Welcome to

INSTITUTE OF INFORMATION TECHNOLOGY

Vietnam Academy of Science and Technology

Background

- IoIT - largest and pre-eminent IT research institution in Vietnam
  - One of 30 national member institutes of VAST
  - Leading institution for IT R&D activities
- Brief history: established in 1976
  - Institute of Computer Science and Cybernetics (ICSC), 1976
  - Institute of Informatics (IOI), 1989
  - **Institute of Information Technology** (IoIT), 1993

Vietnam Government

http://www.chinhphu.vn

Government

Ministries

- Ministry of Education and Training
- Ministry of Information and Communications
- Ministry of Science and Technology
- Ministry of Public Security
- Government Office
- State Bank of Vietnam
- ...

Central Agencies

- Vietnam Academy of Science and Technology (VAST)
- Vietnam Academy of Social Science and Humanities
- Vietnam News Agency
- …

Vietnam Academy of Science and Technology

http://www.vast.ac.vn

VAST

Departments and Offices

- Personnel & Organization Department
- International Relation Department
- Planning & Finance Department
- Administrative Office
- …

Research Institutes and Enterprises

- Institute of Information Technology (IoIT)
- Institute of Mathematics
- Institute of Materials Science
- Institute of Biotechnology
- Institute of Geophysics
- Institute of Space Technology
- ...
- Bio-Technology Development Co. Ltd.
- New Technology Application and Tourism Co. Ltd. (NEWTATCO)

Human and Research Resources

- Human resources: organized in 17 research departments
  - 150 permanent members (titled as ***public officers***) including ~40 Dr. Sc., PhDs and ~10 Prof, A/Prof.
  - Respective leading experts in various IT fields in Vietnam
  - Plus about 30 contract-based members
- Facilities: hosting one of the two IT COEs in Vietnam
  - National Key Lab. for Networking Technology and Multimedia
- Notable achievements:
  - Assembling the first PC in Vietnam (1979)
  - The first to introduce Internet to Vietnam (early 1990s)
- NetNam: a spin-off company (early 2000s)
  - One of the first four ISPs in Vietnam

Institute of Information Technology (IoIT)
www.ioit.ac.vn

Department of Administration

Key Lab for Networking Technology & Multimedia

Departments

1. Integrated Software Systems
2. Data Science and Application
3. Software Engineering in Management
4. Software Engineering and IT Solution
5. Geographical Information Systems
6. Pattern Recognition and Knowledge Engineering
7. Management Information Systems
8. Computer Networking and IT Infrastructure
9. Telematics
10. Mathematical Aspects of IT
11. Computational Statistics
12. Automation Technology
13. Applications of IT to Control
14. Expert Systems and Soft Computing
15. Systems and Management Research
16. Virtual Reality Systems
17. Natural Language Processing

Key functions

- Carrying out fundamental researches on IT
- Key IT-related activities:
  - IT applications (software, embedded systems...)
  - Technology transfer and consultation
  - Supervision and appraisal of IT projects
- Graduate education and IT expert training
- Academic activities:
  - National/international scientific conferences and workshops
  - Leading IT journals in Vietnam
- International cooperation

Main R&D topics

- Database, Knowledge Base, Information Systems
- Pattern Recognition
- Computer Vision, Image Processing, Computer Graphics, GIS
- Multimedia, Virtual Reality
- Natural Language Processing
- Software Engineering
- Networking Technology, Telecommunication
- Automation and Control, Embedded Systems
- Socio-Economic Information Systems, Management Research
- Numerical Methods, Statistics

R&D Projects

- International ICT Projects
- State budget:
  - National-level ICT Projects
  - National Scientific Foundation (NSF) Projects
  - National Foundation for Science and Technology Development (NAFOSTED) Projects
  - Ministry-level or VAST' Projects
  - Regular Basic Research Projects (IOIT)
- Private sector:
  - Domestic and foreign enterprises

National Projects

- National Key Program of Science and Technology
  - Vietnamese Language and Speech Processing: Bidirectional Vietnamese - English speech translation in specific domains
  - From 2011 – 2015
  - Leaded by A/Prof. Dr. Luong Chi Mai
- National Targetted Program of Tay Nguyen No. 3
  - From 2011 – 2016
  - Headed by VAST President, Prof. Dr. Chau Van Minh
  - IoIT is in charge of a branch in the program
  - WiMAX coverage in the urban area of Buon Me Thuot City
  - Leaded by A/Prof. Dr. Thai Quang Vinh

