



Ubiquitous Network Societies – The Case of Singapore



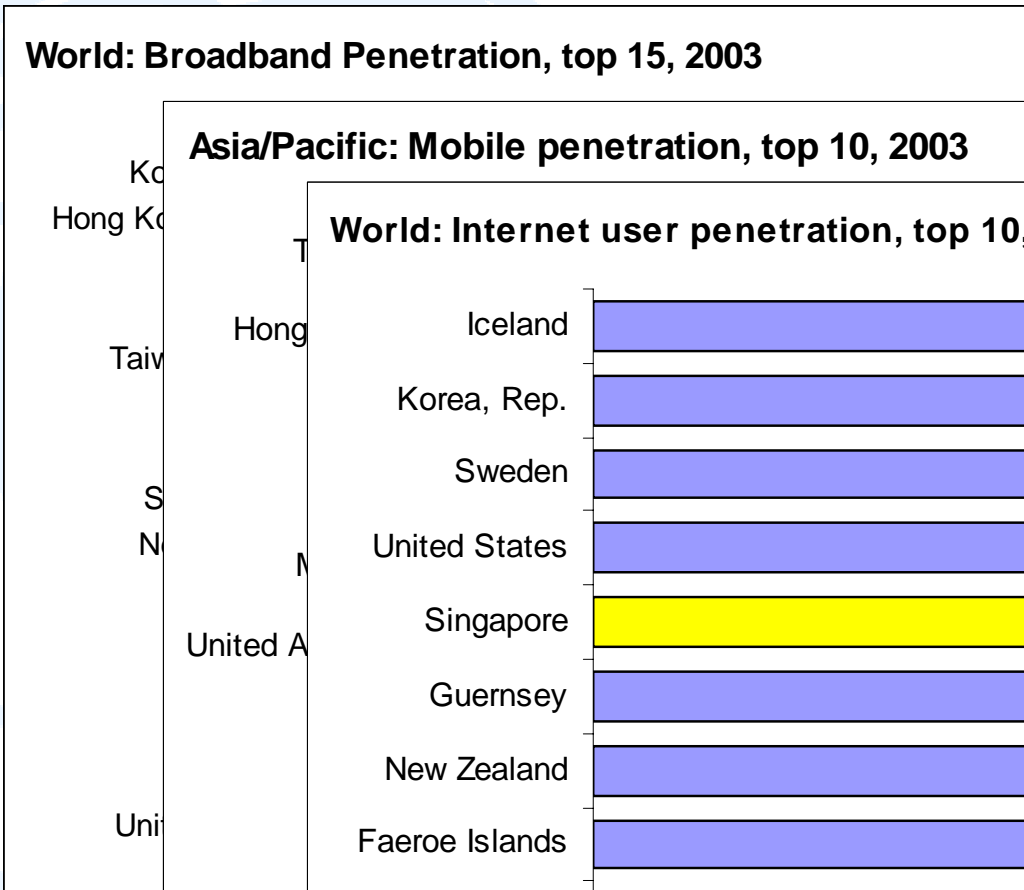
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ITU

