

Telescience/ Geoscience:

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Pragma 27

NII Shonan Meeting Report

No. 2014-51

Water Disaster Management and Big Data

Fang-Pang Lin, National Center for High-performance Computing,
National Applied Research Laboratory, Taiwan

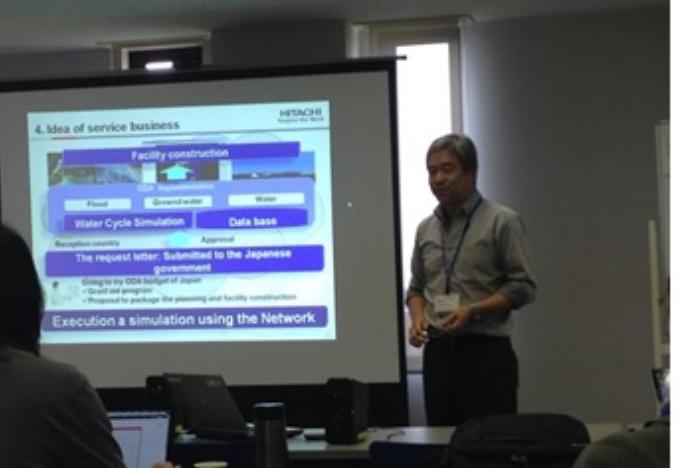
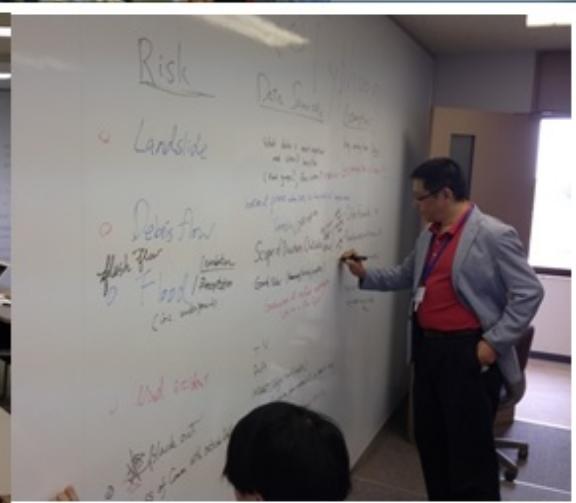
Satoshi Sekiguchi, National Institute for Advanced Industrial Science and
Engineering, Japan