NAFOSTED Projects

- Solving methods for monotonic abnormal non-linear operator equation family :
  - 2014 – 2016
  - Leaded by Prof. Dr. Nguyen Buong
- Efficient algorithms for structured data mining and prediction:
  - 2014 – 2016
  - Leaded by Dr. Nguyen Viet Anh
- Hedge algebra research and applications in ICT and automation fields:
  - 2014 – 2016
  - Leaded by A/Prof. Dr. Nguyen Cat Ho

Selected Ministry/VAST-Level Projects

- High-performance computer-based simulation and prediction for tsunami scenarios:
  - 2012 – 2013 by Dr. Pham Thanh Giang
- Intelligent robots control
  - 2013 – 2014 by MSc. Pham Ngoc Minh
- Android-based Vietnamese-English speech translation
  - 2014 - 2015 by Dr. Vu Tat Thang
- Augmented reality technology
  - 2013 – 2014 by MSc. Nguyen Tien Phuong
- Embedded software verification (Bilateral Vietnam-Japan research project)
  - 2011 – 2014 by Dr. Nguyen Truong Thang

Selected Ministry/VAST-Level Projects

- Formal methods for security protocol in networking environment
  - 2015 – 2016 by Dr. Nguyen Truong Thang
- Textpage structure automatic recognition
  - 2015 – 2016 by Dr. Nguyen Duc Dung
- Big data and applications
  - 2014 - 2015 by Dr. Hoang Do Thanh Tung
- Bio-simulating robots
  - 2015 – 2016 by IoIT
- Image-to-text&speech reader for visually impaired people
  - 2015 – 2016 by A/Prof. Dr. Ngo Quoc Tao

Selected Ministry/VAST-Level Projects

- Big data for genetic graph reconstruction
  - 2015 – 2016 by Dr. Ho Bich Hai
- Vietnamese sign language recognition
  - 2015 – 2016 by Dr. Le Hai Son
- Tax fraud detection algorithm
  - 2016 - 2017 by Dr. Nguyen Long Giang
- Intelligent sensing glove
  - 2016 – 2017 by Dr. Luong Chi Mai

Selected Ministry/VAST-Level Projects

- Electronic courseware-building tools for hearing impaired people (Ministry of Information and Communications)
  - 2013 – 2014 by Dr. Ho Bich Hai

Other Notable Research Projects

- Joint research on Bio-informatics project
  - Metabolics research
  - Funded by Ministry of Science and Technology
  - Leaded by VAST (Institute of BioTechnology)
- Joint research on the construction of Vietnamese genetic map
  - Leaded by VAST (Institute of Gene Research)

Application Projects

- Ministry of Public Security
  - National Personal ID Project (2016 – 2021)
  - Network security management system (2005)
- Ministry of Industry and Trade
  - Small MIS projects in trade sector
- Vietnam Academy of Social Sciences (2016 – 2018)
  - Digitalization/modernization of core library
- Ministry of Health (2012 – present)

Application Projects

- Ministry of Education and Training
  - Support for the Renovation of Education Management (SREM Project) (2007 – 2013)
  - Supported by EU and Ministry of Education and Training
- Ministry of Finance
  - General Taxation Office: Computerization of financial activities (2005 – present)
- Embedded systems:
  - Software and hardware co-design
  - Temperature and humidity measurement equipments based on PSoC smart chip

International Projects

- A-STAR: Asian Speech Translation Advanced Research, from ATR (Advanced Telecommunication Research Institute International)
- GRID/Cloud Computing: CNRS (IN2P3) France; VNGrid (PRAGMA); KISTI (Korea); NCHC (Taiwan)
- UNFPA Project: Computer Software and Support for Population Activities
- Microsoft: Development of the training materials on new Microsoft technologies.
- IDEA: Images of natural Disasters from robot Exploration in urban Area (IFI, IOIT, L3i, UniKL)

Education & Training

- Ph.D. Program:
  - More than 60 graduated PhDs
  - Currently, over enrolling 50 PhD students
- Short-term training courses in advanced topics
- Undergraduate/graduate courses at Universities:
  - Developing and teaching syllabus
  - Vietnamese National Uni. (VNU), Thai Nguyen Uni., Hanoi Uni. of Industry, USTH, …

