked on 26 projects across industries such as lifestyle and entertainment, banking and insurance, high-tech manufacturing, logistics, retail and distribution and healthcare. These 45 companies expect to commercialise their solutions to generate S\$125 million in infocomm revenue over the next two years. To date, IDA has supported a total of 18 web-services projects with total investments of \$19.7 million. 14 more projects with S\$19.4 million investments are in the pipeline.

- **Grid Computing/Utility Computing**

Grid and utility computing systems that provide companies with scaleable and flexible ways of managing their IT resources can potentially be the answer to the perennial business challenge of having to do more with less.

In 2004, IDA, in collaboration with key multinational partners, has also launched a series of initiatives to tap into the potential of this emerging market.

In May 2004, IBM Singapore and IDA joined forces to build on-demand capabilities for Singapore's ICT industry. On demand @ Singapore, a three-year collaboration with an initial investment of S\$40 million, aims to enable businesses, the public sector and community to leverage utility computing systems that can empower them to act and respond quickly to their customers' changing expectations.

In July 2004, IDA and Oracle Singapore announced a S\$25 million initiative to develop enterprise grid computing technology.

The collaboration, called Enterprise-g @ Singapore, will strive to help more than 30 local companies develop enterprise grid solutions and train 300 infocomm professionals with the relevant skill sets. In addition, the partnership aims to initiate grid computing projects in key vertical sectors such as manufacturing, transportation and healthcare.

To achieve these goals, IDA and Oracle have set up the Enterprise-g Centre to spearhead the projects under the collaboration. This centre serves as a one-stop resource for vendors, enterprises and developers to undertake activities like development and testing.

## REWARDING INFOCOMM INNOVATION

### National Infocomm Awards 2004

11 public and private organisations were recognised in October 2004 for their development and innovative use of IT. For their efforts, they received the biennial National Infocomm Awards (NIA) for excellence in infocomm innovation.

IT solutions provider e-Cop won the Most Innovative Infocomm Product/Service award for its managed security services. These offerings can help safeguard operating systems against rising security threats without the need to maintain extensive in-house resources.

Another winner in the same category was Savi Technology. Its "Smart and Secure Tradelanes" is now guarding the shipping routes of the world through location tracking of container ships. With Smart and Secure Tradelanes, the company is now operating the world's largest wireless monitoring network for the U.S. Department of Defense.

For its "eCREAM" solution, a one-stop portal that meets the "life-cycle" needs of its customers, Jurong Town Corporation, Singapore's largest industrial landlord, won the Most Innovative Use of Infocomm Technology (Public Sector) award.

Sembawang Shipyard won the Most Innovative Use of Infocomm Technology (Private Sector) award for its "Alliance e-Collaboration Portal" which helped increase its level of service to its global partners.



Winners of the NIA Awards with Dr Lee Boon Yang, Minister for Information, Communications and the Arts, lauded for their excellence in infocomm innovation

## PAVING THE ROAD FOR INTERNATIONALISATION

To ensure that the infocomm sector continues to be a robust engine for economic growth, IDA recognises the need for local ICT companies to look for business opportunities beyond Singapore. The Overseas Development Programme (ODP) and the extension of the Infocomm Local Industry Upgrading Programme (iLIUP) are two IDA-led initiatives to build up capabilities and pave the way for internationalisation.

Under an IBM-IDA partnership as part of the ODP, selected local independent solutions vendors (ISVs) will be able to expand their businesses overseas by leveraging IBM's regional and international business partner programmes. The target is to bring 10 to 15 local ISVs on board over a three-year period and to help them generate S\$15 million in revenue. To augment the capabilities of our local ICT companies, IBM and IDA will also extend the iLIUP initiative to more local ISVs. The number of partners currently stands at 24, and both IBM and IDA expect to increase this number to 30 in the near future. The move is expected to help generate S\$9 million in revenue for local ISV partners over the next three years.

In April 2004, IDA and SiTF also set up the Singapore Solutions Centre (SSC) in Shanghai to help Singapore infocomm companies seize opportunities in the booming China market.

The SSC serves as a one-stop showcase for Chinese companies and agencies to find out more about the technologies, products and services that Singapore infocomm companies have to offer. Singaporean firms behind successful IT projects in key sectors such as transport, logistics, financial services and healthcare form the crux of the SSC. These industries have also been identified as the main drivers of economic growth for China.

The SSC got off to a good start with Singapore Computer Systems and EGIS Healthcare Technologies securing a deal worth more than S\$2 million. Under the agreement with Beijing Tongren Hospital, Singapore Computer Systems will help Tongren deploy a fully integrated hospital information and management system for its new hospital wing. Over the next three years, SSC hopes to achieve S\$37 million in export revenue.

To facilitate market access, specifically in the telecommunications sector, Singapore and Indonesia were the first two ASEAN countries to sign a Memorandum of Understanding (MOU) for telecommunications equipment conformity testing in April 2004. Under the pact, standardised telecommunications equipment testing would be carried out by accredited laboratories in each country, thus avoiding duplicative testing. This will save telecommunication equipment companies testing costs of up to S\$700 per model and get their products to market up to 45 days earlier.

In May 2004, Singapore and Brunei signed a similar agreement. When fully implemented, companies can expect to save testing costs of up to S\$500 per model and get their products to market up to six weeks earlier. The latest agreement was signed with Malaysia in January 2005.

Beyond telecommunications equipment testing, Singapore also signed a MOU in September 2004 with the State of Kuwait to cooperate in e-Government planning. The agreement includes the promotion of dialogue on e-Government issues and the sharing of best practices and experiences.