Philip Papadopoulos, University of California San Diego, USA

July 7 - 10, 2014

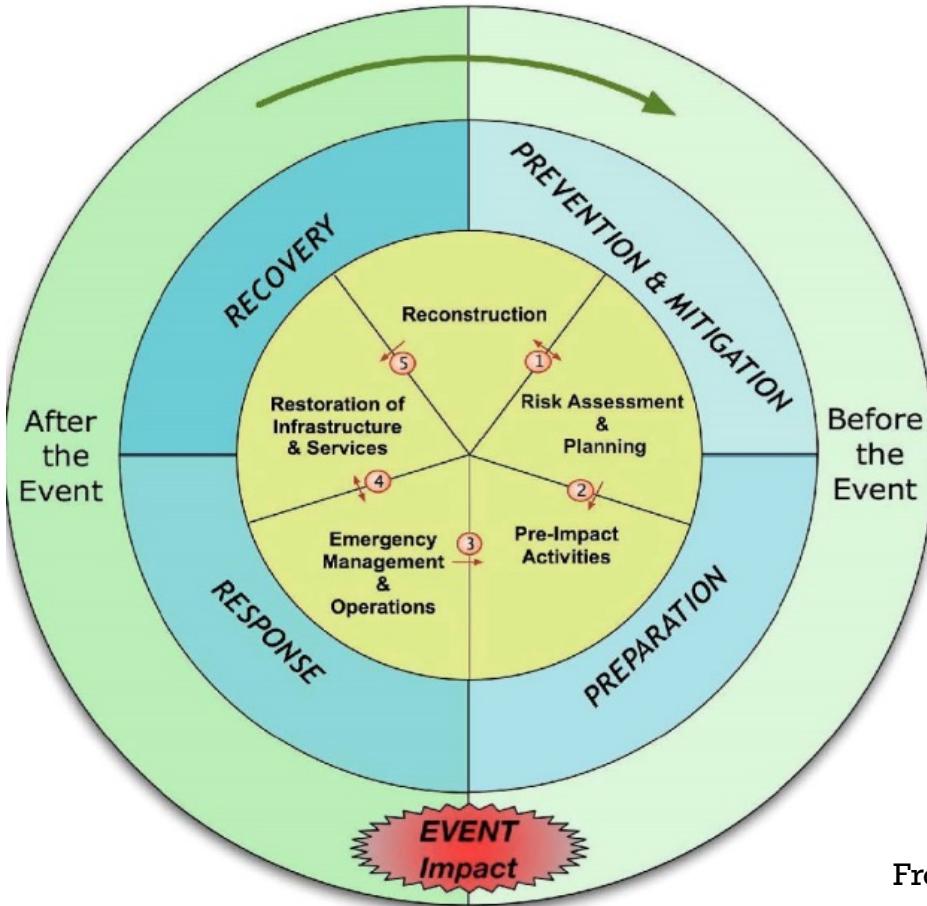


	Title	First Name	Family Name	Affiliation
Organizer	Dr.	Fang-Pang	Lin	National Center for High-Performance Computing (TW)
Organizer	Prof.	Phil	Papadopoulos	University of California, San Diego (US)
Organizer	Dr.	Satoshi	Sekiguchi	National Institute of Advanced Industrial Science and Technology (JP)
	Dr.	Junichi	Aoki	Hitachi, Ltd. (JP)
	Prof.	Lan-Kun	Chung	GIS Research Center, Feng Chia University (TW)
	Dr.	Yoshio	Tanaka	National Institute of Advanced Industrial Science and Technology (JP)
	Prof.	Shinji	Shimojo	Osaka University (JP)
	Prof.	Susumu	Date	Osaka University (JP)
	Dr.	Peter	Arzberger	UC San Diego (US)
	Prof.	Jose	Fortes	University of Florida (US)
	Dr.	Whey-Fone	Tsai	National Center for High-performance Computing (TW)
	Dr.	Prapaporn	Rattanatamrong	Thammasat University (TH)
	Dr.	Sirod	Sirisup	National Electronics and Computer Technology Center (TH)
	Mr.	Bo	Chen	National Space Organization (TW)
	Dr.	Kyoungsook	Kim	National Institute of Advanced Industrial Science and Technology (JP)
	Prof.	Yoshiyuki	Kido	Osaka University (JP)
	Dr.	Jason	Haga	National Institute of Advanced Industrial Science and Technology (JP)
	Dr.	Hiroaki	Yamanaka	National Institute of Information and Communications Technology (JP)
	Mr.	Chen-Yu	Hao	GIS Research Center, Feng Chia University (TW)
	Prof.	Wanida	Putthividhya	Thammasat University (TH)
	Dr.	Yasuhiro	Murayama	NICT / ICSU-World Data System (JP)