ITU Workshop on Ubiquitous
Network Societies

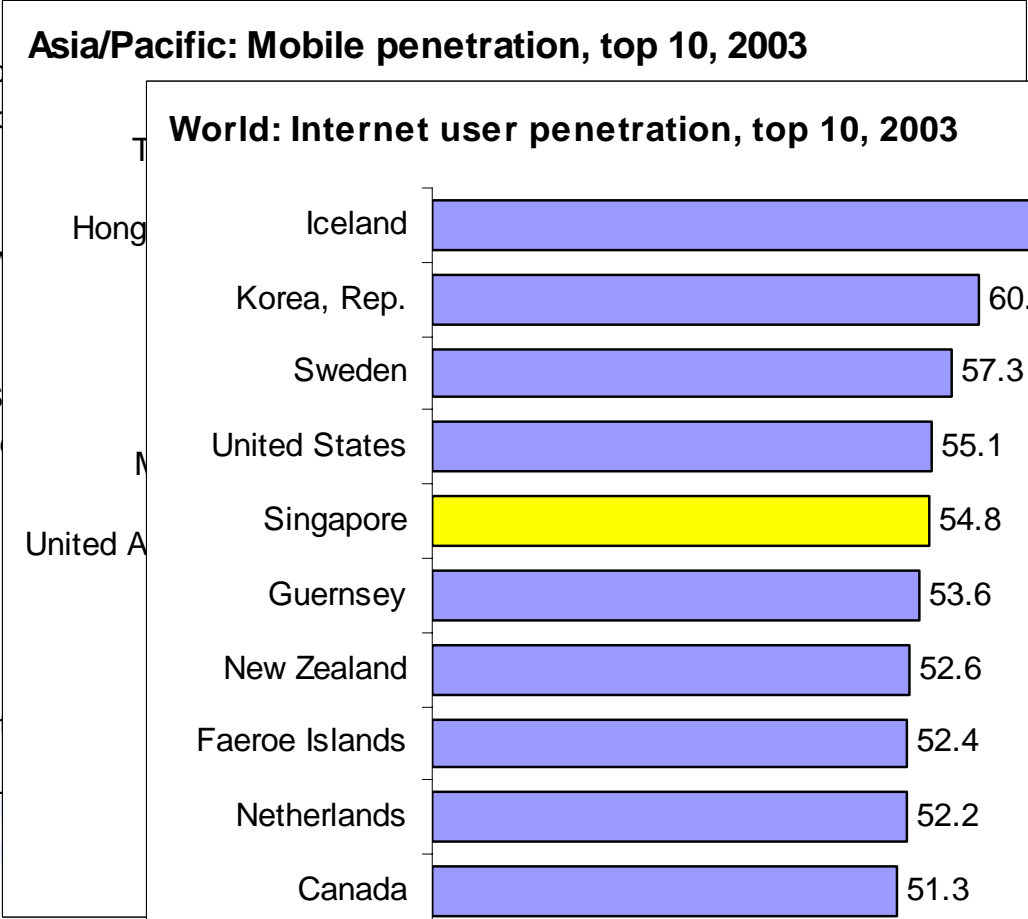
Geneva, Switzerland
6 – 8 April 2005

