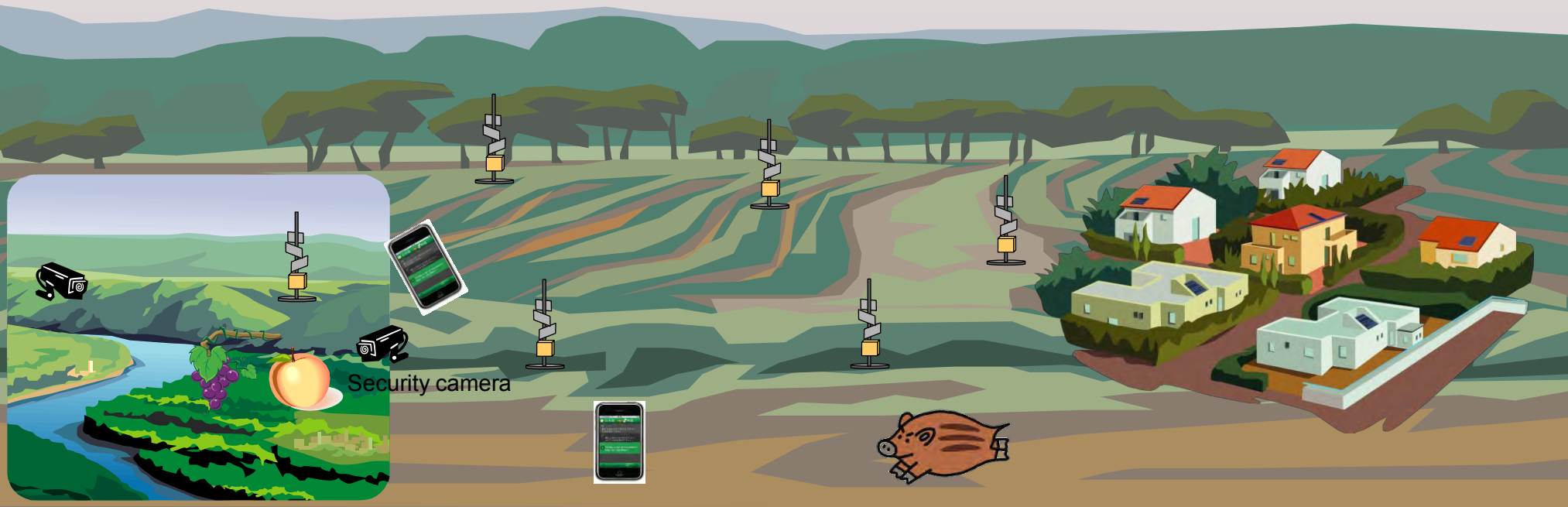


NICT collaborates with ASEAN Countries

***- Social Renovation by ICT from Asia
at the Entrance of the Smarter Communication World -***



Fumihiko “Tom” Tomita, Dr. Sci.
Chief Research & Strategy Officer, Vice President,
NICT: National Institutes of Information and Communications Technology, Japan