Water Disaster Management **NARLabs** and Big Data

Phases in Disaster Management



- Quick or Slow onset
- Monitoring, predicting, communicating and responding

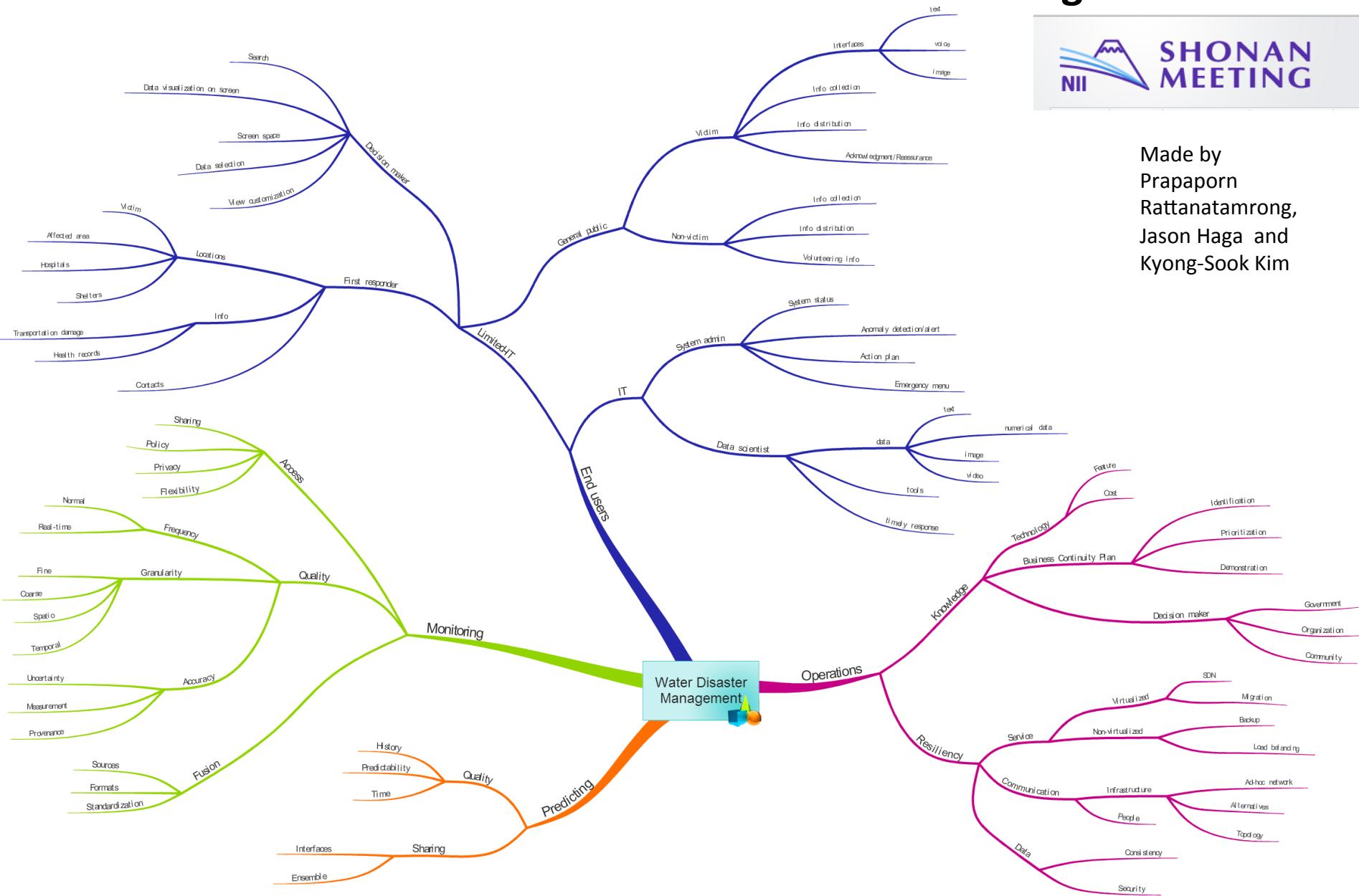


From Earthzine (<http://www.earthzine.org/disaster-management-theme/>). Vanneuville et all, posted March 21, 2011