Scientific Conferences/Workshops

- National
  - National Symposium on the Selected ICT Problems (annually)
  - National Symposium “Fundamental and Applied IT Research” FAIR (once every two years)
- International
  - 10th International Conference on Control, Automation, Robotics and Vision (ICARCV2008)
  - 10th Pacific Rim International Conference on Artificial Intelligence (PRICAI2008)
  - 17th Pacific Rim Applications and Grid Middleware Assembly Workshop (PRAGMA17) in October, 2009
  - The IEEE RIVF Conference, Hanoi 2010

International Cooperation

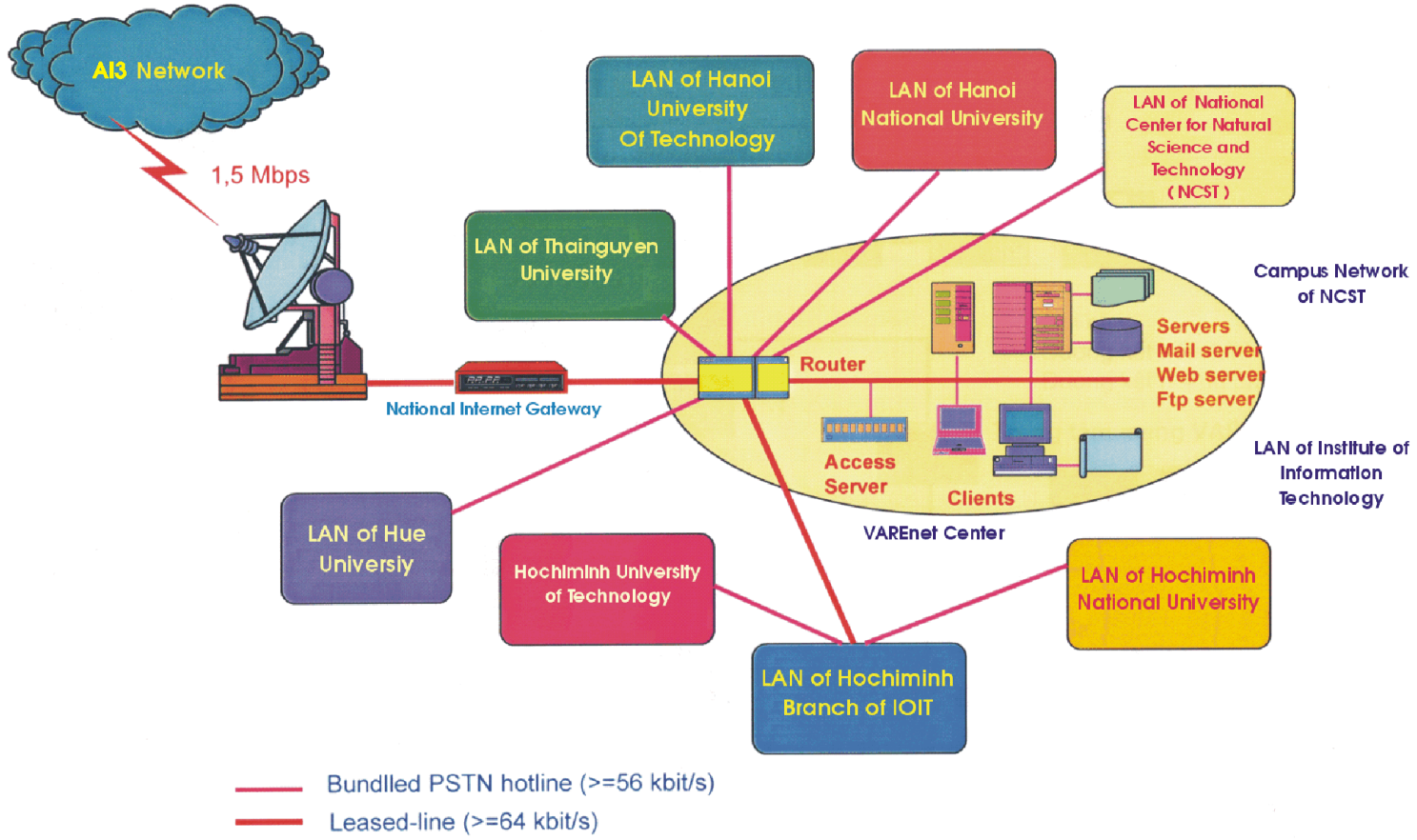
- Japan and ASEAN:
  - JAIST, AIST - research projects (AI, NLP, knowledge engineering, software engineering…)
  - Keio Uni. - Asian Internet Interconnection Initiatives (AI3), School on Internet (SOI)
  - Nanyang Technology Uni. and National University of Singapore
- Europe:
  - Austrian Institute of Technology (AIT) – largest R&D body in Austria
  - Promoting Internet Policy and Regulatory Reform, with Internews Europe
- North America:
  - IDRC, Canada - Vietnamese portal, e-learning platform, Micro Impacts of Macro Economic and Adjustment Policies.
  - University of California, San Diego
- Private sector:
  - Microsoft Innovation Center at IOIT
  - Panasonic, System Center NANO Corp.