Collaboration Items

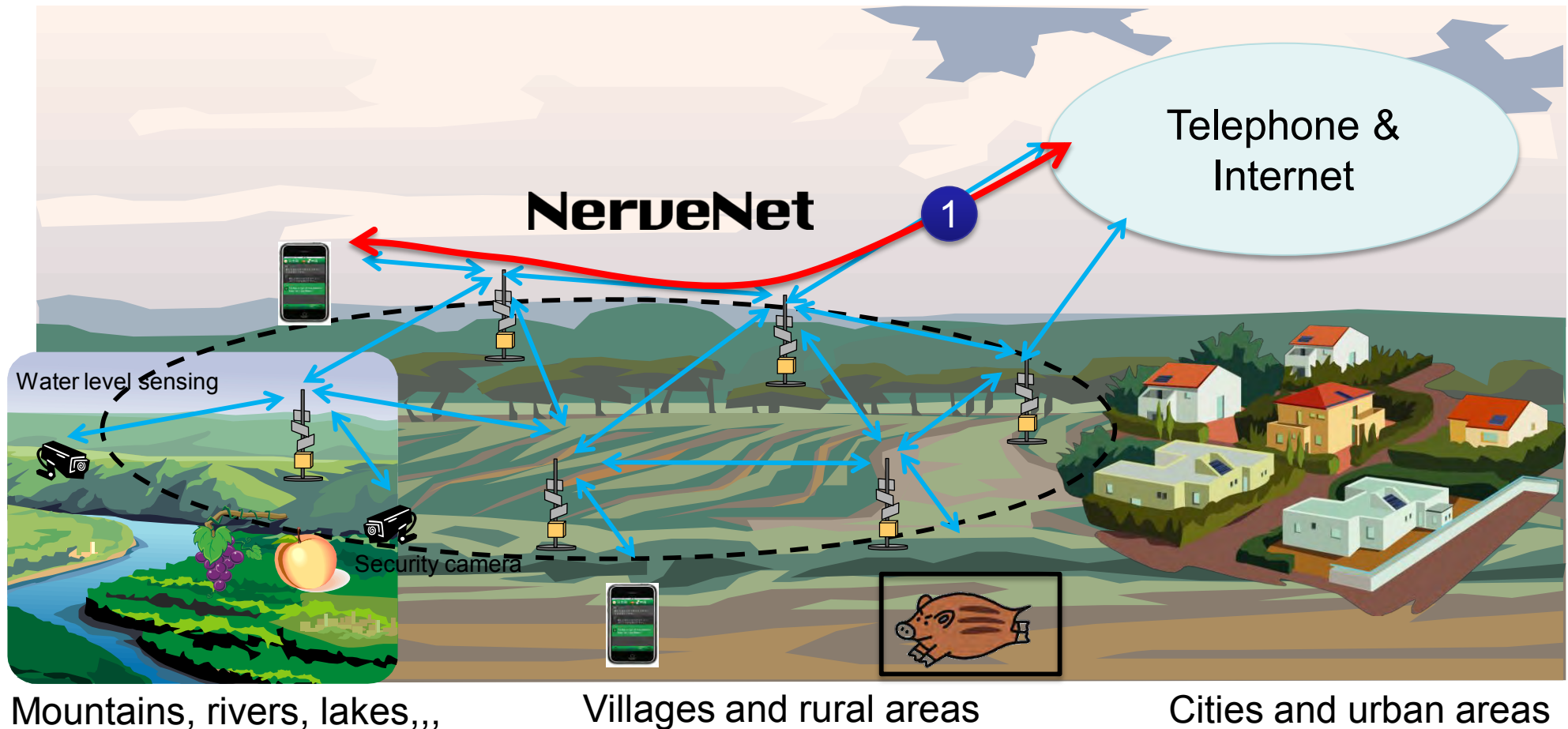
-illustrations-

1. Regional distributed wireless network (NerveNet)
2. Voice multilingual translation
3. NTP server
4. ICT paradigm shift from Asia