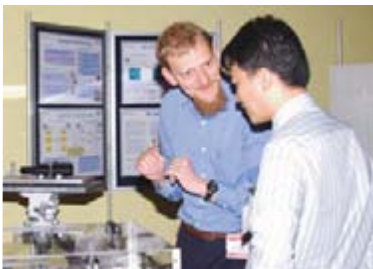


Minister for Information, Communications and the Arts, Dr Lee Boon Yang, meeting the delegates from Kuwait at the signing ceremony of the MOU between Singapore and Kuwait in e-Government

## CAPABILITY DEVELOPMENT

In tandem with pursuing new growth areas for Singapore's infocomm sector, IDA also recognises the need to hone the skill sets of local ICT professionals to maintain our competitive advantage and position as Asia's premier technology hub. This is seen as one of the bedrocks towards realising the Connected Singapore vision.

Beyond enhancing capabilities in utility computing, IBM and IDA will also be pulling together resources to enable skills development, knowledge transfer and scholarships in other areas. For a start, a five-day CITREP-endorsed course in sales and marketing was introduced in June 2004. That course was introduced with the aim of expanding infocomm professionals' technology-centric expertise to include essential business know-how.



One of the exhibits at the ITR5 Symposium

The partnership also applies to IDA's National Infocomm Scholarships for promising undergraduates. Selected students will be awarded attachments to IBM's overseas offices and R&D labs, where they will be trained to move up the business value chain by acquiring specialised technical and business-related skills.

According to the Ministry of Information, Communications and The Arts, the scholarship is unique as it emphasises industry attachment with sponsoring infocomm companies, thus giving scholars exposure to real work situations and issues. In addition, since the scholars do not need to serve any bond with IDA, the infocomm industry will benefit directly from the entry of fresh talents. 12 such scholarships were awarded by IDA in August 2004.



Enhancing the capabilities of infocomm professionals

## TECHNOLOGY PLANNING

Singapore has already received numerous accolades by industry bodies such as the World Economic Forum for being the forerunner in IT adoption. However, to maintain its lead, it is critical for Singapore to look beyond the near term towards promising technologies that are further out on the horizon.

In March 2005, IDA unveiled its fifth and most significant Infocomm Technology Roadmap (ITR5). This inaugural 10-year Technology Roadmap delves into areas like sensor technology, biocomputing, nanotechnology and how they will impact the growth of Singapore's infocomm sector and help build a well-connected society.

### HIGHLIGHTS FROM INFOCOMM TECHNOLOGY ROADMAP 5

#### The Computing Wave

By 2015, the PC we are familiar with will no longer exist. Users will be able to tap into computer mainframes via devices equipped with nanotechnology. Manufacturers will shrink the size of computers in order to embed them in everyday devices. Computing will also be enhanced by innovations such as Grid Computing, Peer-to-Peer technology and Service-Orientated Architectures.

#### The Communications Wave

Optical fiber will cover the world and provide an almost unlimited capacity to transport data anywhere globally. That, in turn, will

result in unlimited bandwidth subscription, which will mean that broadband will be available wherever it is needed. Internet Protocol (IP) will also become the unifying platform that ensures high levels of service delivery and security.

#### The Sentient Wave

Intelligent devices that can sense and interact with one another will evolve. Countries will use that capability to build nationwide sensor networks, like chemical and biosensors that operate 24 by 7 to detect potential homeland threats.

## CREATING A CONDUCTIVE BUSINESS ENVIRONMENT

### Fair and Open Competition

Another foundational layer in IDA's Connected Singapore blueprint is the creation of a conducive environment for local and foreign ICT companies.

In September 2004, IDA revealed its decision to enhance competition in the provision of telecoms services such as international direct dialing and international private leased circuits by giving operators greater access to submarine cable capacity that land at Singapore Telecommunication Limited's submarine cable landing stations (SCLSs). SCLSs are a critical part of telecoms infrastructure and IDA wants to ensure that increased access to SCLSs allows telecoms players more flexibility in offering telecoms services.

In September 2004, IDA gave mobile operators the opportunity to bid for the number levels they wish to acquire under a modified mobile number allocation procedure. With the revised process, operators will acquire new number levels that they or their subscribers desire. As such, IDA believes the operators would be more motivated to manage their numbers in an efficient manner.

On the mobile communications front, a milestone was reached in January 2005 when all three mobile operators – MobileOne, SingTel Mobile, and StarHub Mobile – successfully met IDA's licence requirement for the nationwide rollout of 3G systems and services.

Recognising that the mobile market in Singapore has become more mature and competitive, IDA also lifted its previous policy that prevented operators from pricing intra and inter-network mobile calls differently. Mobile operators now have the flexibility to charge different prices for calls made between their existing customer base and those made to subscribers of other networks.

IDA further amended the Telecoms Competition Code in February 2005 to promote healthy growth of Singapore's telecoms market. It also issued advisory guidelines on regulatory processes to provide the telecoms industry with more business certainty. The guidelines detailed procedures for dispute resolution as well as the assessment of proposed changes in ownership and consolidations.

To increase Singapore's broadband offerings and encourage competition, IDA also released licensing details for wireless broadband access (WBA) in the 2.3 GHz and 2.5 GHz frequency bands in February 2005. Since then, six companies – inter-touch Holdings Singapore, MobileOne, Pacific Internet, Qala, SingTel Mobile and StarHub – have been awarded blocks of the WBA spectrum through an auction process.