Some Activities

The first PC in Vietnam (1979)

WIDE

VARENet


AI3 Network
1,5 Mbps
National Internet Gateway
LAN of Hanoi University Of Technology
LAN of Hanoi National University
LAN of National Center for Natural Science and Technology (NCST)
LAN of Thainguyen University
Campus Network of NCST
Servers
Mail server
Web server
Ftp server
Router
Access Server
Clients
VAREnet Center
LAN of Institute of Information Technology
LAN of Hue Universiy
Hochiminh University of Technology
LAN of Hochiminh National University
LAN of Hochiminh Branch of IOIT
Bundlled PSTN hotline (>=56 kbit/s)
Leased-line (>=64 kbit/s)

TEIN- VINAREN

www.vinaren.vn

(TEIN: Trans-Eurasia Information Network; VINAREN: Vietnam Research and Education Network)

International link:

- To Hongkong hub
- 155Mbps

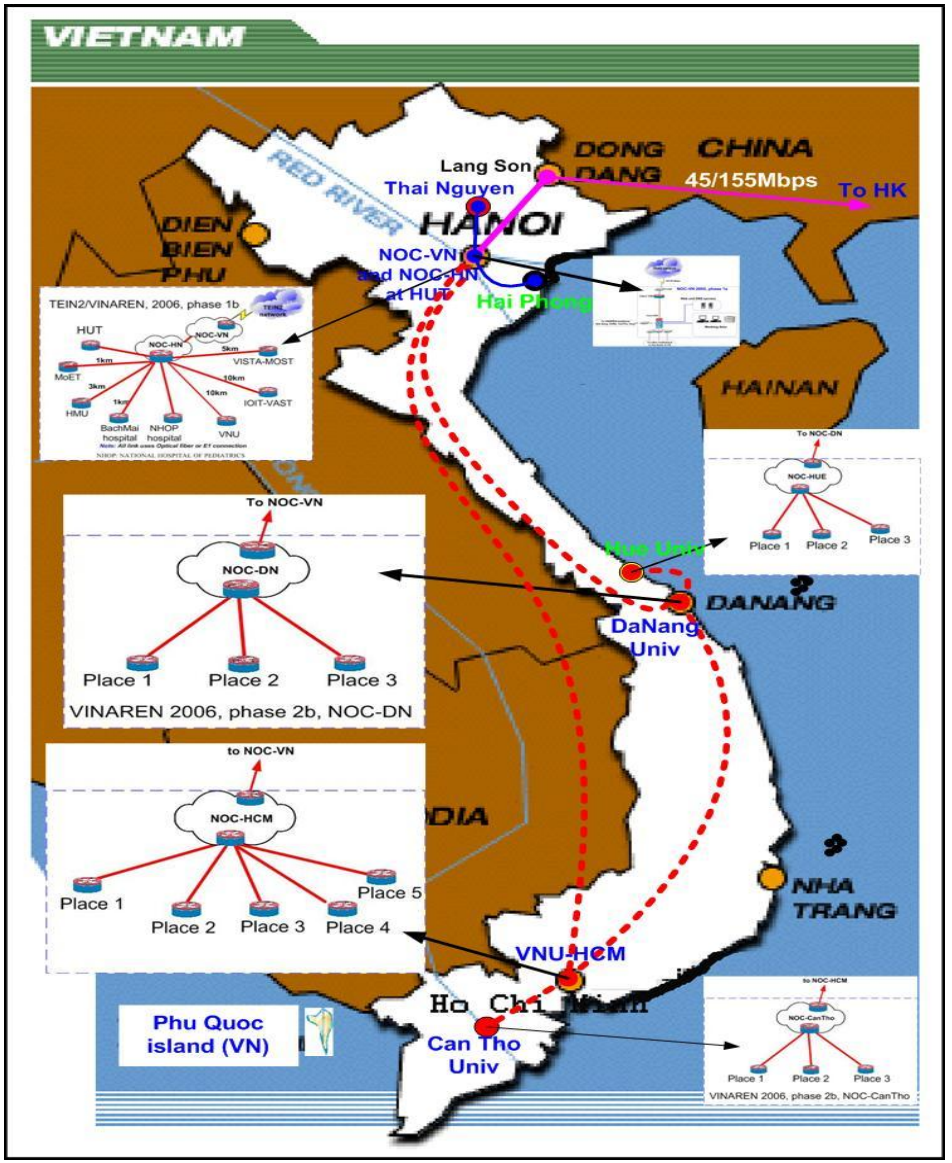
Domestic backbone:

