



2014

PRAGMA 26 Workshop

4.9-4.11 Tainan, Taiwan



Overview of PRAGMA Progress Since PRAGMA 25

2014 April 10



National Center for High-performance Computing



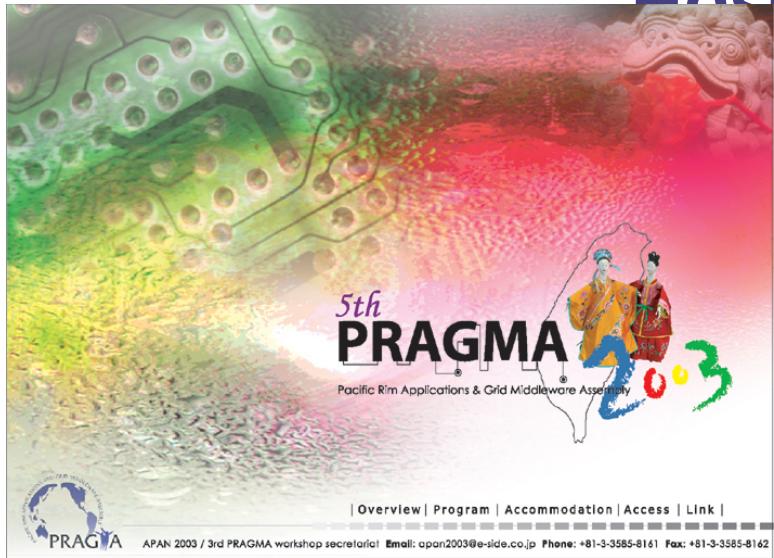
National Cheng Kung University



Banyan Tree

Key Moments in PRAGMA

Hosted by NCHC



- With CREON
- PRAGMA 26

- SEAIP and PRAGMA Institutes
Big Data
 - December 2012

Dec 3~6, 2012 at NCHC, Taiwan
Bridging Big Data Infrastructure Workshop-
Foundation on the Network Science Landscape

012 巨量資料基礎架構國際研討會



東南亞國際合作高級計算應用與網路共同研究暨培訓研習會





PRAGA 26 Workshop
2014
4.9-4.11 Tainan, Taiwan



馬

Chinese Character Horse

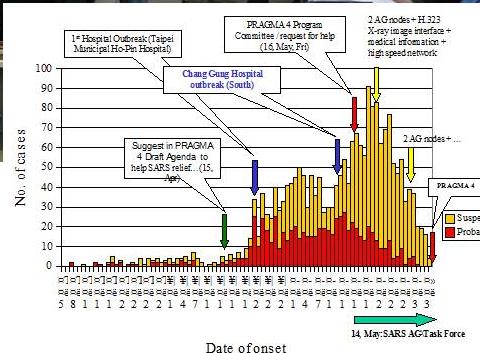
Pronounced “ma”
(third tone)



NCHC SARS Task Force



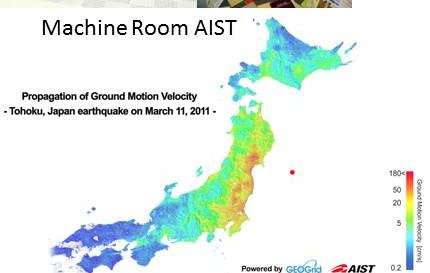
Developers at the NCHC Access Grid node test the SARS Grid network links