Singapore's telecoms market is maturing. Therefore, IDA will scale back its regulatory role in market segments where there is effective competition. This is because it believes a stronger reliance on market forces and industry self-regulation are more effective means of sustaining competition in the long term. However, it will continue to monitor and maintain regulatory oversight in market segments with limited competition.



With the nationwide rollout of 3G, consumers can now enjoy a wider range of services



Consumers can now look forward to greater broadband offerings with the awarding of WBA spectrum

**Singapore Elected to Sit on Postal Operations Council**

At the 23rd Congress of the Universal Postal Union (UPU) held in Bucharest from 15 September to 5 October 2004, Singapore was successful in its bid to be elected as one of the 40 member countries of the Postal Operations Council (POC) of the UPU. As a member of the POC, Singapore, represented by Singapore Post Ltd (SingPost), will be involved in the work of helping international postal services modernise and improve postal products with the changing times. Singapore will be serving on the Council until 2008.

The UPU was established as an international forum for cooperation amongst all countries for postal-related issues. It helps to ensure a universal network of up-to-date products and services, sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail volumes and to improve the quality of service for customers. The POC is the technical and operational body of the UPU that deals with the operational, economic and commercial aspects of the international postal service.

**Quality of Service (QoS) Performance in Local Mail Delivery**

IDA requires SingPost to meet a set of Quality of Service (QoS) standards to ensure an acceptable level of efficiency in mail

delivery for postal users. SingPost continued to achieve a high standard for the next-day mail delivery for mail posted to addresses within the Central Business District (CBD) and to all other addresses in FY2004. The QoS standards require that 99% and 98% of mails be delivered within the CBD areas and to all other addresses by the next day respectively.

**Securing Singapore's Infocomm Landscape**

With growing instances of online identity thefts and the relentless onslaught of computer viruses, sound security measures are the pre-requisites for creating a vibrant and conducive business environment.

To this end, the Singapore government announced in February 2005 that it will lead a national effort to maintain a secure infocomm environment for the government, businesses and individuals, and to better defend Singapore's critical infrastructure against cyber attacks.

The Government will set aside S\$38 million over the next three years to build capabilities in managing cyber threats and enhancing cyberspace security.

The first three strategies in Singapore's Infocomm Security Masterplan are to secure the people, private and public sectors respectively. These involve raising

awareness among Internet users and businesses about the risks and dangers of cyber threats such as spam and worms as well as how to take the appropriate security measures.

To secure these three sectors, one key project is the National Authentication Infrastructure that aims to develop a reliable means of validating users' identities for online transactions.

Another project for the public sector is the Business Continuity Readiness Assessment Framework that will measure the government agencies' level of readiness in assuming business operations should an accident result in the unavailability of their Government operations and services.

The Masterplan also outlines strategies for developing manpower capabilities, enhancing security research and development, and improving the resilience of critical infocomm infrastructure.

For example, a National Cyber-threat Monitoring Centre will be set up to maintain round-the-clock vigilance and analyse real-time threat information. An Infocomm Vulnerability Study of National Critical Infrastructures will also be conducted to assess the security readiness of key economic sectors and devise measures for improvement.

**SINGPOST'S QUALITY OF SERVICE (QoS) PERFORMANCE FOR FY04/05**

(1 April 04 – 31 March 05)

**Local Ordinary Mail delivered by next working day**

	Target	FY04/05
Within CBD	99%	99.9%
Outside CBD	98%	99.9%

**Incoming Airmail Received before 8pm at Airmail Transit Centre delivered by next working day**

	Target	FY04/05
Within CBD	99%	100%
Outside CBD	98%	100%

**Counter Service – Customer waiting for less than 10 minutes**

	Target	FY04/05
Peak Period	90%	97.8%
Off-Peak Period	95%	99.8%



In today's fast changing business environment, infocomm technology is a key enabler to help businesses and organisations achieve higher efficiency, effectiveness and customer satisfaction.

## Pushing the Development Frontiers



This involves leveraging infocomm technologies to re-engineer business and work processes through architecting, deploying common infrastructure and standards as well as creating services that link businesses more effectively with their customers.

For the past year, IDA continued working with key sectors like logistics, manufacturing, retail, healthcare and education, to harness technology and push the frontiers of their business.

## MANUFACTURING AND LOGISTICS

In May 2004, IDA unveiled its three-year, S\$10 million plan to develop Radio Frequency Identification (RFID) technology and catalyse five cross-supply chain RFID implementations by 2006. It will achieve this by bringing together manufacturers, logistics service providers, retailers, infrastructure providers and solutions providers. To date, IDA has secured RFID implementation projects worth S\$19 million in investments in the manufacturing, retail and logistics sectors.

IDA is also aligning the radio frequency spectrum and power output limits with international standards to facilitate global interoperability. IDA expanded the frequency bands for RFID applications to 866-869 MHz and 923-925 MHz in the UHF bands.

The power limit for both bands was increased from 0.01W to 0.5W. In addition, the power limit for the 923-925 MHz band was increased to 2W for RFID devices only. These steps are important as they allow RFID systems developed in Singapore to interoperate with those developed in Europe or the U.S.. That means goods tagged in Singapore can also be easily read by RFID readers in these countries.

At the same time, IDA is working closely with local RFID solutions providers, leading MNCs and educational institutes to build manpower, technology and infrastructural capabilities in RFID.

An important infrastructural component comes in the form of the RFID Testing & Solutions Centre jointly set up by NOL, APL Logistics (a business unit of NOL) and Sun Microsystems. As the first RFID test and compliance centre in Southeast Asia, it will provide manufacturers with the necessary compliance testing before goods are tagged.