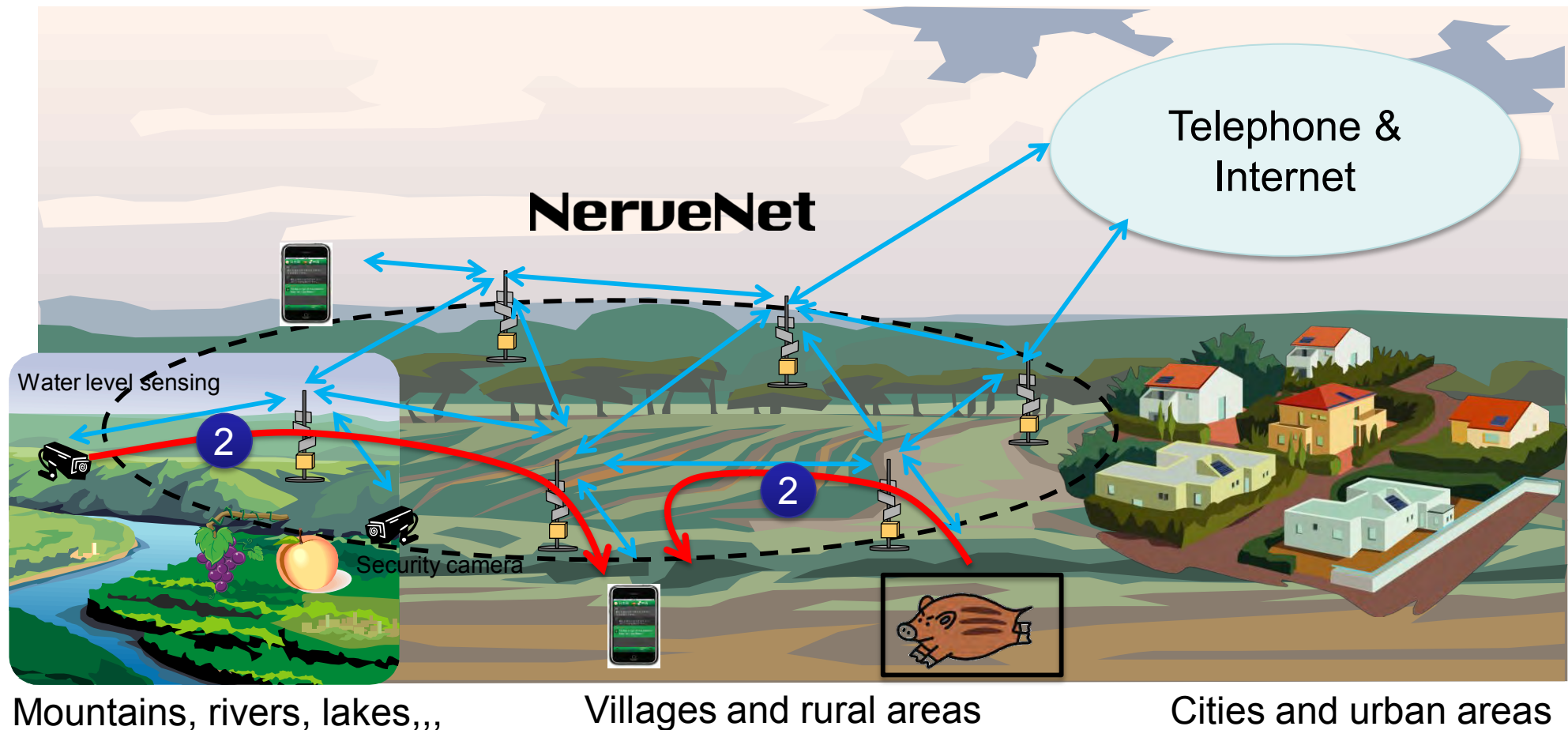
NerveNet – a regional network like a nervous system

1. Provides universal access