Source: Fang-Pang Lin

<http://antisars.nchc.gov.tw/>

March 2011: Tohoku Earthquake and Tsunami



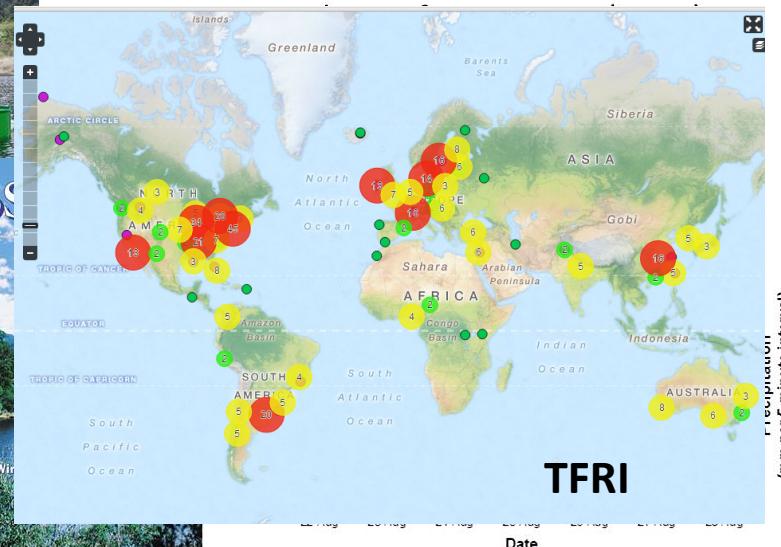
- GEO Grid Disaster Task Force migrated services to other sites, including
 - NARL|NCHC|NSPO
 - UCSD|SDSC
 - OCC, Orkney, ERSDAC, NTT-data-CCS, CTC, Univ. Lille, and ITT
- Used aspects of virtualization porting and distributed resources at NCHC and SDSC

GEO Grid Disaster Response Task Force
<http://disaster-e.geogrid.org>

From Scientific Expedition to Community

Building on NCHC Ecogrid
 8 Months: Concept to Deployment

GLEON
 global lake ecological observatory network



PRAGMA Institutes and SEAIP