And to further enhance Singapore's manpower capabilities in this area, two new RFID courses were launched by The Logistics Institute Asia Pacific, and Singapore Manufacturers' Federation in collaboration with RFID Focus respectively.



RFID Testing & Solutions Centre provides manufacturers with the necessary compliance testing before goods are tagged

### COMPANIES BENEFITING FROM RFID TECHNOLOGY

In the logistics sector, local company, YCH is using RFID to manage its bonded warehouse to improve visibility of movement of goods and enhance the efficiency of its operations.

In the retail space, Grocery Logistics of Singapore (GLS), the central warehouse and distribution arm of NTUC Fairprice, has commenced a pilot project to implement RFID in its distribution centre. RFID allows the company to track goods more accurately, thus reducing wastage from loss of stock.

Kim Hiap Lee Co (Pte) Ltd, a subsidiary company of LHT Holdings, is also using RFID technology to tag the pallets leased out to customers like Carlsberg and Fraser & Neave. Kim Hiap Lee Co is looking into setting up an RFID command centre in Singapore to track and manage the more than one million pallets that are leased out in Singapore, Malaysia and Thailand.



To enhance Singapore's position as a world class port and logistics hub, the government announced that it would invest up to S\$50 million over five years to develop an integrated IT platform, or TradeXchange, to manage the flow of trade-related information. Existing IT systems such as TradeNet, PortNet, Jurong Port Online, Marinet and the Cargo Community Network would be integrated with the platform.

This single web interface for all trade-related IT systems would enable shippers, freight forwarders, carriers and financial institutions to exchange information in order to facilitate the flow of goods within, through and out of Singapore. It would

help logistics players cut down multiple data entry steps, reduce duplication of manual efforts and in human errors which would ultimately improve efficiency and time-to-market.

In September 2004, the RosettaNet Architecture Centre of Excellence was set up in Singapore, the first Centre outside of the U.S. It is a collaboration between RosettaNet, IDA, Nanyang Polytechnic (NYP), as well as industry-leading organisations and high-tech companies. The Centre will investigate how enhancements to its architecture can promote increased global adoption. It will also explore how leading edge technologies such as Web Services and RFID can be

incorporated into RosettaNet standards. Finally, the Centre will support the continued use of RosettaNet in the high-tech manufacturing and logistics segments.



Dr Lee Boon Yang, Minister for Information, Communications and the Arts asserting the need for internationally accepted and standardised process content at the RosettaNet Global Partner Conference

## RETAIL

Similarly, to give local retailers the much-needed integration with the global market place, IDA developed a Retail Ecosystem comprising open e-business messaging standards and a database of standardised product codes that will enable seamless transactions among trading partners.

Through adoption of open e-business messaging standards and an internationally

standardised product catalogue, known as the National Electronic Product Catalogue, retailers and suppliers can now efficiently interact and exchange data with each other.

Besides promoting the use of common standards in the retail ecosystem, IDA is also encouraging retail industry players to embrace a business process tool known as

Collaborative Planning, Forecasting and Replenishment (CPFR). This involves the sharing of sales and inventory data between business partners to enable collaborative activities such as sales planning, promotion management and replenishment planning.



A database of standardised product codes enables seamless transactions among trading partners

## CASE STUDIES IN THE RETAIL SECTOR

FairPrice, a supermarket chain in Singapore, is a major player in the retail ecosystem. It has developed an electronic procurement (e-Procurement) system that sends purchase orders daily to nearly 400 suppliers including Auric Pacific, Diethelm, Harpers, Nestle and YHS. This represents nearly S\$300 million worth of orders through e-Procurement every year. The e-Procurement system helps to streamline their business processes and supply chain, and allows them to respond more quickly to consumer demands.

Both the Cold Storage and Carrefour Singapore, with a combined network of more than 700 active suppliers, are at the final stage of completing their B2B hubs to perform e-Procurement transactions, from ordering to invoice payment processes.

Singapore's home-grown supermarket chain, Sheng Siong, is planning to use CPFR to link up their key suppliers – such as Jia Mei Trading, Nestle, Sin Hoe, and Unilever. This will allow for more accurate management of inventory levels which reduces out-of-stock situations and improves customer service.

## HEALTHCARE

In the healthcare sector, a three-year pilot project among Alexandra Hospital, IDA and Microsoft Singapore was launched in November 2004. Called Healthcare.NET, the initiative aims to deliver a patient-centric, seamless and cost-effective healthcare system over the next three years.

Under the first phase of this initiative, the Clinical Digital Dashboard has been developed to help the healthcare worker gain access to patient's healthcare information for preventative and post-illness care as well as their treatment in hospital. The hospital also teamed up with

Nanyang Polytechnic (NYP) and Frontline Solutions Pte Ltd (a subsidiary of Singapore Exchange-listed Frontline Technologies Corporation Ltd) to develop the system.

The first phase of the Clinical Digital Dashboard is being piloted at Alexandra Hospital's Department of Emergency Medicine (DEM), using the wireless infrastructure sponsored by Cisco Systems and Fujitsu Asia. Staff at DEM can register, consult, treat and prescribe medication to patients all at one go with the Tablet PCs supported by Fujitsu PC Asia Pacific and AsiaPac Distribution Ltd.



Healthcare.NET partners pledge commitment to develop patient-centric healthcare system

## EDUCATION

The latest infocomm technologies have also been steadily making their way into the education sector. IDA has been leading a government-industry collaboration called Backpack.NET since 2003. As part of this initiative, successful pilots have been conducted in selected schools such as River Valley High School, Monks Hill Secondary School, Crescent Girls' School and Catholic High School, to tap wireless and mobile computing technologies. This helps to enhance the teaching and learning experience.