- Hanoi – Danang – HCMcity
- 45Mbps

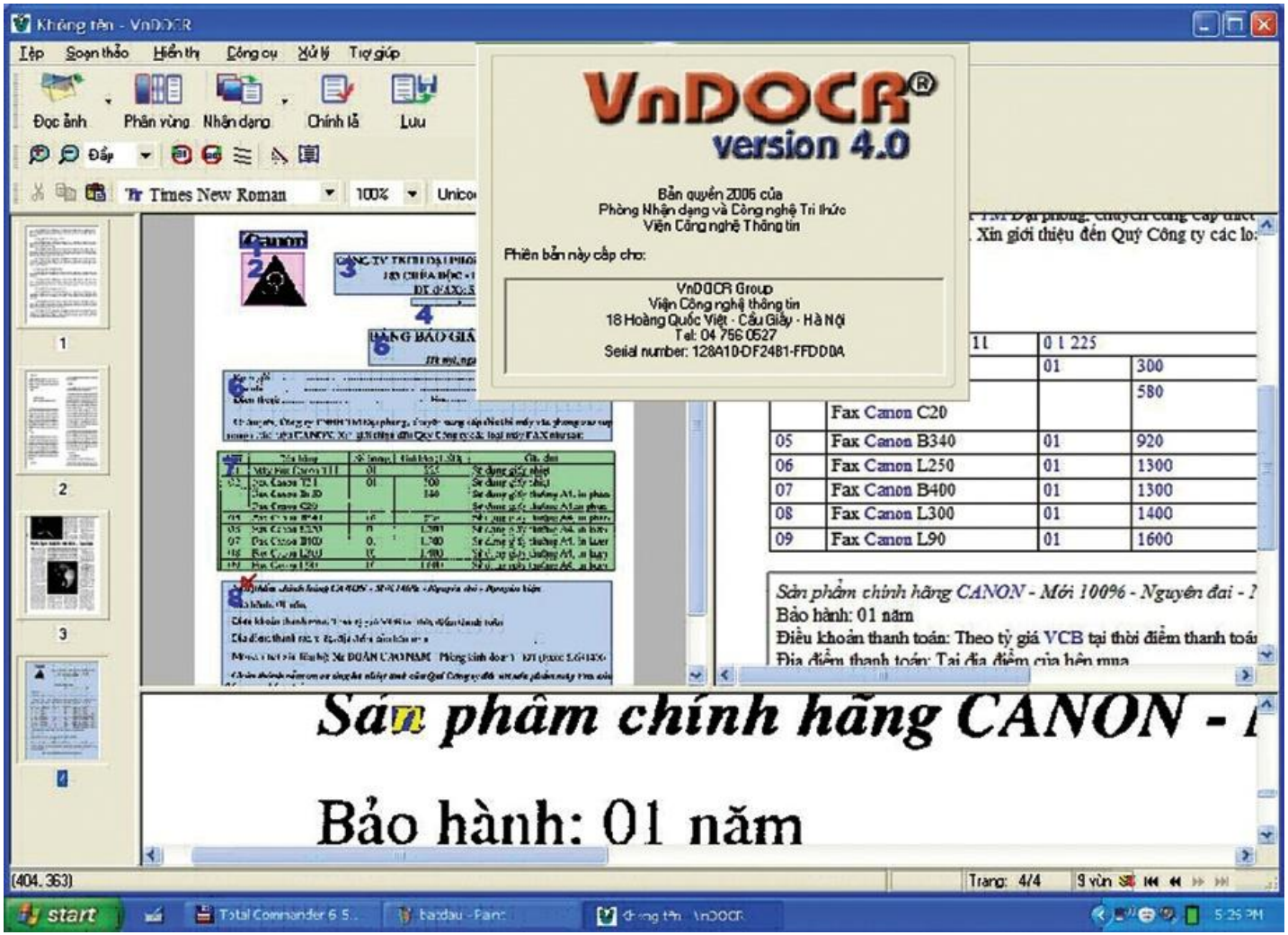
Domestic partners:

- HUT
- VNU
- VAST

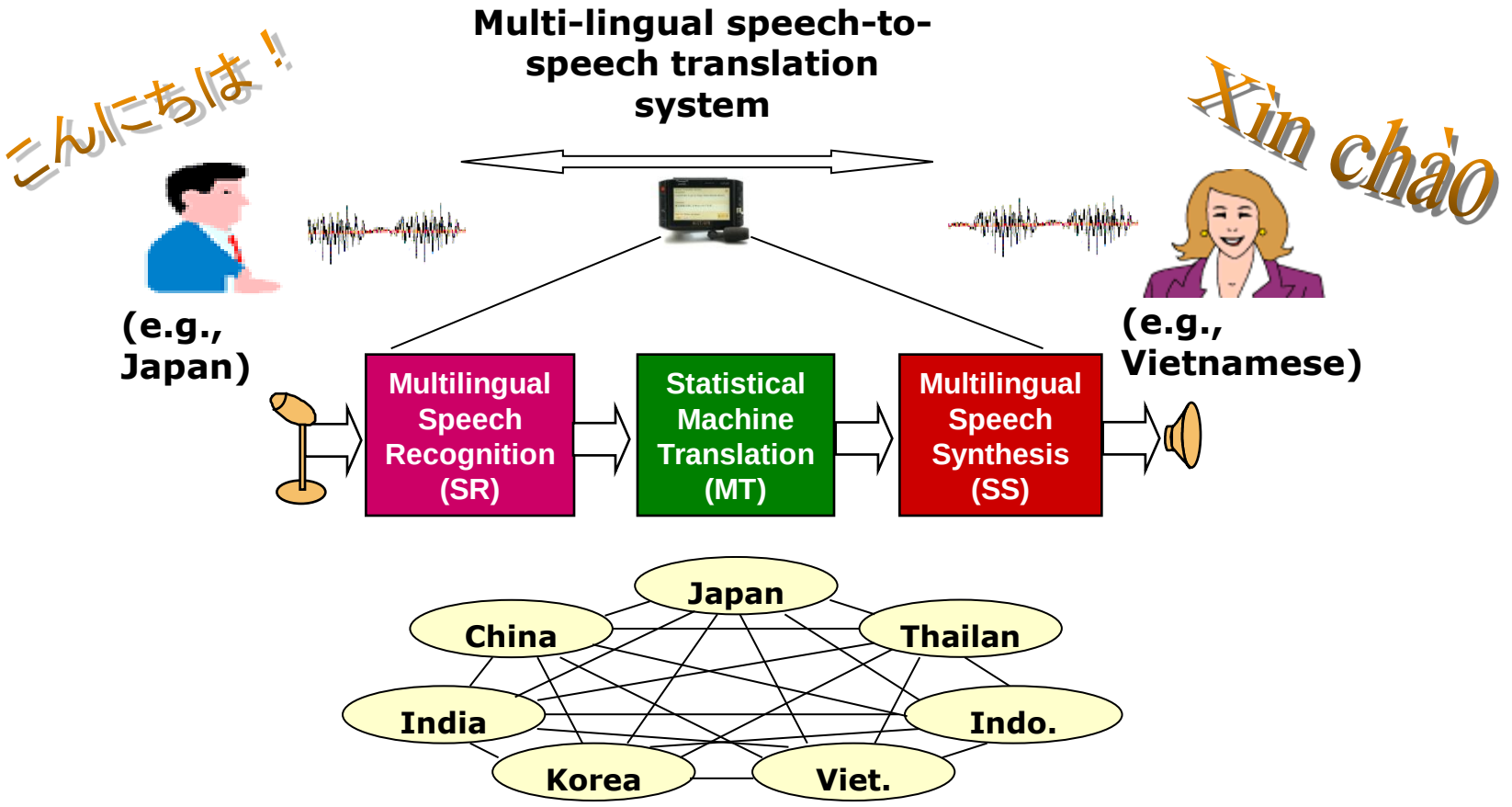
Co-ordinator: Ministry of Science and Technology