SEAIP
 Southeast Asia International Joint Research and Training Program

東南亞國際合作高級計算應用與網路共同研究暨培訓研習會

- [Welcome](#)
- [About SEAIP](#)
- [Important Dates](#)
- [Sponsorship](#)
- [Agenda](#)
- [Registration](#)
- [Invited Speakers](#)
- [Venue](#)
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- [Accommodation](#)
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Welcome to SEAIP 2013

[Agenda](#) [Registration](#) [Important Dates](#)

Dear Colleagues,

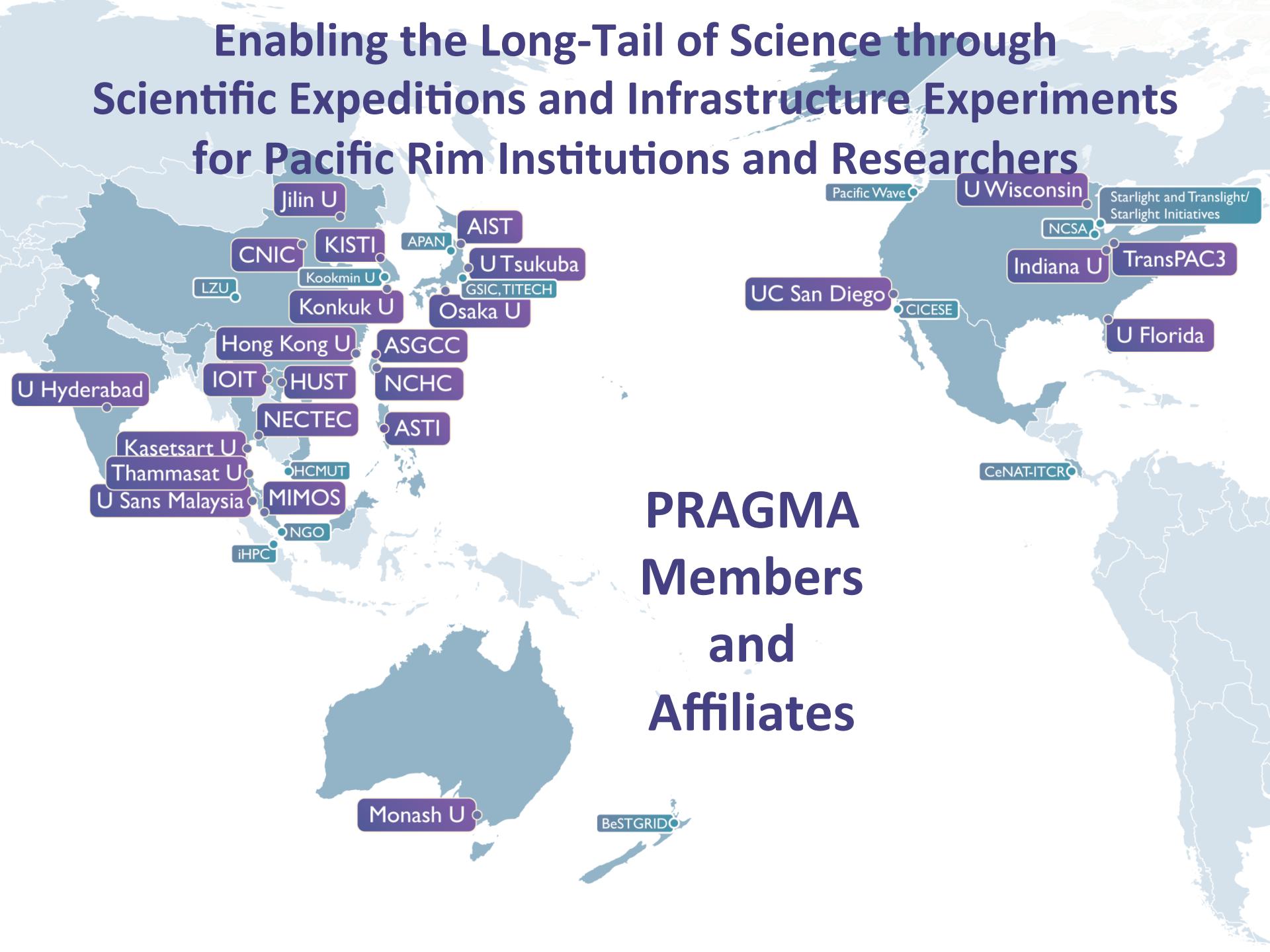
On behalf of the National Center for High-Performance Computing (NCHC), it is our great pleasure to welcome your participation in SEAIP 2013!