In March 2005, The Backpack.NET Centre was officially opened at the National Institute of Education. It has been set up to demonstrate how various technologies can be used to create the classroom of the future. For example, the Bio Genetic Laboratory scenario showcases learning-based technology such as RFID for easy retrieval of up-to-date data within the learning context. There are also System Modeling Tools to engage pupils in investigative learning and Digital Geography text books where contents are digitised with multi-media and collaboration applications.



Minister for Education, Mr Tharman Shanmugaratnam, being shown how lessons are conducted with tablet PCs

## MORE HELP FOR BUSINESSES

IDA and IT solutions provider ILOG announced in March 2005 that they will team up to help businesses make use of Infocomm Technology to implement and make business policy changes more quickly and cost-effectively through a Business Rule Management System (BRMS).

BRMS is a software platform that allows business users to manage and execute business policies, which are expressed as business rules. The benefit is faster business response times to regulations, customer needs and competitive threats.

The collaboration will help more than 15 local companies develop BRMS pilot projects in verticals such as financial services, healthcare, logistics and telecoms. Asia's first "BRMS Centre of Excellence" (BRMS CoE) was established in Singapore to enable local ISVs and System Integrators (SI) to develop BRMS-based solutions for both local and overseas markets.

The first pilot project under the IDA-ILOG collaboration was developed by Singapore solutions provider, e-TREK. The project will incorporate BRMS in the development of

a seamless straight through processing solution, and facilitate insurance claims between insurance companies and healthcare service providers. BRMS will complement Web Services to provide uninterrupted information exchange and transactions, even when the insurance companies and healthcare service providers make frequent changes to the rules and policies. That will help companies update business rules quickly, and also bring greater convenience to patients as insurance claims can be processed faster. This solution will be deployed at Alexandra Hospital.

# Enhancing Lives in Infinite Ways

Infocomm usage is increasingly pervasive in Singapore as more people use IT for business, work and play.



## In IDA's Annual Survey on Infocomm Usage in Households and By Individuals, in 2004, 74% of all households in Singapore own one or more personal computers and 65% have Internet access. Of those who have Internet access, two out of three are on broadband.

The results also showed that Singaporeans have gone beyond basic infocomm usage such as word processing. According to the survey, 95% of Internet users aged 15 and above now use e-mail as a mode of communication. Correspondingly, the usage of online information retrieval or search increased from 64% to 82% while downloading application software increased from 43% to 62%.

As further testament to the pervasiveness of infocomm technology, statistics from the telephone operators show that mobile phone penetration in Singapore has reached 94% in March 2005.

According to the 2004 e-Government Perception Survey commissioned by IDA and the Ministry of Finance, among those who transacted with the government, nearly nine out of 10 did so at least once via electronic means. This is a 15% increase from 73% in 2003. Government electronic services also fared well in service quality, where eight out of 10 Singaporeans who transacted electronically with the Government are satisfied with the overall quality of the services provided.

IDA has continued to push the boundaries of a digital lifestyle in 2004, delivering more online government services as well as encouraging citizens to transact electronically for all kinds of services.



More Singaporeans are going online and engaging in more advanced online services and applications



www.gov.sg brings together three different Web sites for the convenience of consumers



There are now 82 eCitizen Helper outlets located island-wide

## DELIGHTING CUSTOMERS, CONNECTING CITIZENS

The second e-Government Action Plan was launched in 2003 to transform the public service into a Networked Government that provides accessible, integrated and value-adding e-services to users so as to help bring citizens closer together.

Under this plan, in October 2004, the Singapore Government Online Portal (www.gov.sg) was unveiled. The new portal brings together three different Web sites, namely the SINGOV, eCitizen and business Web sites. The portal streamlines information and e-services while catering to the needs of different customer segments. The unified government online portal is in line with the government's move towards a customer-centric approach to e-services.

Since its completion in October 2004, the MyeCitizen personalised front end to the eCitizen portal has witnessed a huge

increase in take-up rates. From 2,200 subscribers in June 2003, it now has about 37,000 subscribers.

The new portal also saw the revamp of eCitizen into seven eTowns, which offers a more intuitive selection to better cater to a customer's information needs. These eTowns are:

- Culture, Recreation and Sports
- Defence and Security
- Education, Learning and Employment
- Family, Community and Development
- Health and Environment
- Housing
- Transport and Travel

Since the launch of the eCitizen Helper Programme in 2003, there are now 82 eCitizen Helper outlets located island-wide. The programme which started with accessibility at community centres and

private organisations, has today been extended to other outlets including libraries and Singapore Post Ltd. Each outlet is set up to assist Singapore residents and citizens in transacting with the government online. In 2004, about 40,000 transactions were made with the assistance of the eCitizen Helpers.

In addition, as part of a strategy to migrate users from physical channels to online ones, more than 1,200 self-service Internet terminals were installed across 150 public service locations by March 2005.

IDA also announced in October 2004, a new paradigm in e-service delivery called "3P Integrate". With this initiative, integration would go beyond government services. Starting with the users in mind, the government agencies will actively look for service integration opportunities with the private and people sectors.

It is recognised that customers and businesses need more than just Government services. They also need goods and services from the private and people sector. With 3P Integrate, customers can get a complete service package, where their needs are satisfied without having to deal separately with the Government, and the private and people sectors.

