Open and Global ICT Innovation Platform for Future Smarter Communication World

IoT Challenges @NICT: National Institutes of Information and Communications Technology

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National Institute of Information and Communications Technology

The sole national research institute in the field of ICT in Japan

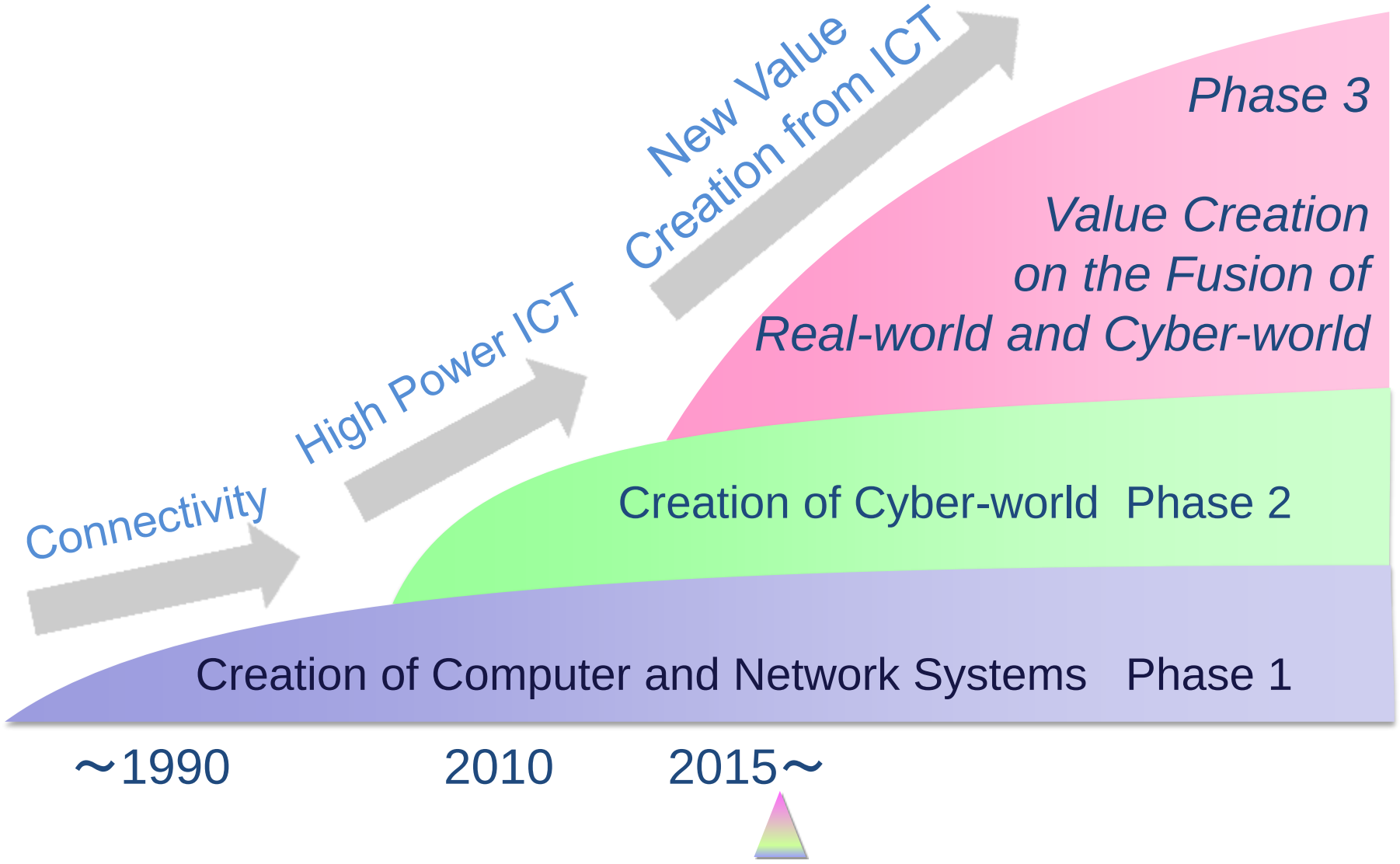
- Promoting its own research and development
- Cooperating with and supporting industry and academia