to the Internet at low cost



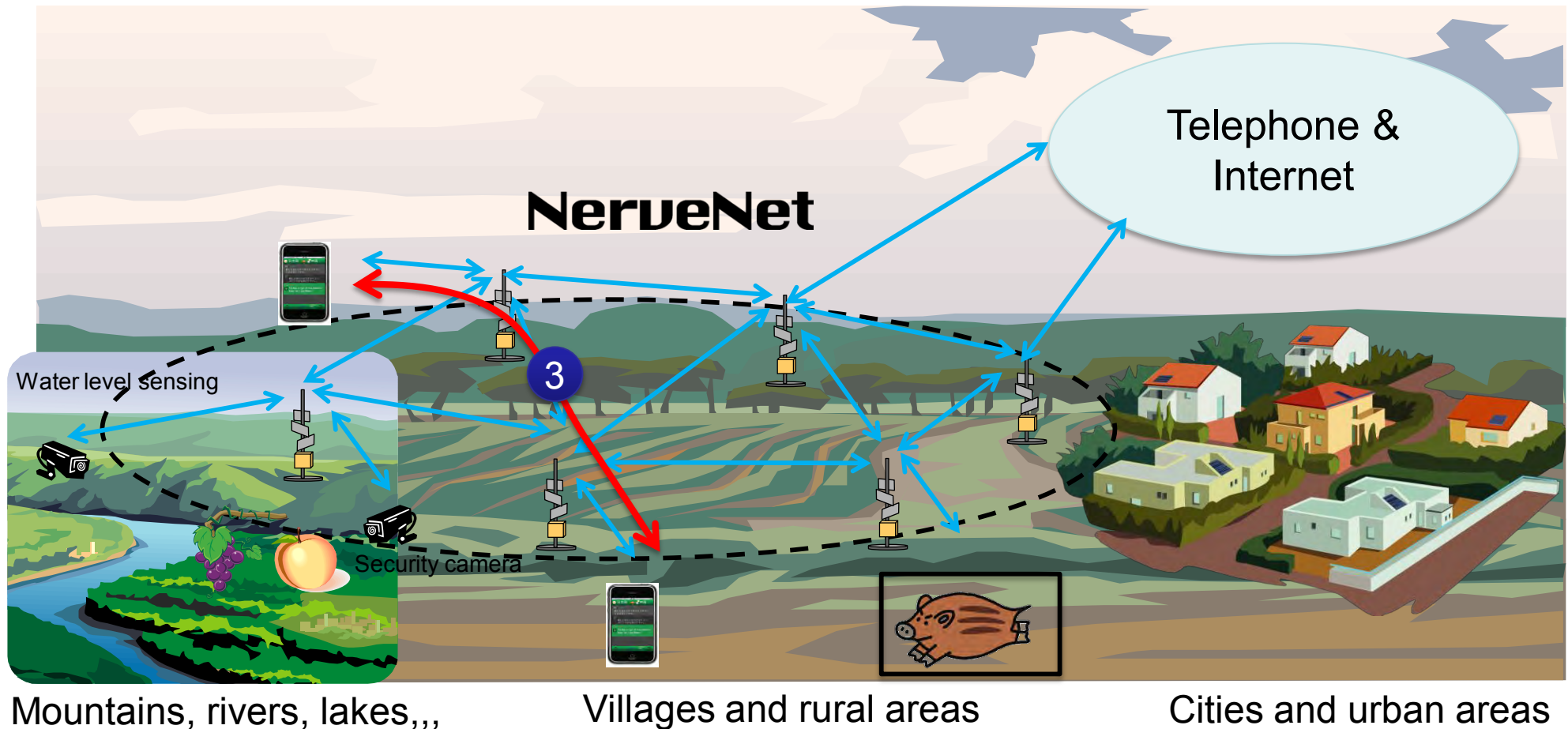
NerveNet – a regional network like a nervous system