## TRANSACTING ONLINE

Confidence in online shopping has increased with the introduction of TrustSg, a nation-wide trust mark that identifies merchants who have adopted e-commerce best practices set up by the National Trust Council. Such practices include disclosure, privacy, fulfilment, business ethics, and protection of minors and the elderly.

According to IDA's Annual Survey on Infocomm Usage in Households and By Individuals, in 2004, 30% of the Internet

In line with this, IDA together with the Ministry of Finance is developing a national electronic bills payment hub. Having implemented FlexiPay as a common mode of payment for government transactions, IDA seeks to bring together players from different sectors to establish a national electronic payment hub that serves all billing organisations and consumers in Singapore. The payment hub will provide a one-stop portal for the payment and presentment of government and private sector bills through electronic means. Consumers no longer have to go to different Web sites to pay different types of bills. The new system will consolidate all billing organisations under a central hub that offers secure and trusted electronic bill payments and related services to consumers. This project is expected to be implemented over a two-year period.

One of the initiatives to help enterprises in Singapore overcome the barriers to the use of e-services is the Business CARE programme. This is a result of partnerships between IDA, PC vendors and training schools, to provide affordable PC-broadband access as well as training in the use of government e-services. To further drive the use of e-Government services, the Online Business Licensing Services (OBLS) was

also launched last year. OBLS is a one-stop business license application service. Instead of making several trips to the counter, businesses just need to submit one online application to apply for all the relevant licences for business operations. Currently, OBLS offers 68 licences from 19 government agencies. As testament to the merits of this system, OBLS was awarded the United Nations Public Service Award in May 2005.



Establishing a national electronic payment hub as a one-stop portal to serve all billing organisations and consumers in Singapore

users surveyed are doing shopping online. The TrustSg accreditation programme was introduced by the National Trust Council and its two certification agencies - Consumers Association of Singapore and CommerceNet Singapore. IDA is the secretariat to the Council. Under this programme, 286 e-merchants and organisations have been accredited with the TrustSg seal in 2004, and this is six times the number in 2003.



More merchants and organisations have been accredited with the TrustSg seal since its launch in 2003

## ADDRESSING COMMUNITY NEEDS

IDA continued to help address community needs through initiatives like the NEU PC programme. Introduced since 1999, the programme aims to help needy families own computers. This is done with the help of community associations such as the Association of Muslim Professionals, Chinese Development Assistance Council, Yayasan Mendaki, Singapore Indian Development Association, The Society for the Physically Disabled and many community development councils and voluntary welfare organisations. To date, more than 18,500 needy families have received new and refurbished computers. In recent years, the NEU PC programme also benefited from software and Internet access sponsorship from Microsoft and Pacific Internet.

In September 2004, IDA launched the Connecting the Community initiative where several solutions and services were proposed to address community needs through the use of infocomm technology. The proposed solutions were developed by four consortia consisting of 23 companies, ranging from IT solutions providers to Citizens' Consultative Committees (CCCs) and healthcare equipment providers.

The proposed solutions address a range of needs of the family and the general community. For instance, families can receive alerts activated using wireless technology if aged parents meet with accidents at home. Parents can monitor

their children's progress in school through SMS and email. Also, the general community can benefit from real-time information alerts via electronic notice boards at void decks.

A public trial, involving more than 2,500 users to test the proposed solutions, started in February 2005.

The four consortia participating in the Connecting the Community Call for Collaboration are:

- **BELINK or Bishan East Link (led by Cyber Business Network)** – enhances communications and information networks for better interaction among the residents.
- **Golden Years Community (led by NTUC Income)** – offers personalised products and services like healthcare, shopping and travel to the middle-aged and senior citizens.
- **Paya Lebar Online (led by NCS Pte Ltd)** – connects residents to the community and businesses offering online services.
- **UniHome – One World (led by Universal Gateway International Pte Ltd)** – delivers information, services and entertainment to families anytime, anywhere through multiple devices.

## INFOCOMM SECURITY

To help all Singaporeans better protect themselves in cyberspace, IDA developed the Infocomm Security Awareness Programme. A key initiative under the Infocomm Security Masterplan, this educational programme aims to promote security awareness among Internet users as well as to equip them with knowledge on how to combat cyberspace security threats.

### E-SOCIETY EXCELLENCE AWARDS

In recognition of their efforts to help citizens from all walks of life get connected, five organisations received the e-Society Excellence Awards. The Awards were jointly organised by IDA and the Singapore Infocomm Technology Federation, with support from the Singapore Computer Society, Information Technology Management Association, Ministry of Community Development, Youth and Sports, and Ministry of Finance. The five winning organisations are:

- **Fujitsu Asia Pte Ltd**, for helping Food-from-the-Heart, a voluntary welfare organisation, develop a wireless solution to track food delivery to welfare homes in the Food-Trek Programme.
- **Project 180 (Youth Services)**, for developing a blog site, [www.eGen.org.sg](http://www.eGen.org.sg), to reach out to youths and provide counselling online.
- **Singapore Indian Development Association**, for its New PC Programme where needy families can get new personal computers and basic IT skills training through a co-payment scheme.
- **Singapore Prison Service**, for its Internet Home Televisit programme where inmates can meet family members through a video conferencing system.
- **The Society for the Physically Disabled**, for their Specialised Assistive Technology Centre where the physically disabled can learn to use assistive technology for communication and education purposes.



Senior Minister of State, Dr Balaji Sadasivan and IDA CEO, Mr Chan Yeng Kit with the winners of the e-Society Excellence Award

# Optimising the Human Potential

In any organisation, people are the deciding factor in its success. IDA knows this only too well.