Public Services
- Japan Standard Time
- Space Weather Forecast…

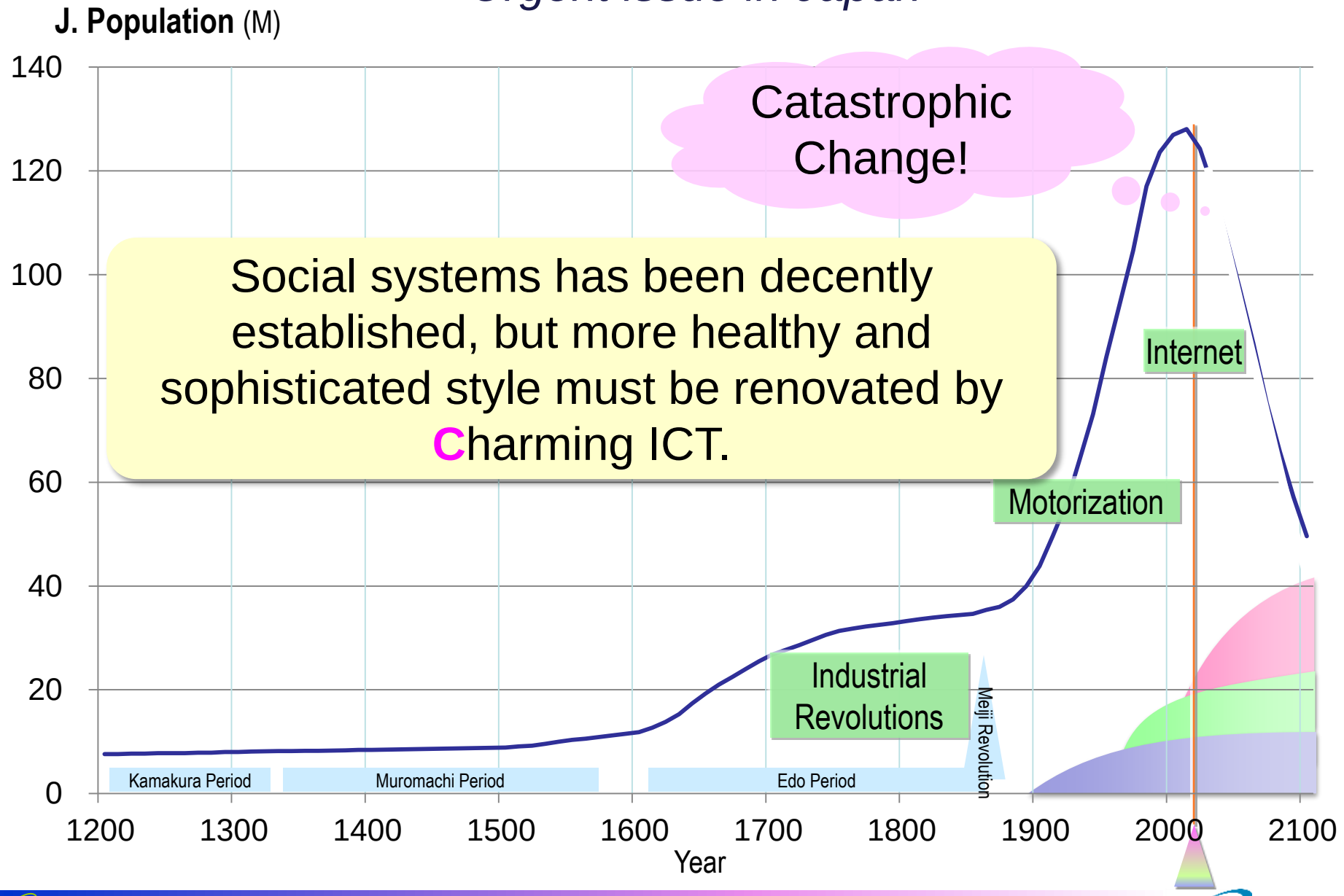
Industry/Academia/Government
Innovation Platform

1. **Strategic R & D**
2. **Open Innovation**
3. **Global deployment**

History and 3rd Paradigm of ICT



Social Renovation ***"Create new value for economic growth"***
- Urgent issue in Japan -



Data Driven Innovation for Quality of Social Life

REAL WORLD

SENSING & NETWORK

SPIRAL !