Taiwan is also known as "Formosa" which means "Beautiful Island." Included in Taiwan's 19 major cities and counties are bustling metropolises like Taipei, Taichung, and Kaohsiung. Also, Taiwan's fifth largest city, Hsinchu, has one of the highest densities of hi-tech enterprises in the entire world! Natural wonders such as Hualien County's splendid ocean views and magnificent mountain scenery and Kaohsiung's port views are not to be missed! This beautiful island, full of cultural, natural, and hi-tech wonders, promises a very special meeting experience in Asia!

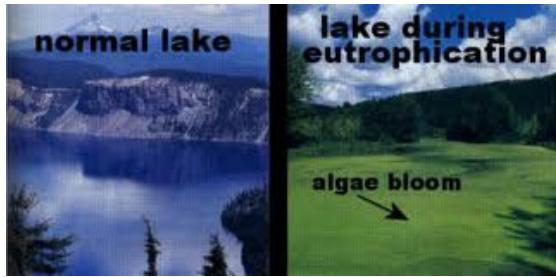
SEAIP aims to share and to disseminate Data Resources, Visualization and Biodiversity



Enabling the Long-Tail of Science through Scientific Expeditions and Infrastructure Experiments for Pacific Rim Institutions and Researchers



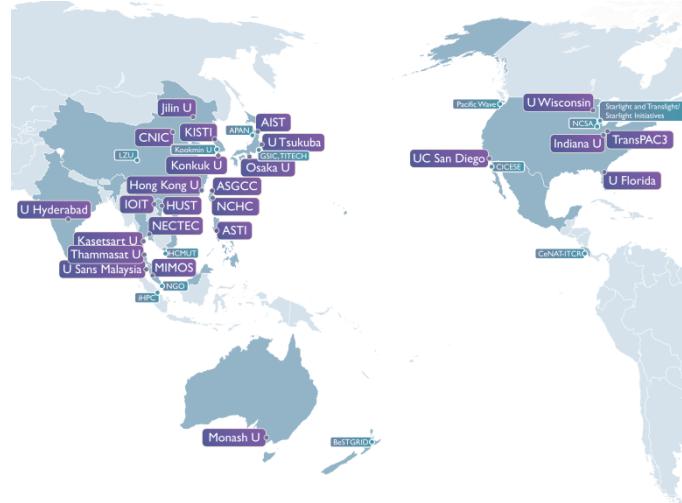
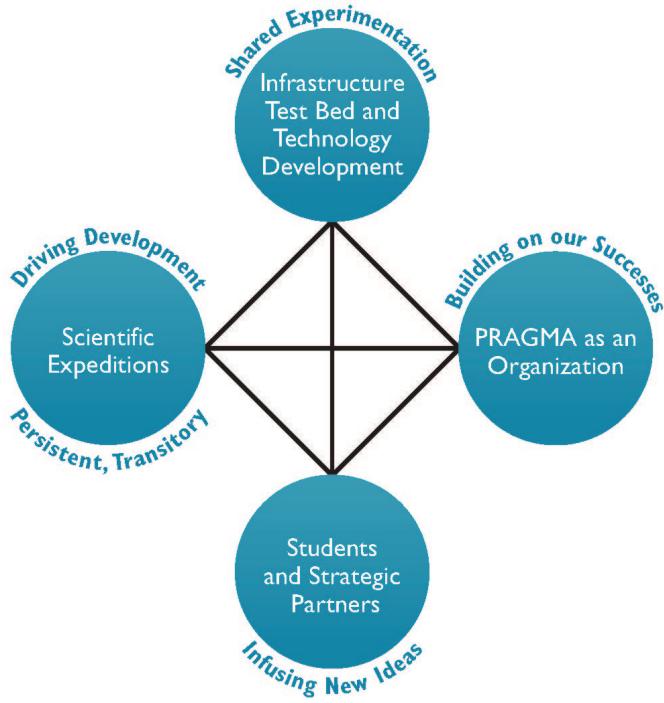
PRAGMA Members and Affiliates