2. Gives security against disasters and sensing/alert services



NerveNet – a regional network like a nervous system

3. Allows local communications without cell-phone network and the Internet



Cambodia: Tele Centers (TC) Along National Road No.6

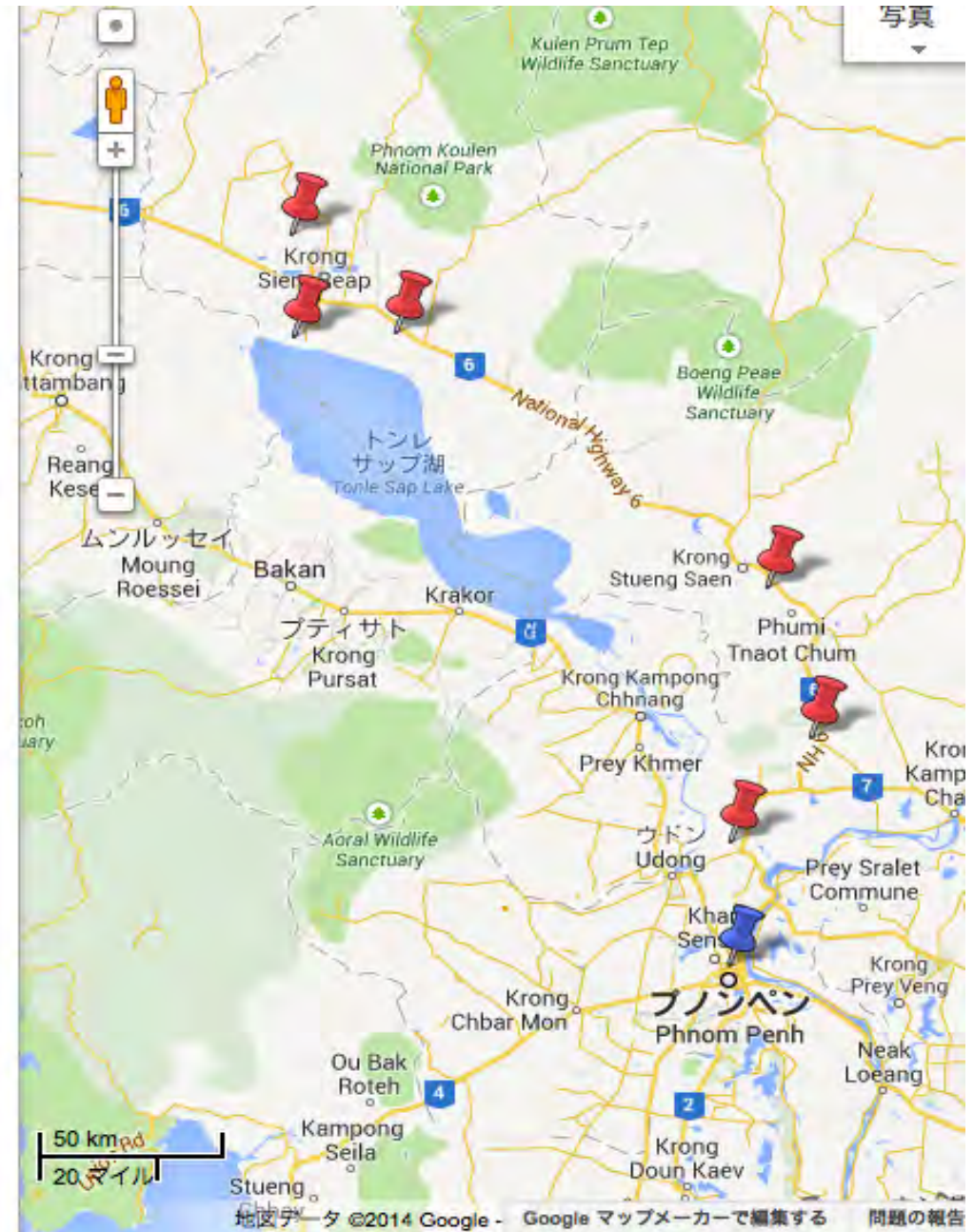
Tele-Center

限定公開 (URL で共有) · 表示回数 0

6月12日作成 · 投稿: Masugi · 4分前更新

この地図に評価を付ける · コメントを投稿 · KML ·

-  **Chealea Tele-Center**
11.911285, 104.927422
-  **Sampong Chey Tele-Center**
11.911285, 104.927422
-  **Chrorb Tele-Center**
12°35'25.0"N 105°01'14.2"E
-  **Kchas Tele-Center**
13°16'28.2"N 104°04'49.8"E
-  **Chong Kneas Tele-Center**
13°16'28.2"N 104°04'49.8"E
-  **Svay chek Tele-Center**
13°31'55.2"N 103°48'55.3"E
-  **Ministry of Post and Telecommunication**



- Solar panel
- GSM signal
- No fiber





~ 10 PCs



Storage battery
(2000VA)





Information board



A list of cell-phone numbers
of persons in the village

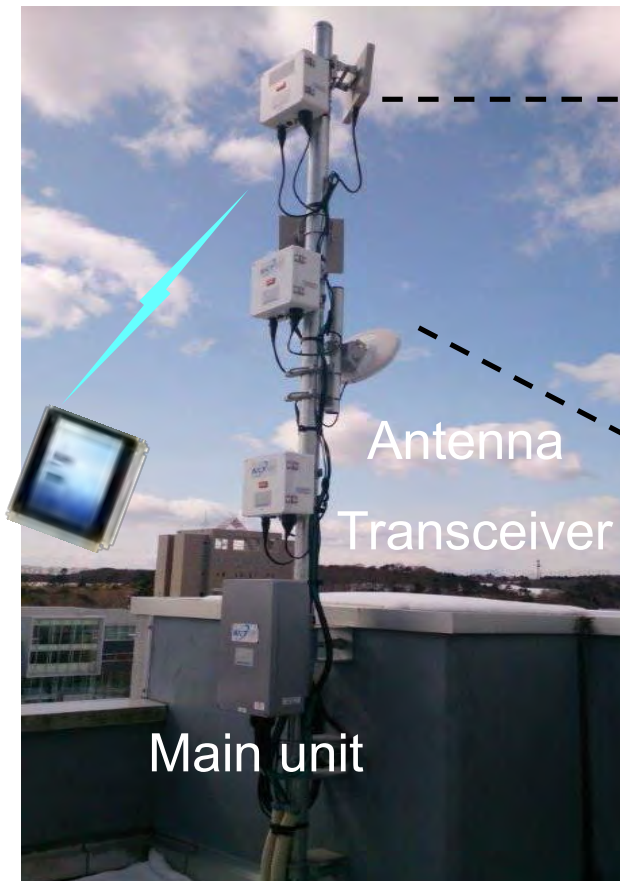
NerveNet Basestation

Main unit : 1 piece

Pairs of radio transceiver and antenna: 2 – 4 pairs

} Less than 50Watt

- one pair for accommodating WiFi appliances
- others for interconnecting basestations (mesh link)



Variations of mesh link

- WiFi
- FWA
- Satellite
- Ethernet





Communications and Networking

- Layer2 Packet Switch
- Mesh topology configuration



- ① Strong against link disconnections, failures of base stations, and blackout
- ② Easy to expand service area
- ③ Data access in emergency
- ④ Data sharing and voice call without Internet