CYBER WORLD
BIG-DATA SYSTEM

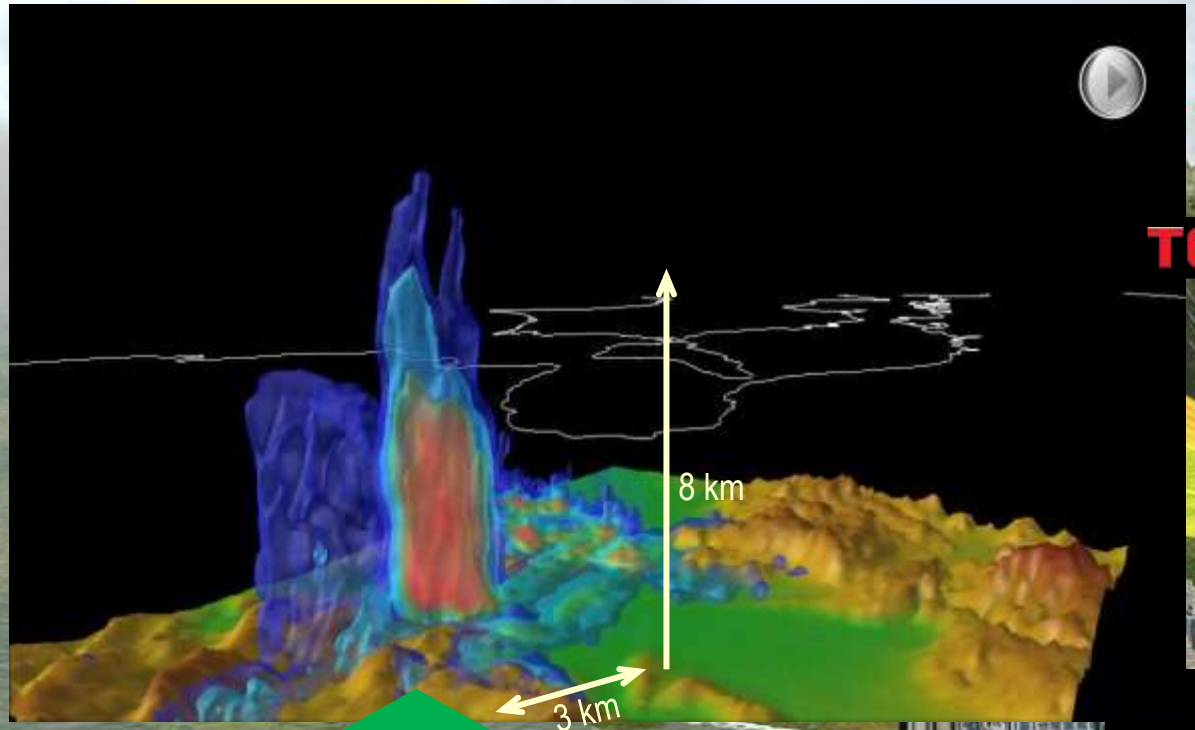
ACTUATION
VALUE CREATION

UNPRECEDENTED
SECURITY

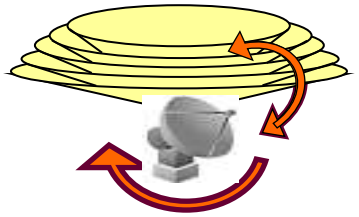
COMPATIBILITY
WITH PRIVACY

Next-Generation Phased Array Weather Radar

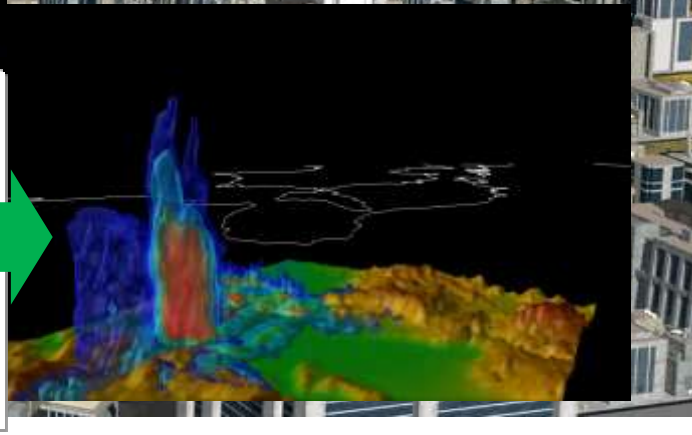
- 3D heavy rainfall and tornadoes at a spatial resolution of 100m **within 30 secs**.
- Prediction of sudden and localized meteorological phenomena



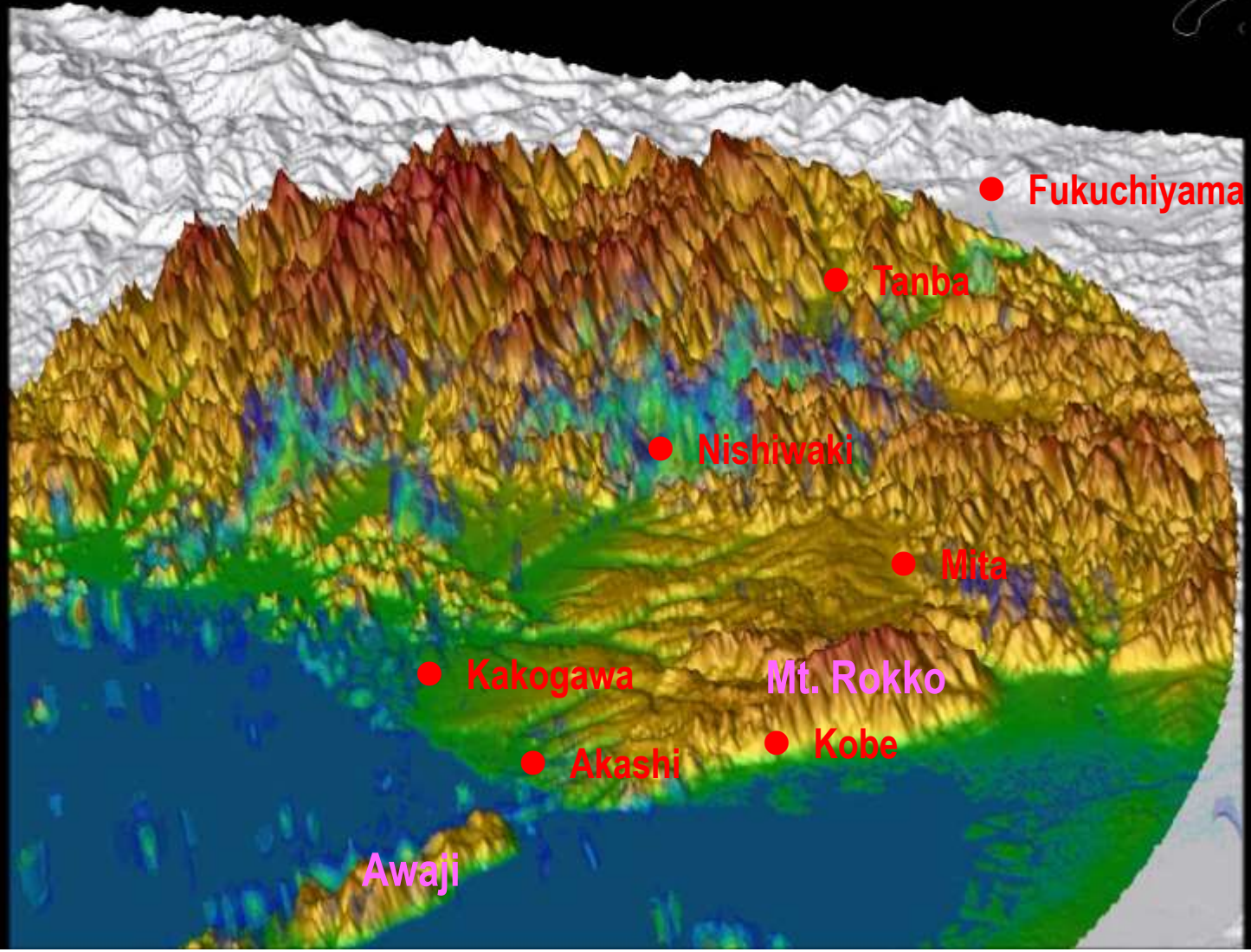
Phased Array Radar:
10-30 sec.