With responsibilities in pursuing national agendas like a conducive infocomm environment, a globally competitive infocomm sector as well as a technology-enabled government and society, IDA invests time and resources to develop staff to their fullest potential. Efforts have also been put into creating a culture of learning and innovation among the staff.

## LEADERSHIP DEVELOPMENT

In 2004, IDA started three leadership development programmes, namely the Performance Coaching Workshops, Managing Human Capital Workshops and Leadership Infusion Series. The first two workshops aim to help leaders acquire coaching capabilities that are useful in developing their own staff potential and managing people issues. As for the infusion series, each member of the senior management team is invited to share his or her personal experience and perspective on leadership, so as to inspire a spirit of leadership excellence among IDA managers.

## TALENT MANAGEMENT AND DEVELOPMENT

As part of its efforts to enhance the job knowledge and experience of staff, in 2004, IDA made arrangements with other Statutory Boards to second staff to one another. Since the launch of this programme, six IDA employees have benefited from this scheme.

In May 2004, IDA launched a pilot of the Mentoring Programme where mentors are assigned to selected IDA staff to help them in their personal, career and leadership development. The mentors are usually members of the senior management team and division directors.

## PEOPLE DEVELOPMENT

Training continued to be a key component in people development at IDA. In addition to the formal training courses to raise the level of the core, people and functional competencies, staff also receive online snippets of best practices at work. Launched in October 2004, the weekly series of snippets covers topics such as Leadership Best Practices, Customer Service Excellence and Facilitation Skills.

In December 2004, IDA launched a customised email alert system for staff to subscribe to their preferred list of courses by competencies and be informed automatically once a new course is available.

## PRO-FAMILY/ WORK-LIFE BALANCE

In June 2004, IDA was recognised as a Family Friendly Employer by Ministry of Community, Youth and Sports (MCYS). This is the first time it is recognised for its pro-family activities.

In line with MCYS' initiative, it also launched four "Eat with your family" days in a year.

In the same year, IDA was presented the Bronze Award by the Health Promotion Board in recognition of its efforts in driving workplace health promotion programme. Some events that IDA organised were health talks which covered the emotional, mental and physical aspects; comprehensive health checks; and sports and fitness training for staff.

IDA also renamed its flexible benefits to Personal Enrichment Kit for Staff or PERKS in January 2005. That modification came with a broadened list of benefits to allow for greater flexibility in the use of the staff benefits scheme to enhance personal wellness and productivity.

In response to the announcement of the extension of maternity leave, IDA launched SMILE or Staff on Maternity Leave in October 2004. Under that scheme, temporary staff are hired to fill in for employees going on maternity leave or those who are taking no-pay childcare leave.



Participants of the Act, Communicate and Take Ownership (ACT) Cascading Session





Participants at the Performance Coaching Programme acquiring skills to manage and develop staff potential



Forming the "Blindfold Square" as part of the Optimal Team Performance Programme

## TEAM@IDA

In a follow-up to the Act, Communicate and Take Ownership (ACT) project started in October 2003, additional programmes were introduced. To align IDA staff to the ACT (IDA Strategic Positioning), every staff underwent a one-day cascading workshop where they were introduced to the various components of IDA Strategic Positioning and core values. Supervisors are encouraged to recognise staff who have displayed the corporate core values through such activities as Staff Recognition Cards and Awards.

## FUN@IDA

Besides cultivating professionalism, dynamism and hard work, IDA also believes in encouraging staff to relax, unwind and have fun. Fun@IDA, IDA's recreation club, organises activities for staff and their families to socialise, interact and entertain. Fun@IDA also negotiates corporate discounts for electronic gadgets which add to IDA's Infocomm savvy image and lifestyle. Staff are also given opportunities to demonstrate the softer side of IDA like caring for the less fortunate and numerous other activities such as:

- **Lifestyle and Leisure**

On 22 December 2004, IDA raised and donated more than S\$3,080 through the Charity Christmas for its adopted charity organisation, the Singapore

## BUILDING SYNERGY, INTEGRATION AND ALIGNMENT

In April 2004, 500 IDA staff participated in the Optimal Team Performance programme, an intra-division team skills development programme. Besides gaining a common understanding and language in interfacing with people, supervisors have since demonstrated that they understand their team better. And with more empathy, better working relationships have been established.

In September 2004, as part of its Reach-Out & Recharge programme, IDA organised a cross-division/group team building event, which was attended by about 100 managers. Since 2005, the event has been held once a month. The event has helped to remind staff of IDA's vision and purpose.

Cheshire Home. IDA staff touched the hearts of the residents by coming together to sell home-made pastries and snacks to raise funds for the Home. Through Fun@IDA roadshows, IDA staff enjoyed discounts from vendors, massages and manicures. IDA staff and their families also went for an educational visit to the Newwater plant.

- **Interaction**

IDA staff chilled out at Fun@IDA's 'Chill Out!' organised for staff to interact and let their hair down after a long day at work. On 22 April, IDA staff enjoyed a night of entertainment and food at the annual dinner and dance, Glitterati, that was held at Fort Canning Green.

## ORGANISATIONAL EXCELLENCE

In May 2004, IDA was presented with the SPRING award for Singapore Quality Class. It has since embarked on developing a Risk Management framework for good corporate governance. The Risk Management framework includes identifying risk factors; analysing existing measures taken to address high-impact risks; and developing action plans to address these gaps, if any. The outcome of that is a greater awareness of risk management issues and development of capability and capacity within IDA to manage risks.