Understand the Real Problems of Disaster Management



Made by
Prapaporn
Rattanatamrong,
Jason Haga and
Kyong-Sook Kim



COLLABORATION WITH KOBE INSTITUTE AND THE LAB



Interactive model for the railroad museum Nicole Wong

day 1

- Nor Arlina Amirah Ahmad Ghani, Nurul Shakina Mohd Talkah, Shaiful Rahim, Ilyia Zulkifli, Parveendeerjeet Kaur Bal, Mohd Shahir Shamsir Omar, “Implementing Citizen Science in Biodiversity Conservation: A Case Study of EcoSabah Android Application Reporting Solution for Species Occurrences in Sabah, Malaysia”
- Dr. Jongsung Lee, “Ergo: Open Source Platform for Multi-Hazard Assessment, Response and Planning.”
- Fang-Pang Lin, “Report of shonnan meeting for water disaster mitigation”

Discussion

- citizen based science
 - gamification, quality control
- Ergo: risk management system
 - More collaboration opportunity
- Shonan meeting
 - Tsunami, Flood, Typhoon
 - SEIAP on Dec.

Ergo: IT Framework

- Ergo: An IT Framework based on Consequence-based Risk Management (CRM) principle.
 - Semantically-aware System
 - Spatially-enabled System
 - Extensible System