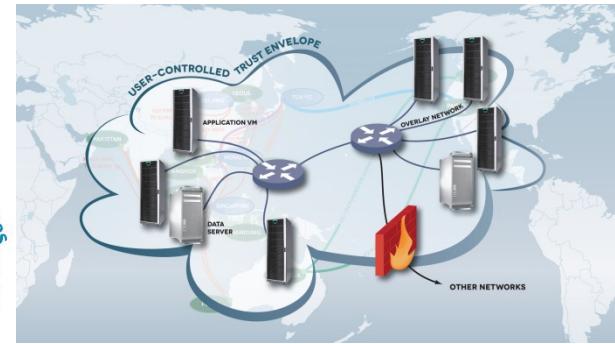
Virtual Scientific Expeditions



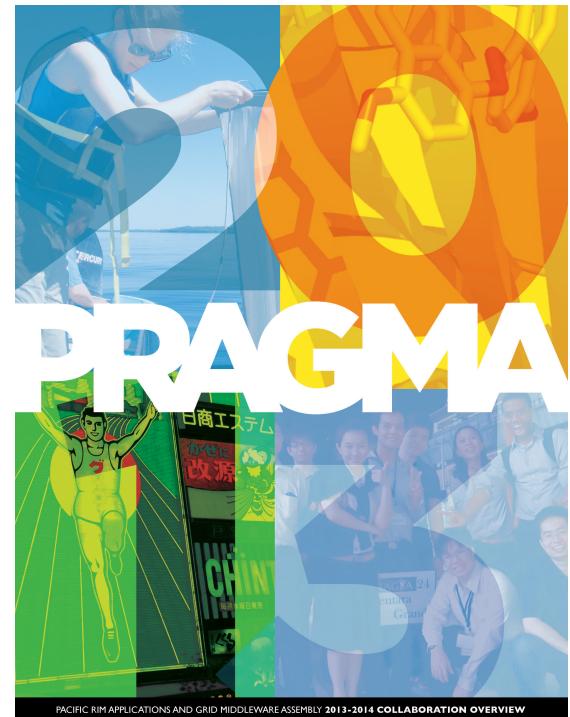
PRAGMA Students



PRAGMA Member Sites



Trust Envelop



PRAGMA Community



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PRAGMA 26

Progress since PRAGMA 25

PRAGMA25

10.16-18

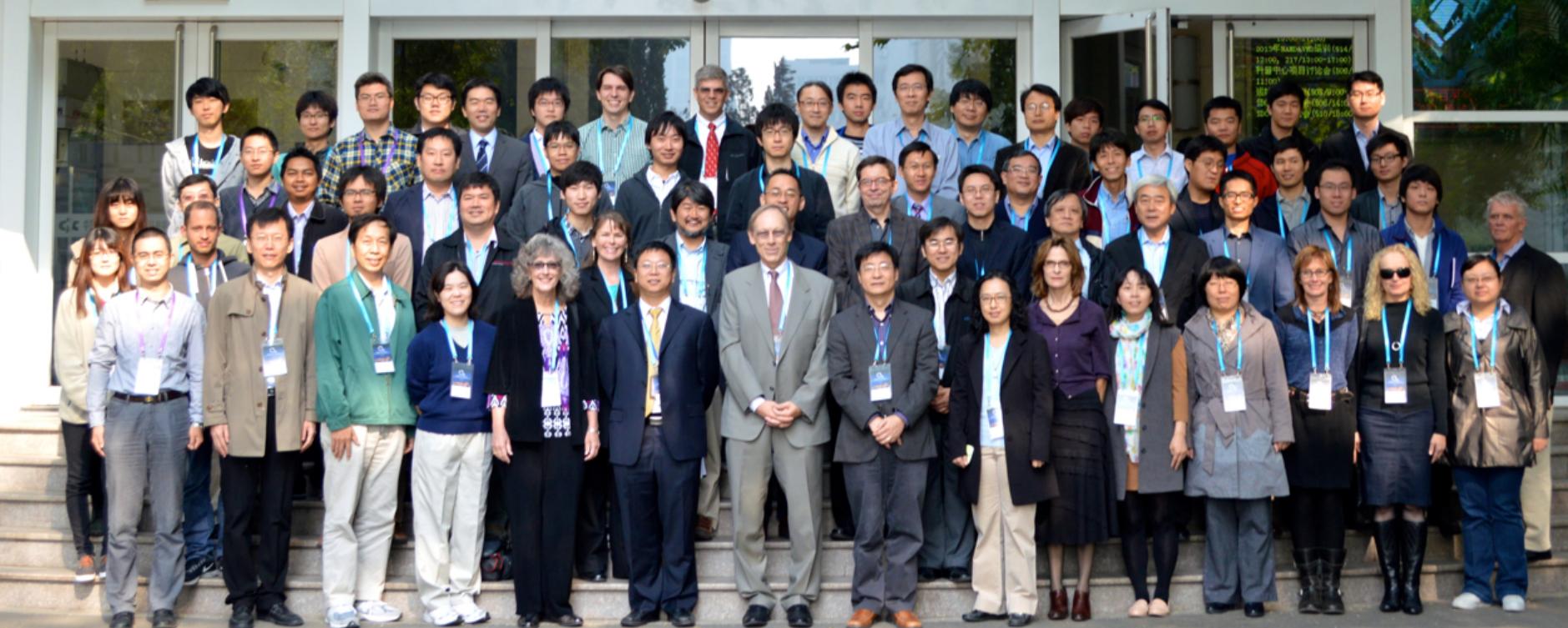
Beijing, China
Beihang University



The 25th workshop on Pacific Rim Applications and Grid Middleware Assembly

无烟办公楼
No Smoking Office Building

中心欢迎您！



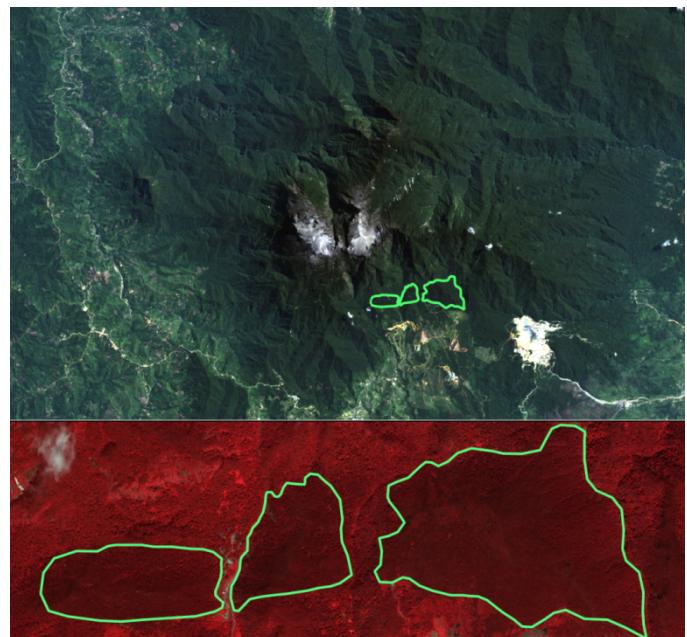
Biodiversity in Extreme Environments

Distribution Prediction by Sharing CI and Provenance Capture

Approach: Improve Lifemapper (LM)

Demo: Aimee Stewart, Nadya Williams

- Extend previous LM work to enable data management and web services components virtualization
- Increase the availability and flexibility of LM to enable scientists to