Singapore at a glance

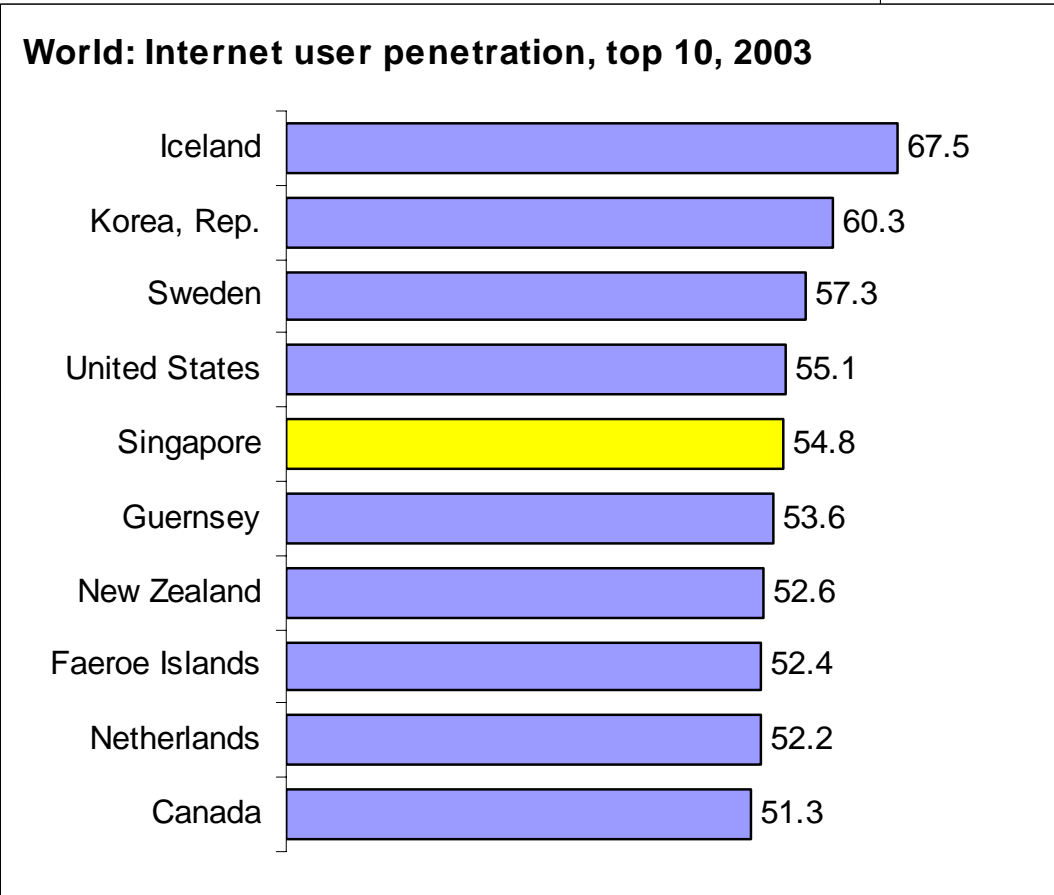
World: Broadband Penetration, top 15, 2003