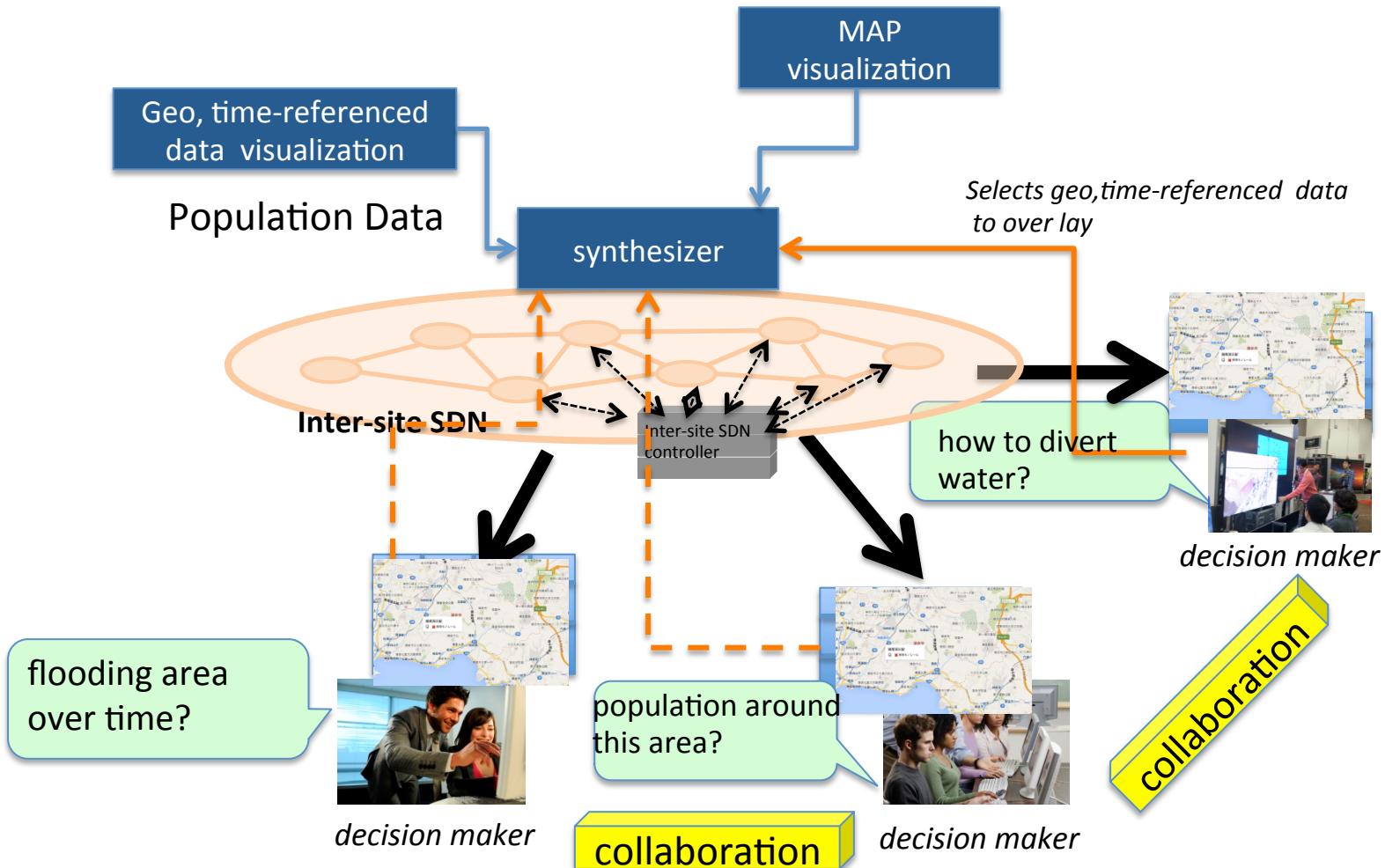
day 2

- Dr. Wen-Yii Chang "A River Basin-based Real-time Bridge Safety Warning System"
- Yoshiyuki Kido, “Tiled Display Wall using Openflow to avoid failure”
- All VM based disaster Mitigation center on Pragma-ENT
 - For Service Continuity
 - Live Migration demo on SC14 collaboration with Resource WG
 - extend to Taiwan with Satellite data
- Distributed AUVs
 - DJI Phantom 2
 - more CPS (Cyber Physical System)
- More Discussion on SEAIP



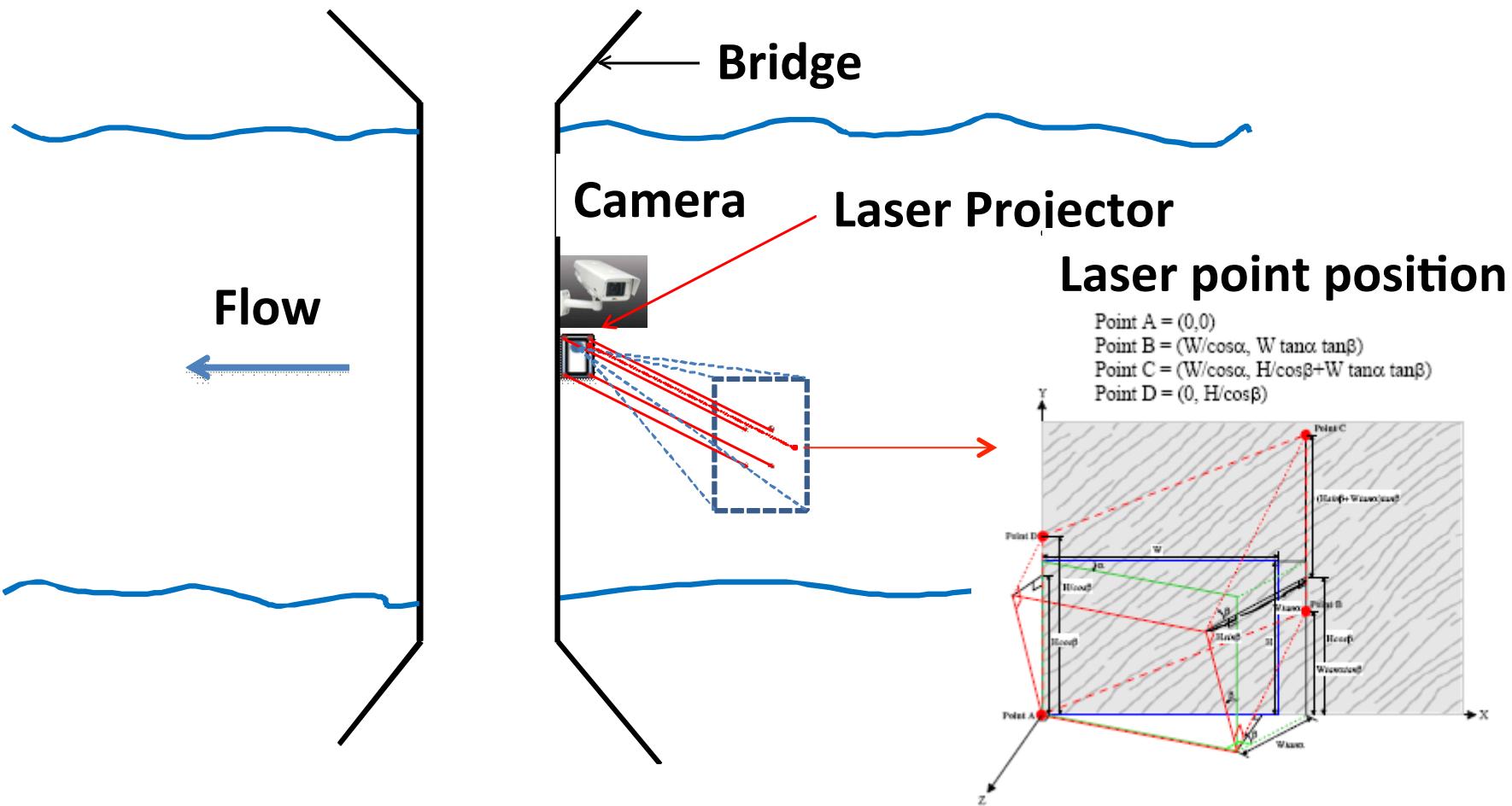
Group2: short-term goal?