Parabolic antenna:
5-10 min.

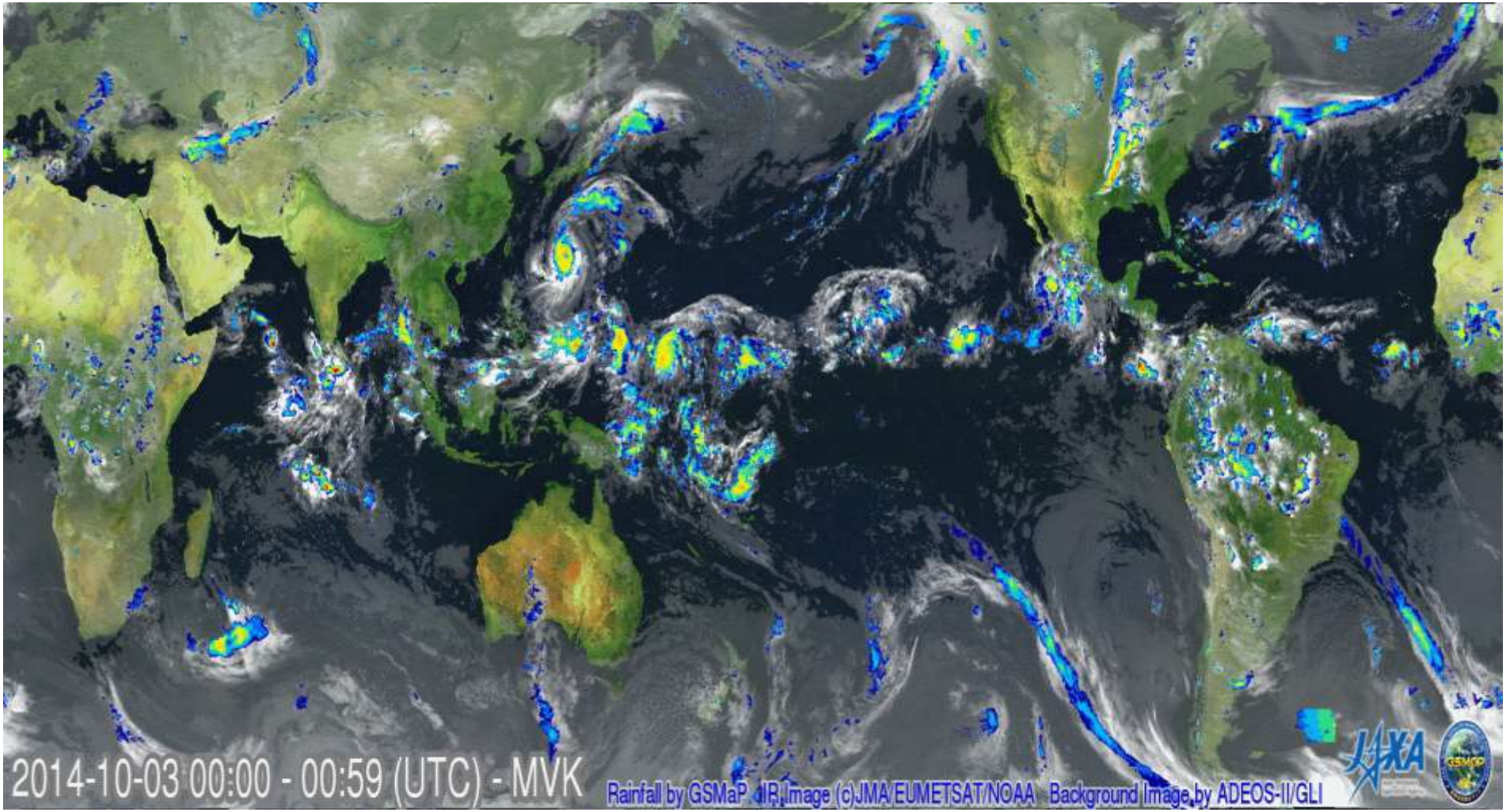


Unexpectedly Localized Heavy Rain: 2014 Aug.16,21:00 - 17,05:00 (300x speed)