Kidz Fun@work was organised for IDA staff to bring their children to the office for educational and fun-filled activities and also an opportunity to see what their parents do at work.

- **Fitness**

IDA staff benefited from a series of fitness programmes such as hip-hop, step aerobics, kickboxing and sculpting tube, pilates and yoga.

- **Entertainment**

Fun@IDA's movie mania was a great success which saw IDA staff bringing their families to watch Shark Tale, A Series of Unfortunate Events and Batman.

## INFOCOMM INVESTMENTS PTE LTD



**CHAIRMAN, I IPL**  
**LOW Check Kian**  
Chairman  
NewSmith Capital  
Partners (Asia) Pte Ltd

### A NOTE FROM CHAIRMAN OF INFOCOMM INVESTMENTS PTE LTD (I IPL)

Signs of economic recovery, which started gathering momentum in the second half of FY2003/04, continued into FY2004/05. More companies capitalised on the better conditions in capital markets to raise funds for growth and expansion.

Against this backdrop, Infocomm Investments Pte Ltd (I IPL) saw stronger deal-flow, made a profit and managed to perform credibly in the Financial Year ended 31 March 2005. Financially, I IPL continues to be in a sound position.

In July 2004, I IPL invested in Asia Media, currently the only company that operates TV guide channels in four cities and seven provinces in China (which have a combined population of around 300 million). I IPL's investment is in line with IDA's wish to tap on Asia Media's wide network with the TV network operators in China to explore content distribution opportunities for Singapore digital content providers.

And in March 2005, I IPL invested in Dilithium Networks, a U.S. company that provides wireless solutions for the world's mobile and broadband industries to enable interconnectivity for multimedia data (voice and video services) in different formats (including 3G). Dilithium has also acquired LineFusion, a Singaporean company, and made it Dilithium's Asia Pacific Headquarters.

I IPL also made a follow-on investment in Shanghai-based Onewave Inc., which currently focuses on two business areas: (a) sale and implementation of technology solutions for broadband access and service operators, and (b) video-on-demand (VOD) content and service provision. Onewave currently delivers VOD services over the PC (PC-VOD) and TV (IPTV) platforms.

Among I IPL's existing investments, System Access, a leading provider of integrated universal banking software solutions for the global banking and financial services industry, filed for an Initial Public Offering during FY2004/05, and was successfully listed on SGX's SESDAQ in June 2005.

Moving forward, the Board and management of I IPL will continue to maintain discipline in sourcing for suitable new investments; assist our existing portfolio companies to grow their businesses; and capitalise on exit opportunities where available.

I would like to take this opportunity to welcome our new director, Mr Chan Yeng Kit, who joined the Board on 3 January 2005, and to thank my fellow directors for their contributions during the year.

**Low Check Kian**  
Chairman, I IPL



**DIRECTOR**  
**Madeleine LEE**  
Director  
Athenaeum Pte Ltd

**DIRECTOR**  
**ONG Peng Tsin**  
President &  
Chief Executive Officer  
Encentuate Pte Ltd



**DIRECTOR**  
**YONG Ying-I**  
Permanent Secretary  
Ministry of Health

**DIRECTOR**  
**CHAN Yeng Kit**  
Chief Executive Officer  
Infocomm Development  
Authority of Singapore



**DIRECTOR**  
**TEO Swee Lian**  
Deputy Managing Director  
Monetary Authority of Singapore

**DIRECTOR**  
**KHOONG Hock Yun**  
Assistant Chief Executive (Industry)  
Infocomm Development  
Authority of Singapore



# SINGAPORE NETWORK INFORMATION CENTRE PTE LTD

## SINGAPORE NETWORK INFORMATION CENTRE

Singapore Network Information Centre (SGNIC) is a fully owned subsidiary of the IDA. Set up in October 1995, it serves to administer the Internet domain name space in Singapore. As the national registry for ".sg" domain, SGNIC administers the registration for second and third-level domain names for com/org/net/edu/gov/per.sg domains via its accredited registrars, and formulates domain name registration policies in Singapore. SGNIC collaborates with the international, regional and local Internet communities to ensure a stabilised and efficient operation of the ".sg" domain name space in support of applications provided over the Internet.

## REVISED WHOIS FORMAT TO CONTROL SPAM

SGNIC maintains a WHOIS engine providing full registrant and registrar information of a domain name for contact purposes in the event of a technical problem or a need to check the availability of a domain name. The availability of such information however has been a potential source of information exploited by spammers. To control spam, SGNIC revised the WHOIS display to reflect only the essential information of names and postal addresses of registrants and their registrars.

## SHORTER AND EASIER 'SG' DOMAIN NAMES

To give consumers and organisations more choices in registering domain names and hence, creating a more vibrant Internet environment, SGNIC introduced second-level '.sg' domain names in September 2004. The second-level domain names are shorter, easier to remember and register as compared to third-level names. No documentary proof is needed and any organisation or individual anywhere in the world can apply for second-level names so long as it has a local contact address. The launch attracted some 8,700 second-level '.sg' names registered as of 31 March 2005. The total '.sg' domain names stood at about 51,000 as of 31 March 2005.



CHAIRMAN, SGNIC  
**LEONG Keng Thai**

Deputy Chief Executive/  
Director-General (Telecom)  
Infocomm Development  
Authority of Singapore



DIRECTOR  
**Andrew HAIRE**

Assistant Director-General  
(Telecom)  
Infocomm Development  
Authority of Singapore



DIRECTOR  
**TAN Geok Leng**

Chief Technology Officer  
Infocomm Development  
Authority of Singapore