 - Assemble multi-species macro-ecology experiments
 - Perform other LM-facilitated data processing on:
 - Unique datasets; Restricted use data
 - Very large datasets



Predicting Water Quality in Lakes

Developing Predictive Models using IPOP Overlay

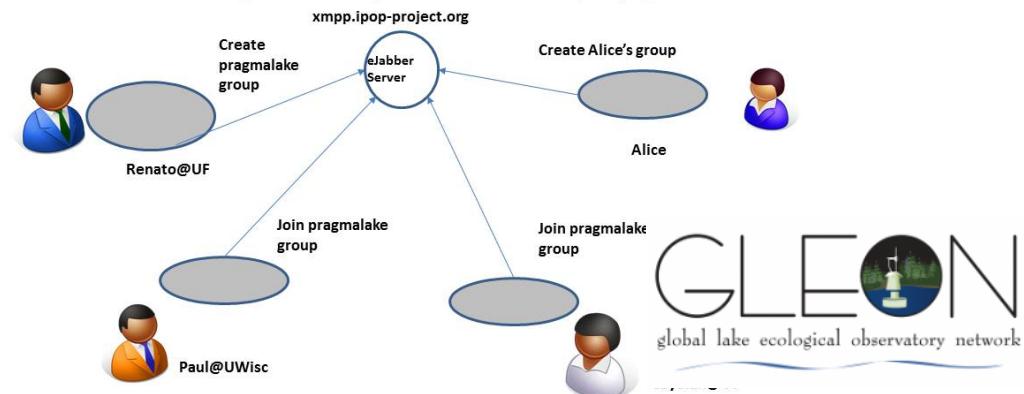
- Lake eutrophication is global issue, results in degraded water quality
- Calibrate new hydrodynamic model, check model against data
- Using IP-over-P2P (IPOP) to interconnect resources (and VMs) across multiple institutions, creating “trust envelope”



Collecting light, temperature data

Cluster VPN in 3 Easy Steps

- Step 1: create a group on an XMPP server
 - UF manages one – you can also deploy your own



Demo: Paul Hanson, Craig Snortheim, Luke Winslow (U. Wisconsin), Cayelan Carey (Virginia Tech); Renato Figueiredo, Pierre St. Juste, Ken Subratie (U. Florida)