Information Processing

- Database
user info., maps, evacuation routes, sensor data,,,
- Service Functions
Web server, device discovery, call management, handover,,,



Locations

Public buildings, schools, hospitals, stations, evacuation areas,,,

Shapes

Digital Signage, car and bike sharing stations, bus stops, solar power generation units, wind power generation units, electrical vehicle charging stations, LED lamp posts,,,



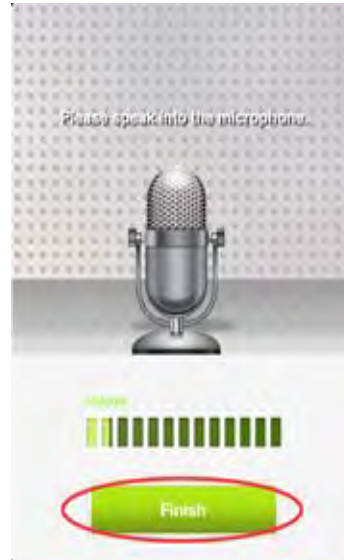
Voice Multilingual Translation

Guideline



1. Single Mode

Tap the 'mic icon' at the bottom.



2. Input Speech

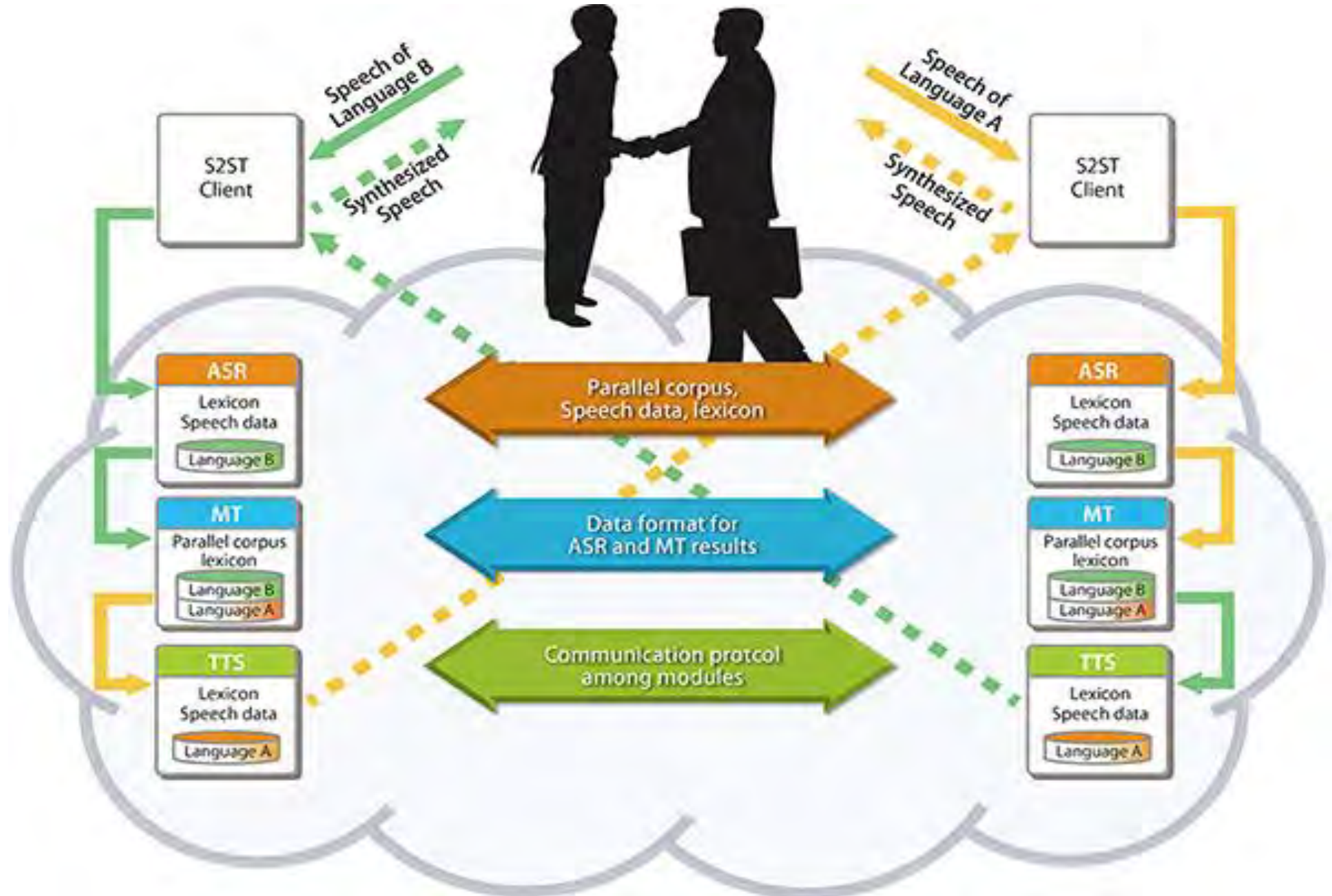
Speak into the mic when the above screen is displayed. Tap "Finish" when you're finished. .