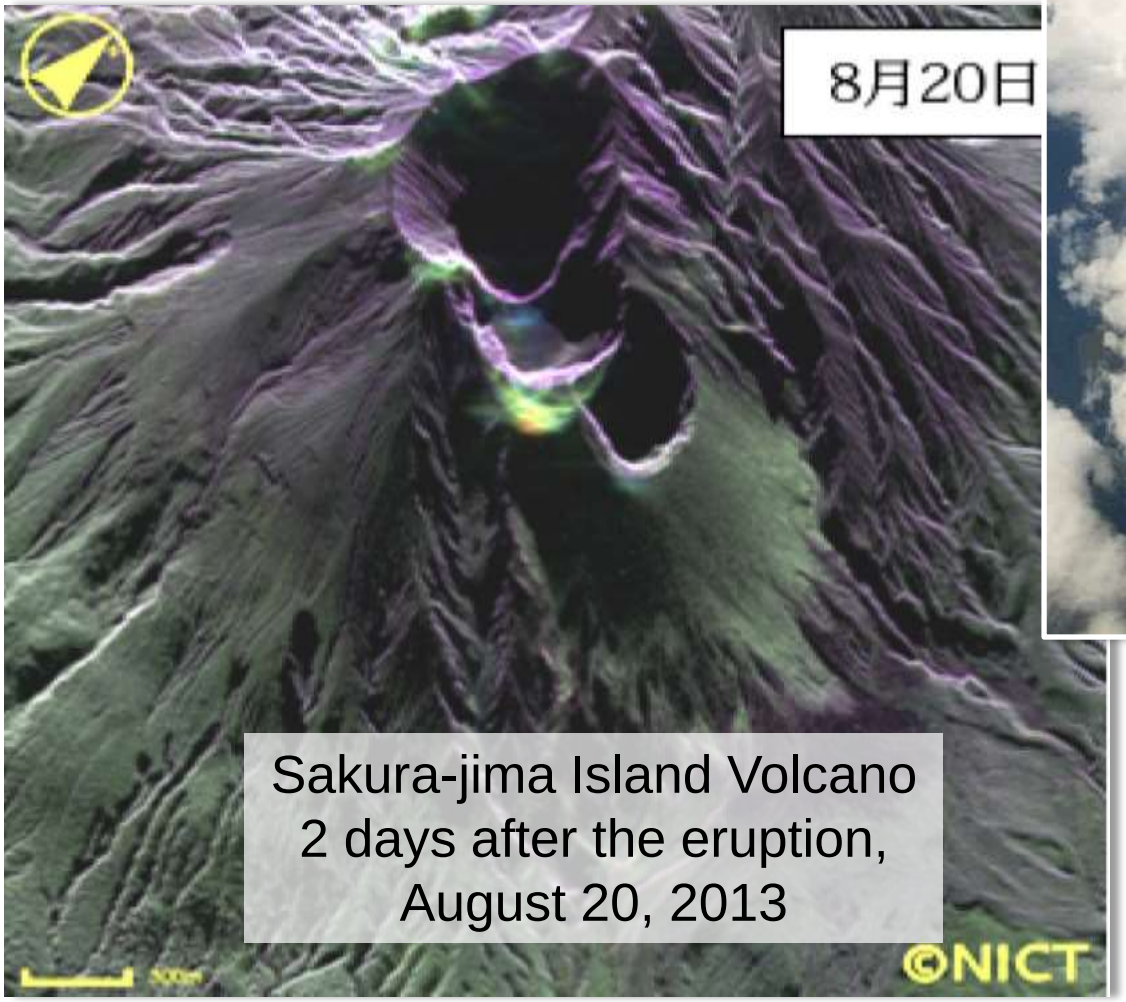
Global Satellite Mapping of Precipitation

http://sharaku.eorc.jaxa.jp/GSMaP/

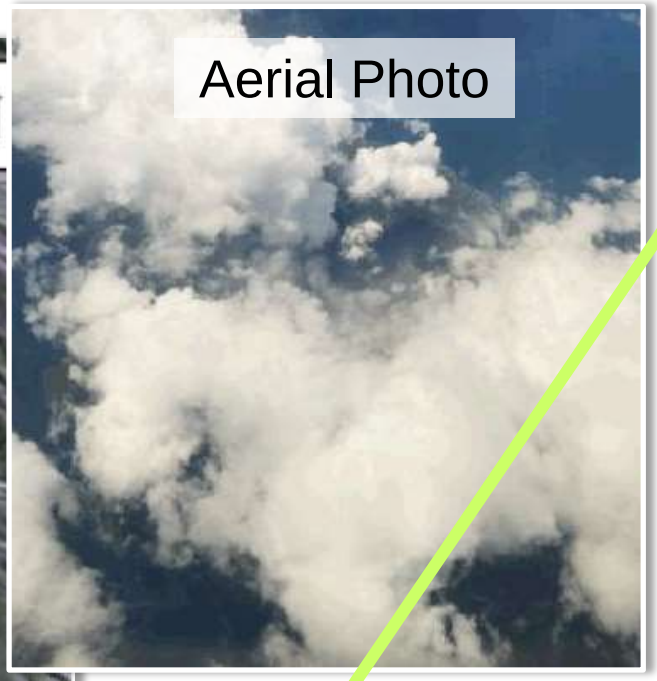


Volcano Eruption Observation by Pi-SAR2

Precise (30cm) polarimetric color image（through clouds, day and night）can be transferred to the ground in near real-time（**10 mins.**）