Asia/Pacific: Mobile penetration, top 10, 2003



World: Internet user penetration, top 10, 2003





Network building blocks

■ **Broadband**

- 99% nationwide fixed-line broadband coverage
- Household broadband penetration of 42.3%
- >600 Wi-Fi hotspots = 1 per sq km

■ **Mobile**

- 92% mobile penetration
- Launch of 3G services in Feb 2005

■ **Perceptive networks**

- Extensive use of RFID applications in all sectors e.g. transport, logistics, libraries ...
- >6 million personal contactless RFID cards in circulation

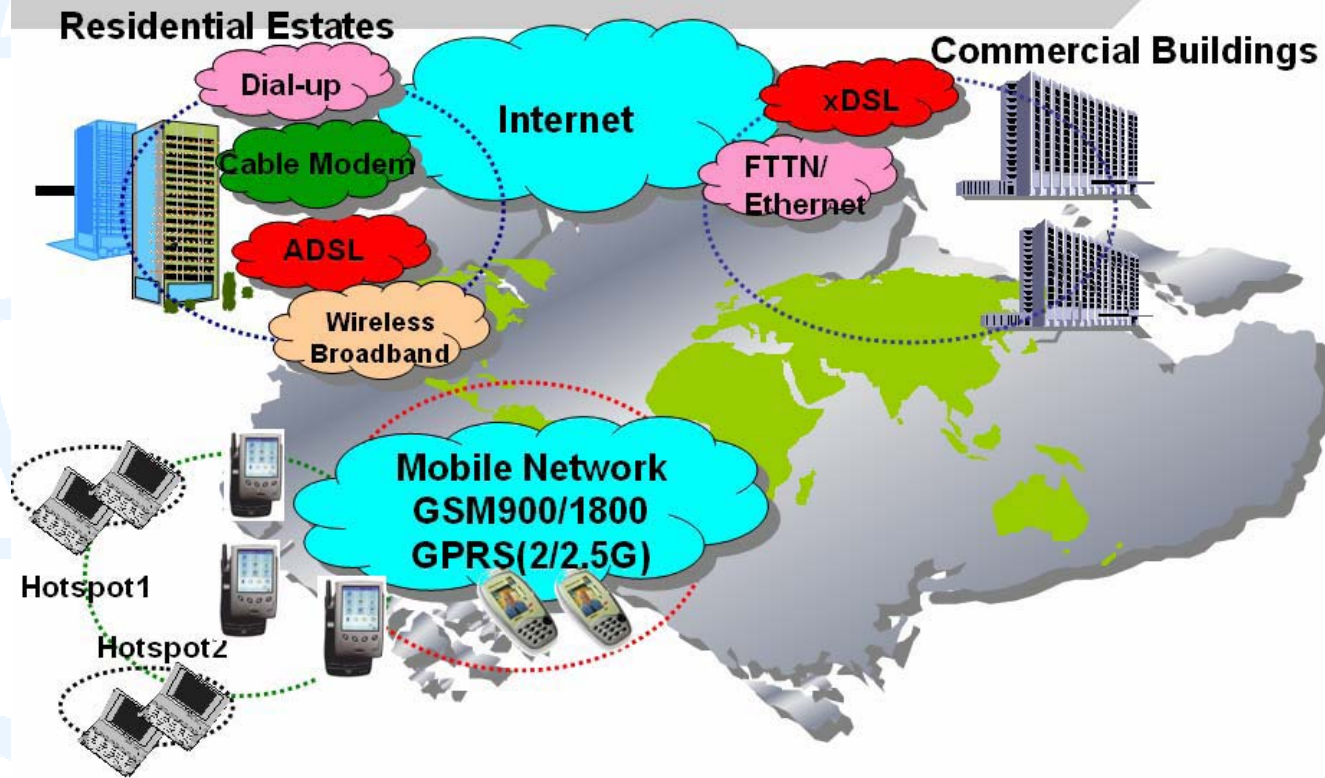


Singapore's vision of the Ubiquitous Network Society

- A “**Next Generation I-Hub**” with the vision of creating “a secured, ultra-high speed and ubiquitous network to drive next generation connectivity”
- **Strategic Thrusts**
 - Infrastructure for a converged network
 - Location sensing network services
 - New input/output devices
 - New computing devices
 - New media/software/content/applications
 - Industry alliances/collaboration for ubiquitous computing