3. See Translation Results

Tap the 'language icon' at the bottom right to switch languages.

Protocols of Network-based Speech-to-Speech Translation



(The Universal Speech Translation Advanced Research Consortium)

Overcoming Language Barriers Around the World



National Standard Time



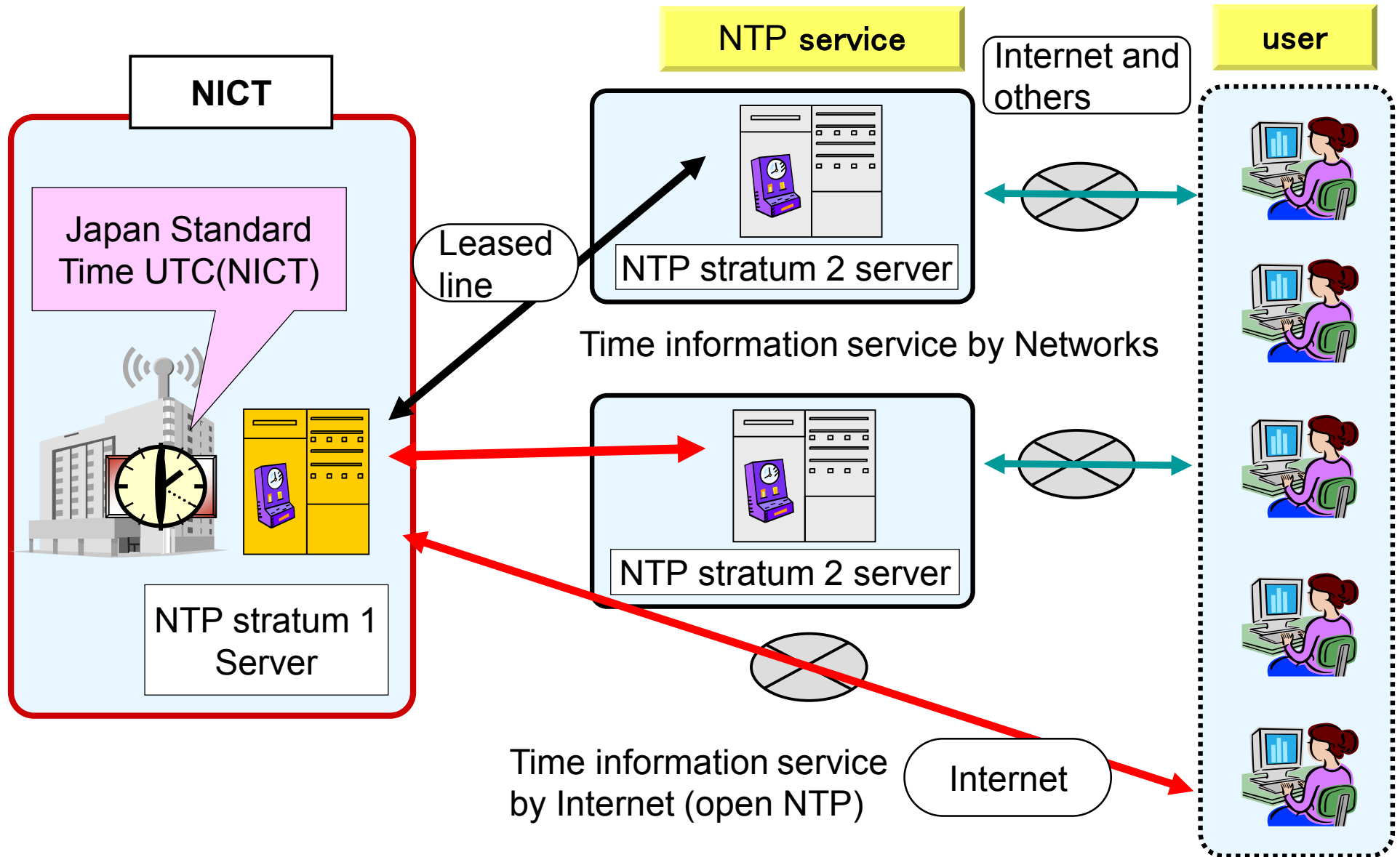
Currently, more than 60 countries are maintaining own National Standard Time. The other countries are relying on accurate time information from Global Navigation Satellite System (GNSS) and public NTP services from other countries.