- Building a MAP I/F using multiple tiled display wall on PRAGMA ENT
 - Where we can look at shared map
 - Where we can ..



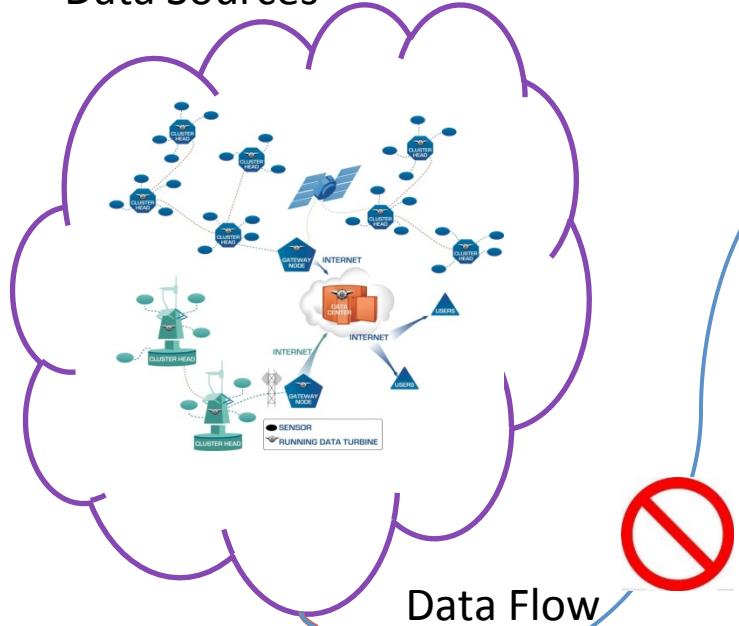
Laser-positioning PIV (1)

Concept: Using Laser points projected on water surface as reference scale for PIV (Particle Image Velocimetry)

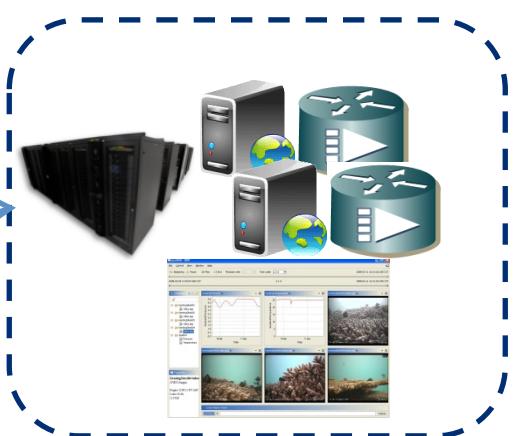


Future Collaboration in Big Data service: Service Continuity through Virtual Data Centers