Sakura-jima Island Volcano
2 days after the eruption,
August 20, 2013



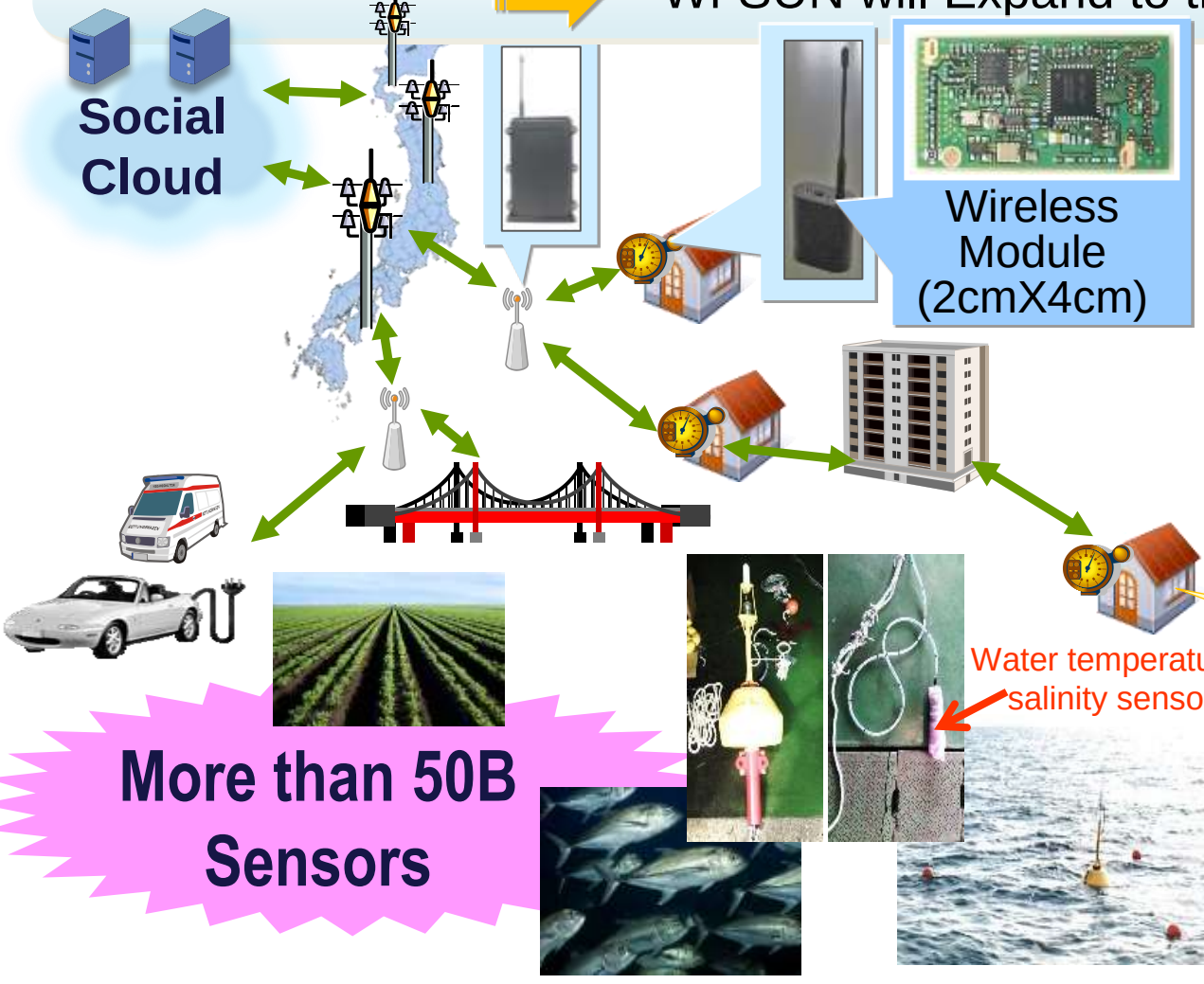
Pi-SAR2

Ground
Photo

Wireless Smart Utility Network (Wi-SUN)

World's First Small-Sized and Low-Power "Radio Device" Compliant with Smart-Meter Standards of "ECHONET Lite" and "Wi-SUN"