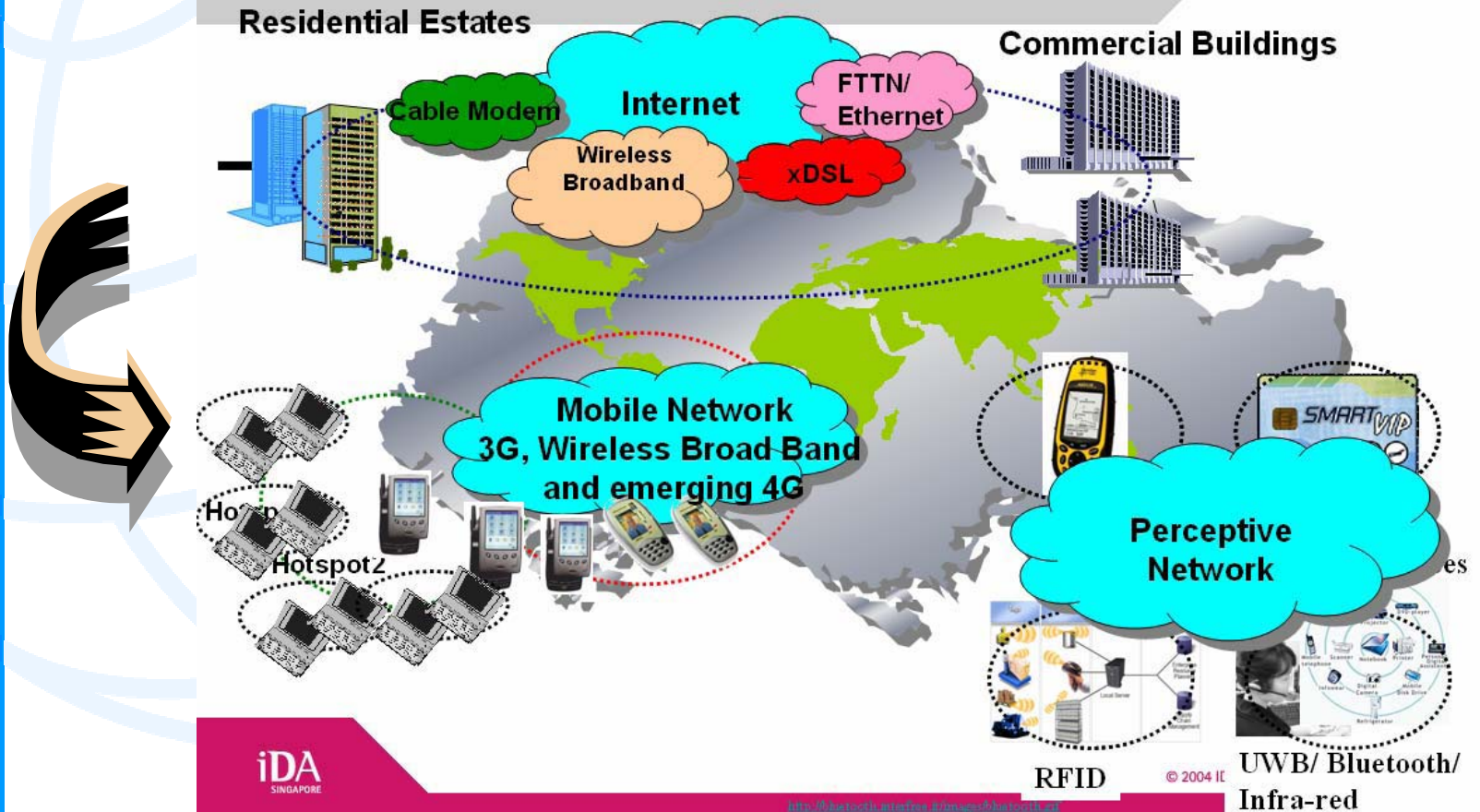
Developing a SupraHub

SupraHub Network Architecture - Now



Developing a SupraHub

SupraHub Network Architecture - 2009

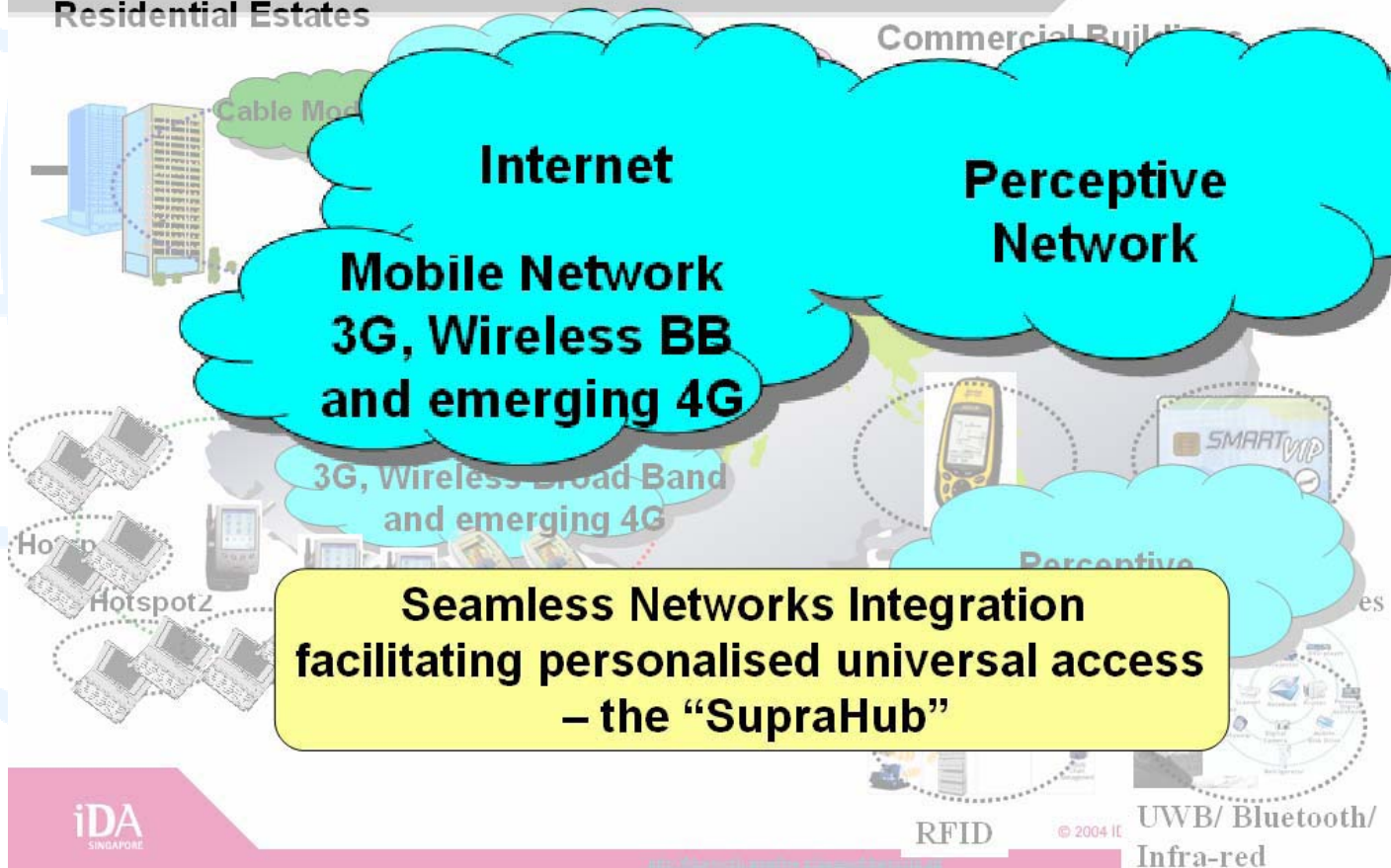