Sensor Networks:
Data Sources



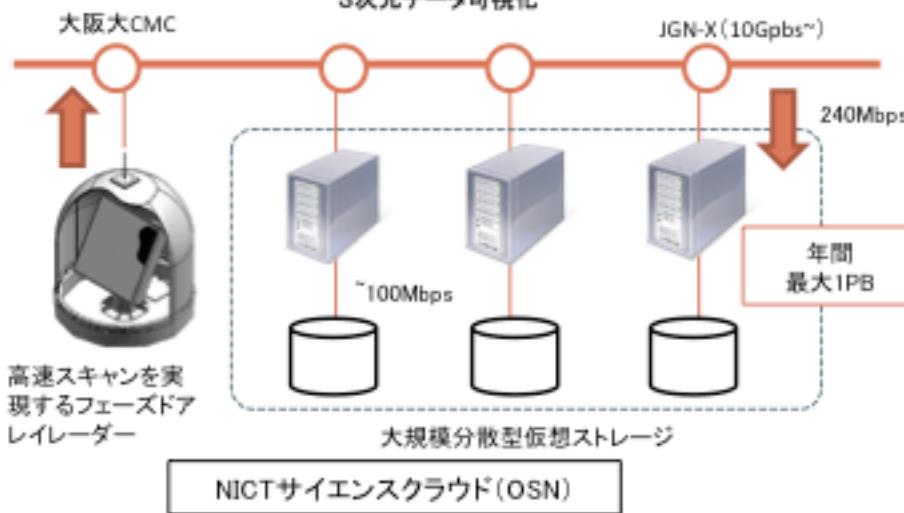
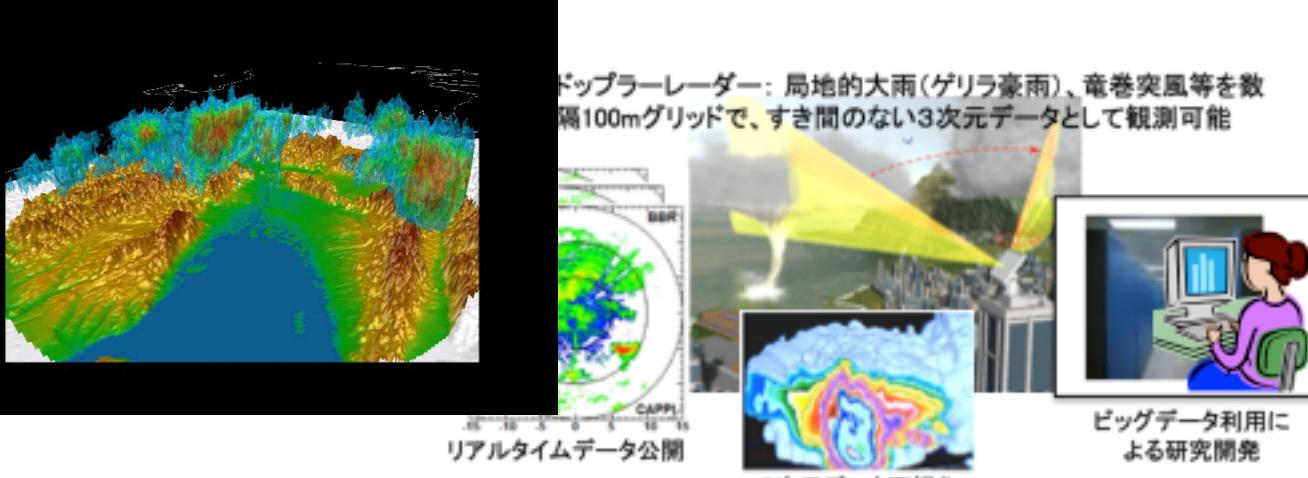
Virtual Data Center