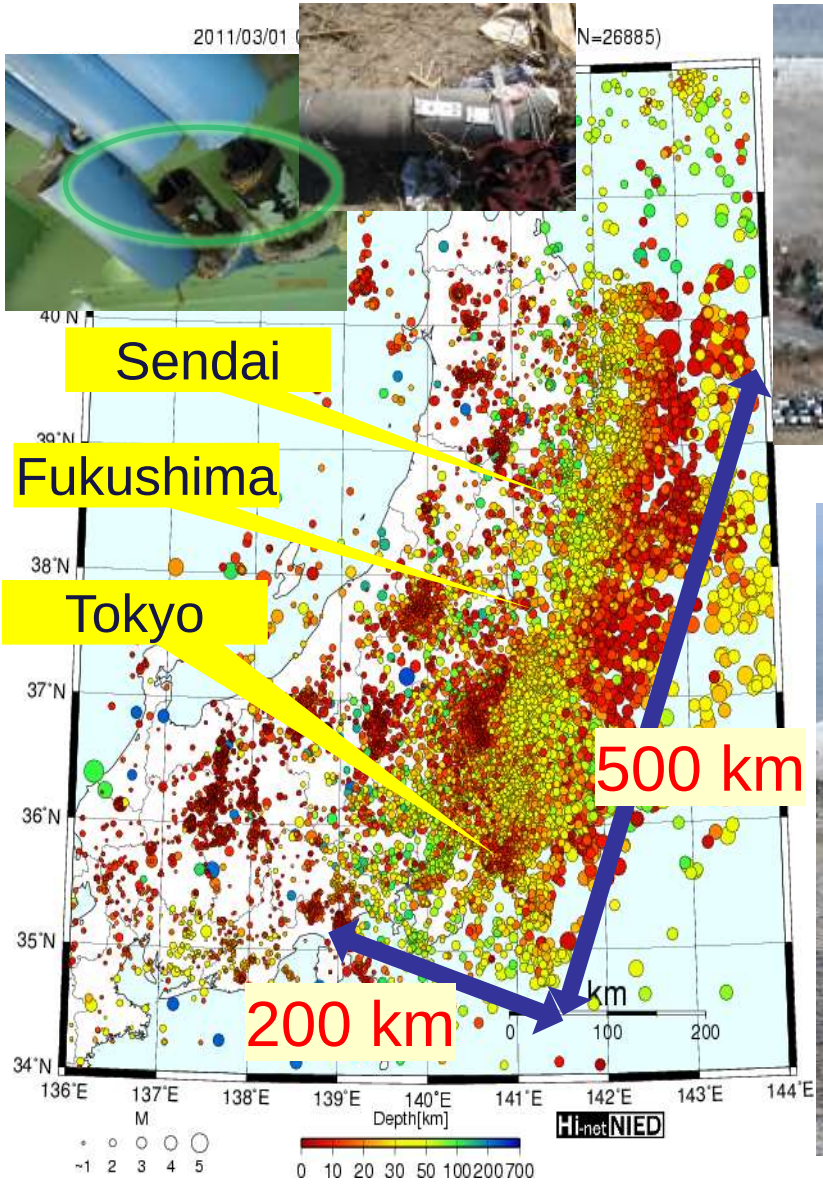
Wi-SUN will Expand to the Sensor Network World



More than 10-year operation driven by an AA battery

Communication range is automatically expanded by multi-hop transmission

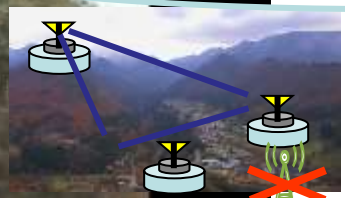
2011 Disaster and Endurable ICT

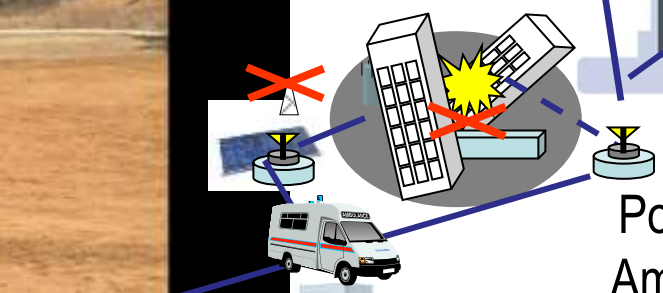


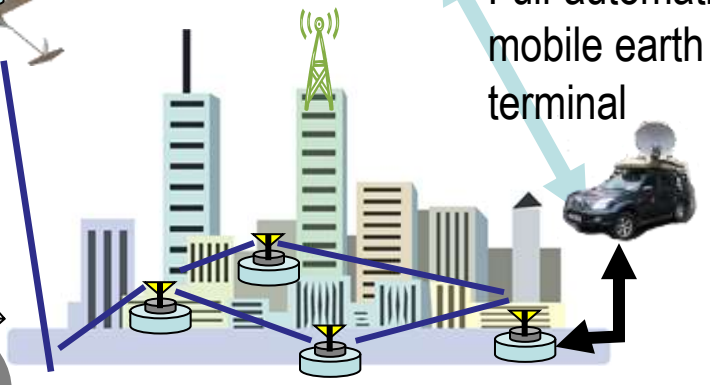
Disaster x ICT
First-Aid Network / Dependable Mesh Network