Developing a SupraHub

SupraHub Network Architecture – Post 2009

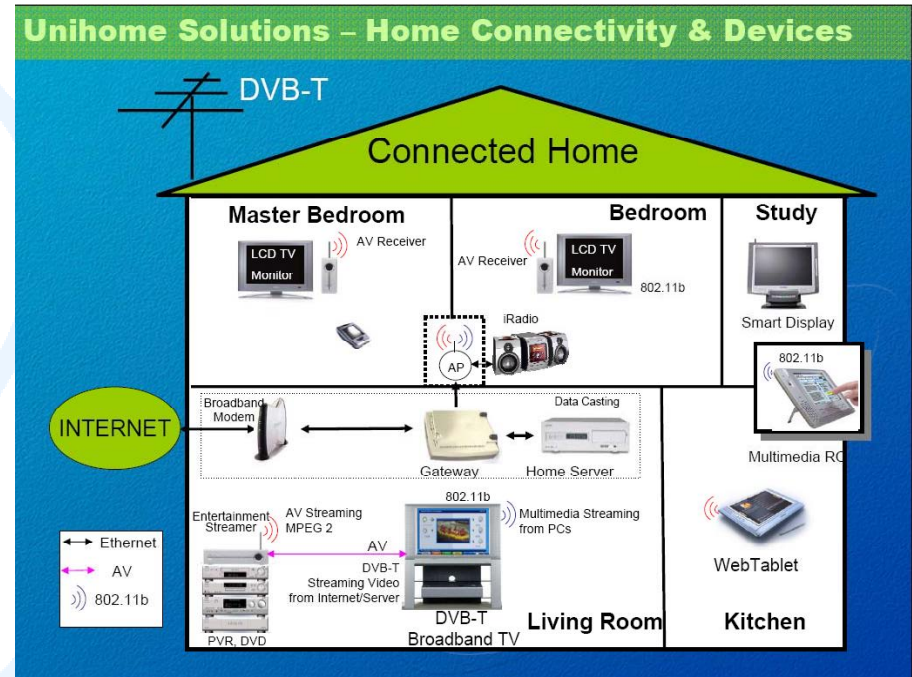
Residential Estates

Commercial Buildings



Connecting ...

- Homes
- Communities
- Schools
- Hospitals ...