The OCR Software for Vietnamese Printed Documents

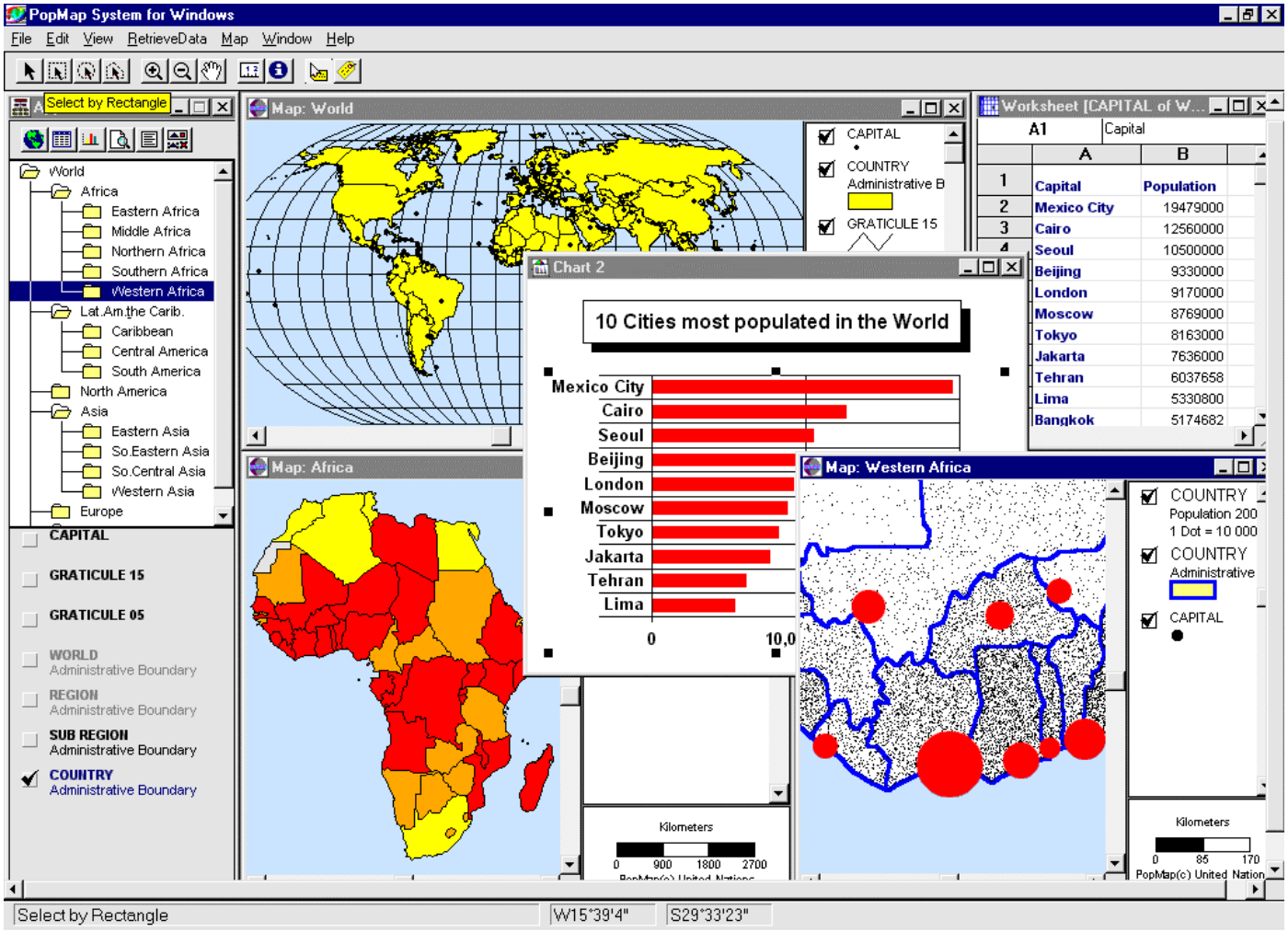


Speech-to-Speech Translation Project

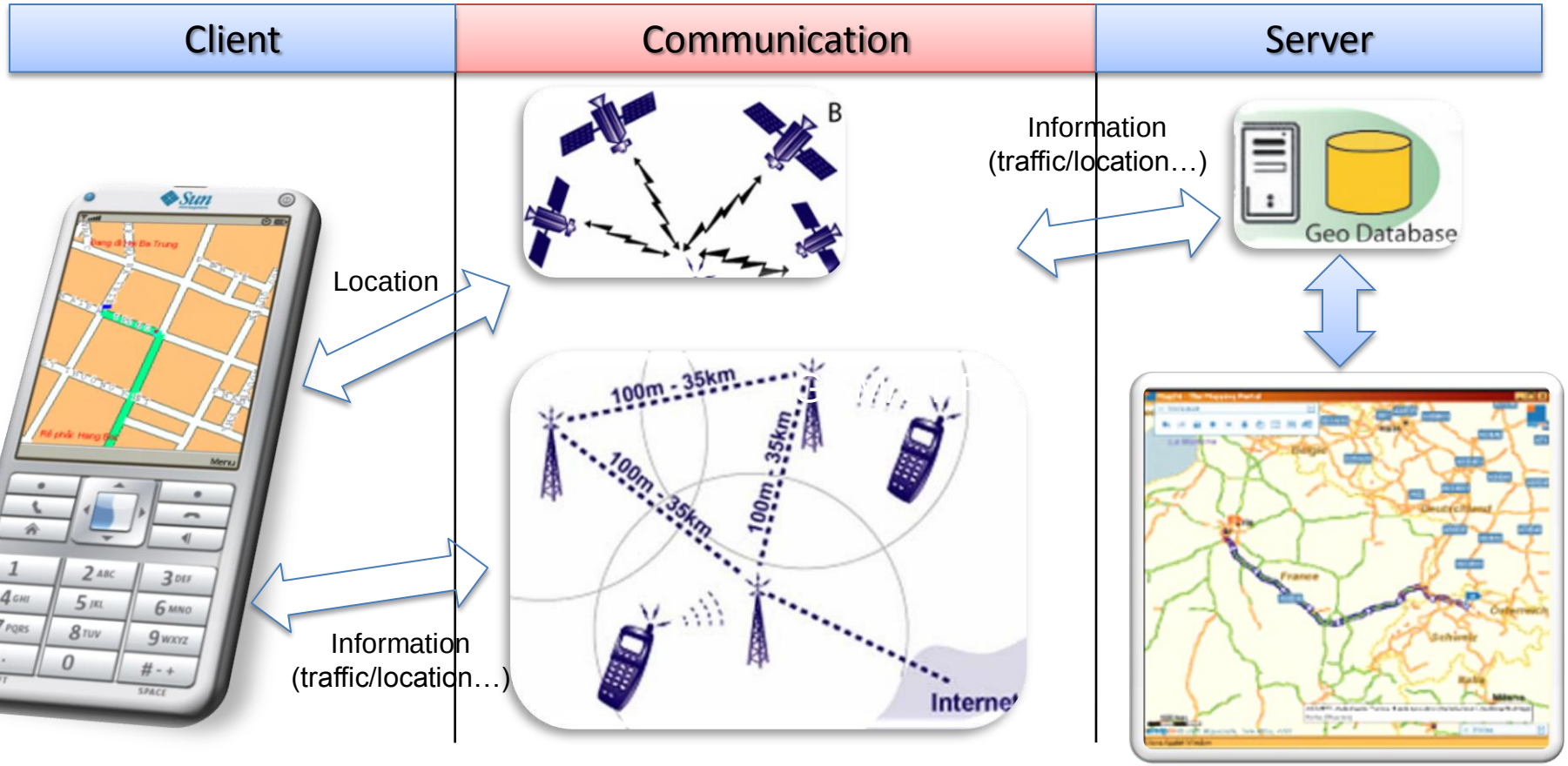


First trial international demo: ***March 27th 2009***
Final International demo: August 2009

PopMap: A GIS Software



PANav: A Location-Based Service



Using PANav Control System

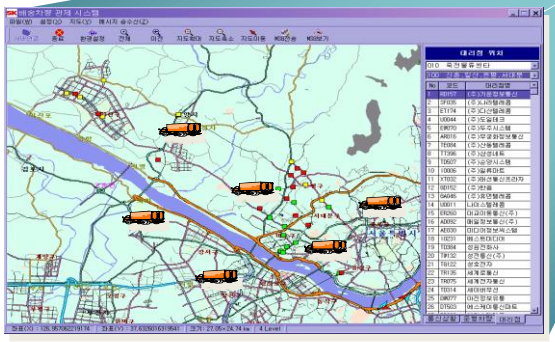
Wireless Communication Network

② Receive location messages

④ Make a request phone call

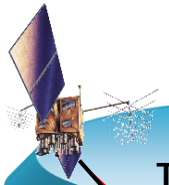
Control Center: PANav Control System

③ Display position, status



① Send location message

⑤ Control vehicle



Mobile Terminal: PANav

⑥ Make a request to the Taxi Control Center

Customer

Service Flow for PANav Control System: Taxi Monitoring

Automatic Equipments

MIC Vietnam

Some Awards for IOIT Products

Contact Information

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Thank you!