Connecting isolated areas

Flexible bridging networks by UAV / satellite







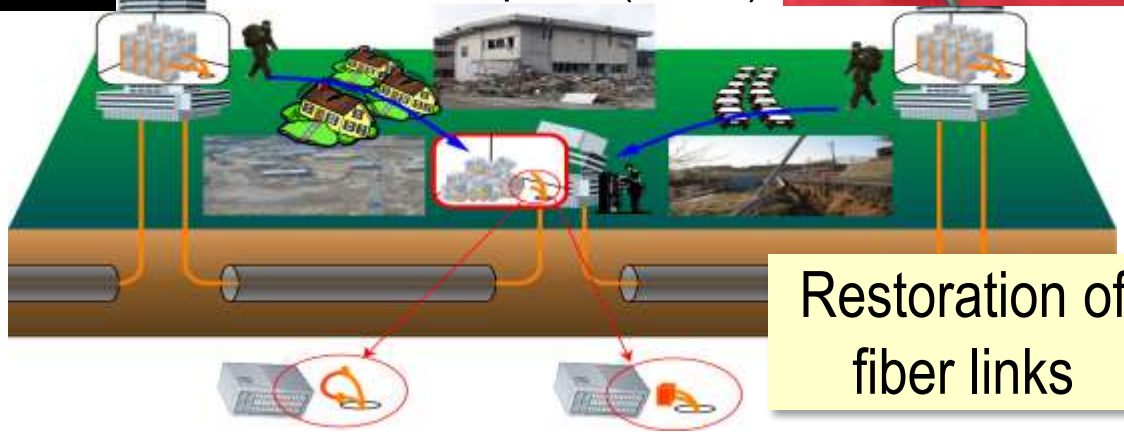
Full-automatic mobile earth terminal

Portable Optical Amplifier (EDFA)

Mobile node

Rescue Headquarters

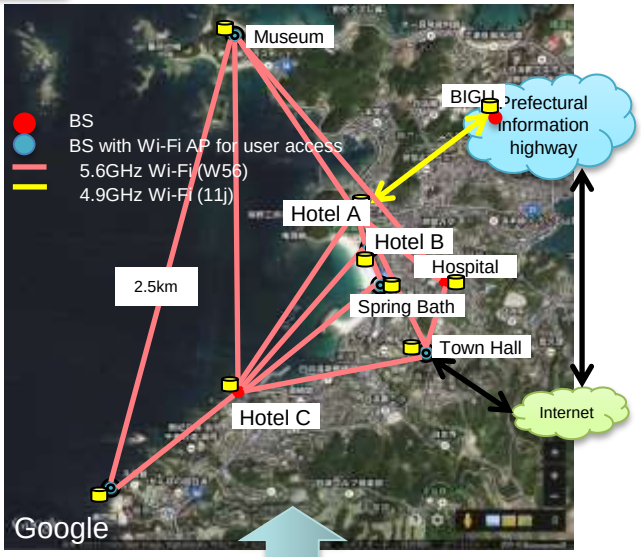
Refuge

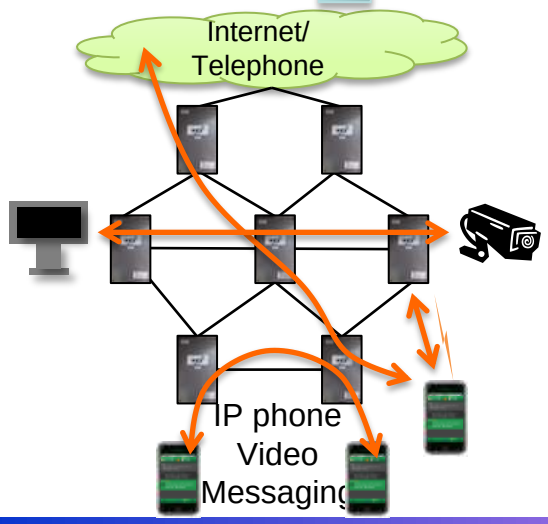


Restoration of fiber links

Wireless Mesh Network for Social Life and Disaster Prevention; NerveNet

Disaster Prevention & Tourism

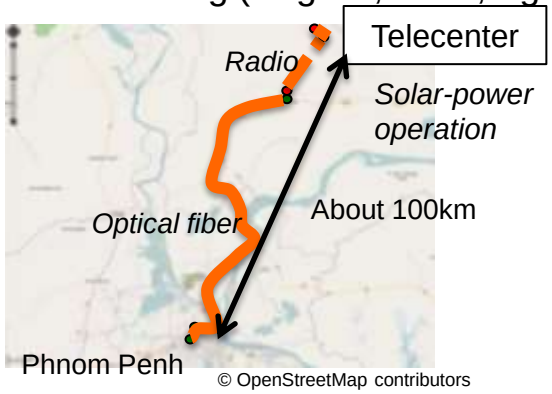




Digital Divide & Rural Development

Applications for solving rural problems

E-Learning (English, Math, Agriculture…) & e-healthcare



Dependable mesh system usable in both normal and emergency situations

Multilingual Speech Translation Application VoiceTra

Translation between 31 languages. Download and use for free.
Main targets are sightseeing, medical, and shopping services.

Universal Speech Translation Adv. Res. Consortium (U-STAR)

AI and Network-based speech-to-speech translation with the aim of breaking language barriers around the world. Over 30 research Institutes in 23 countries

For World Human Happiness
and Endurable ICT

Let's Start
Friendly Communication for
Cooperative Innovation

Thank you very much
For your kind attention

ご静聴感謝いたします

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