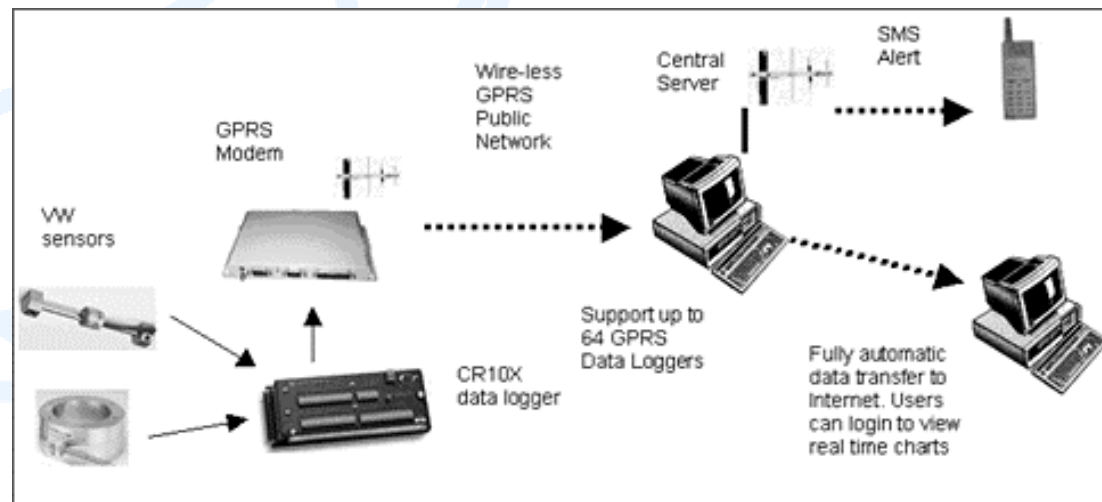


Expanding mobility

- Location based services
- Mobile payments
- Mobile computing
- Machine-to-machine communications (M2M)



M2M monitoring system at a construction site





Developing the RFID value chain

- **Spectrum Policy**
 - Alignment of Singapore's spectrum for RFID applications to 866-869 MHz (Europe) and 923-925 MHz (North America)
- **Research and Development (R&D)**
 - Joint research facilities
 - RFID testing centres and registries
 - Industry alliances (e.g. Singapore RFID Alliance)
- **Skills and Training**
 - RFID skills training at technical and executive levels

RFID applications

- **Transport**

- Road traffic management
- Parking
- Public transport

- **Health**

- **Libraries**

- **Retail**

- **Logistics and manufacturing**

- **Conventions and events**

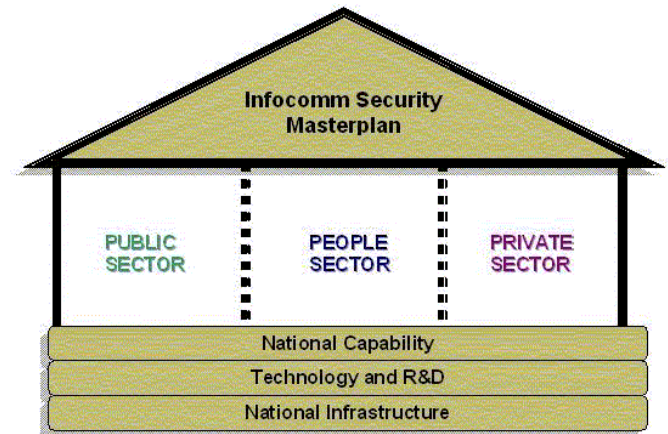
— ERP System for Singapore
ERP = Electronic Road Pricing



Safeguarding the networked society

■ Network security

- Launch of Infocomm Security Masterplan in Feb 2005
- Other initiatives:
 - Public Key Infrastructure (PKI)
 - Trust marks
 - Human resource development
 - Business continuity and disaster recovery



Pictorial Representation of the Masterplan Framework

■ Personal data protection

- Common law and statutory provisions
 - Banking Act, Official Secrets Act, Statistics Act, etc.
- Model Data Protection Code for the Private Sector



Thank you

<http://www.itu.int/ubiquitous/>

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