Accurate time is necessary for many social activities :

Scientific Research, Economy (Bank Transaction, Stock Exchange),
Transportation, Satellite Navigation, Telecommunication, etc.



Concept of NTP Service





NTP Server



Rb

GPS Receiver

High Performance Hardware NTP Server developed by NICT.

- Can handle 1 million requests / sec and secure.
- Operational since June 2006 : High Reliability.
- Can be equipped with Rubidium Oscillator (Atomic Clock).
- Can ensure traceability to UTC through time comparisons.
- Available from E3-Design Inc. at the price of ~20k USD.



- National Metrology System and Standard Time is a key infrastructure for economy and social life.
- Second (Unit of Time) is the most accurate unit in the 7 SI Units.
- NICT can contribute your country to establish National Standard Time and disseminate it through a public NTP server.
- As the first step of standard time generation, this NTP server is very useful. However, since this system is originally the time dissemination system, it is the minimum system of time generation, and cannot be controlled actively.



Phase 1 (- 1990):

Creation of Computer and Network Systems

Phase 2 (1990 – 2010):

Creation of Cyber-world

Phase 3 (2010 -):

*Value Creation on the Fusion of Real World & Cyber World
by Commercial Solutions and Academic Solutions,
and Social Solutions*



Phase 1 (- 1990): Creation of Computer and Network Systems

Good technology attracts mass users

R & D



New Products & Service



Society

Good chef attracts good guests





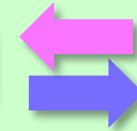
Phase 2 (1990 - 2010): Creation of Cyber-world

Users select the good Services

R & D



New Products & Service



Society

Guests select the good foods





Phase 3 (2010 -):

Value Creation on the Fusion of Cyber World and Real World



Field oriented innovation and wide variety of users

*Value Creation by Commercial Solutions
or Academic Solutions
or Social Solutions*

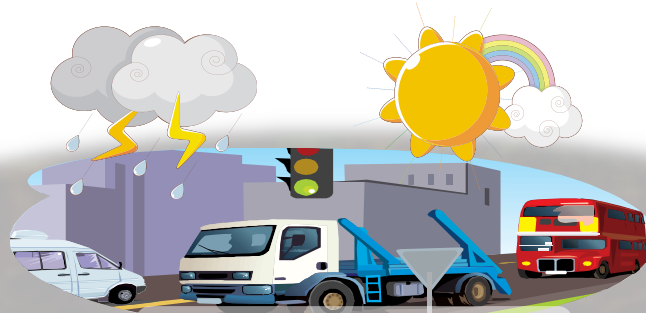


**Wide variety of guests in Asian market
and in the food court**





BIG BUSINESS



REAL WORLD



ACADEMIA



SMALL BUSINESS



CYBER WORLD



GOVERNMENT

SOCIAL · BIG · DATA



Collaboration with Domestic & International Society

- Frontline of Social Issue = Local Governments
 - Regional ICT Forum; Collaborations with Domestic Local Govs.
- ASEAN Region
 - Establishing a new academic office in Chulalongkorn University (Thailand)
- Roundtable with MOU Partners in ASEAN Region



Roundtable with MOU Partners
(November 2013)



- **Internship Trainee**
 - Period : one month to 1 year
 - Support : Air Tickets, Apartment, Living Allowance
 - Master course and PhD students, Post Doctorates.
- **Invited Advisor**
 - Short time period (typically < 1 month)
 - Support : Air Tickets, Accommodations, Living Allowance
- **Cooperative Visiting Researcher**
 - Maximum Period : 1 year (renewable)
 - No financial supports from NICT

***For World Human Happiness
and Endurable ICT***

***Let's Start
Friendly Communication for
Cooperative Innovation***

ご静聴感謝いたします

Thank you very much

<http://www.nict.go.jp/en/>