Virtual Data Center (backup services)



by Phil Papadopoulos

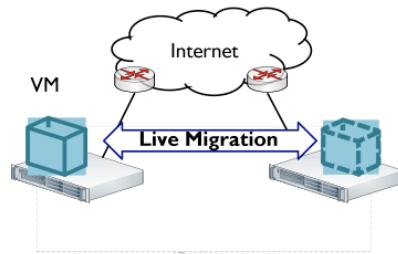


Distcroud (SC13) by Nakagawa

Applications on Distributed Cluster Storage

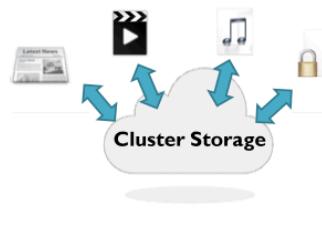
Long Distance Live Migration for Disaster Recovery

- Long Distance Live Migration with distributed cluster storage
- Transparent Accessibility during or after live migration



File Sharing between inter-cloud environment

- Sharing global unique file system on the distributed cluster storage
- Accessing nearest site based on file replication algorithm

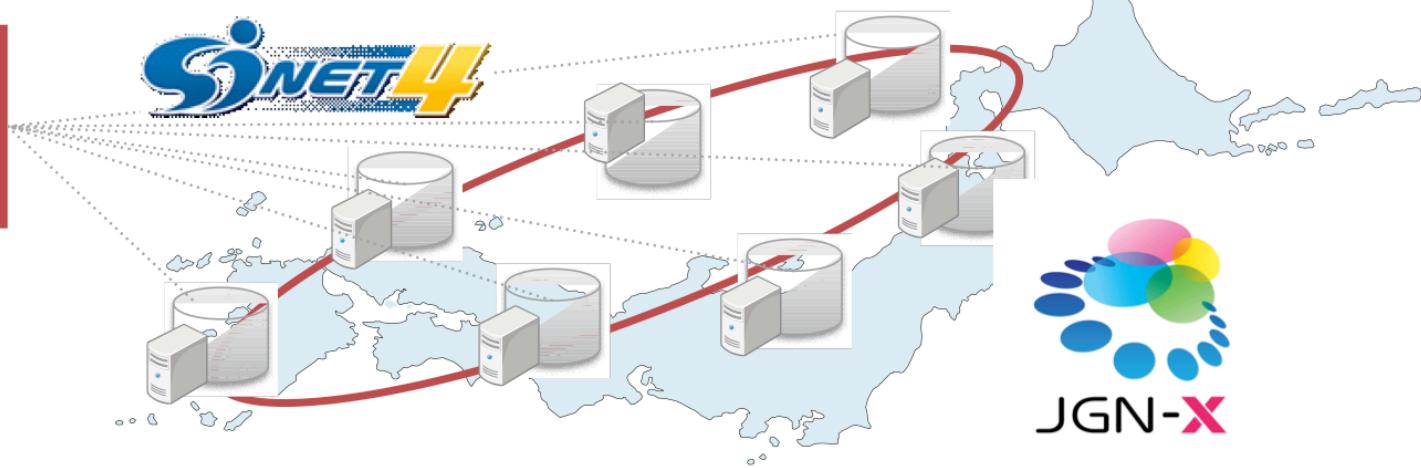


Content Delivery Platform over inter-cloud environment

- Deliver large volume data based on the distributed cluster storage
- Replicate to many sites, automatically
- Works as cache service, as well



Widely Distributed Cluster Storage on Ultra High Speed Networks



- Tainan Science Park & Kaohsiung Si Zi Wan beach.
- 1-5, December 2014