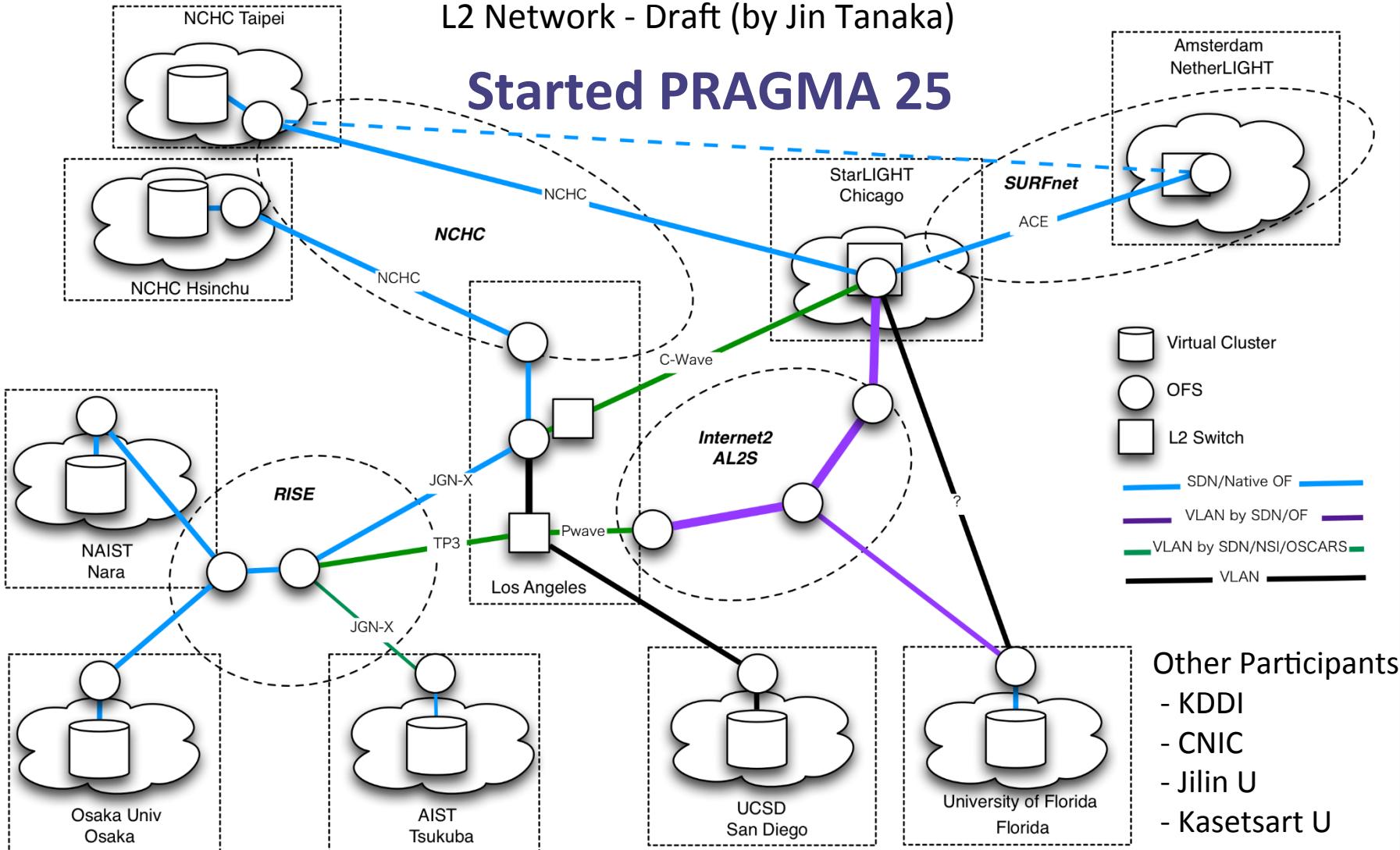
PRAGMA Experimental Network Testbed (ENT)

Mauricio Tsugawa; Kohei Ichikawa

Draft diagram of Global SDN for PRAGMA Experimental

L2 Network - Draft (by Jin Tanaka)

Rev 0 · 3 03/24/2014
tanaka@ote.kddi.com



Updates via Demos and Working Groups

- Seamless Aggregation of Computing Resources for Lake Modeling with Overlay Virtual Networks
 - *Paul Hanson, Luke Winslow (U. Wisconsin), Cayelan Carey (Virginia Tech); Renato Figueiredo, Pierre St. Juste, Ken Subratie (U. Florida)*
- Global Virtual Cluster Deployment through a Content Delivery Network
 - *Pongsakorn U-chupala (NAIST); Luca Clementi, Philip Papadopoulos (UCSD), Kohei Ichikawa (NAIST)*
- A Demo of Ceph Distributed File System over Wide Area Network: Lesson Learned
 - *Mohd Bazli Ab Karim, Ming Tat Wong, Jing Yuan Luke (MIMOS)*
- Increasing the Lifemapper Availability and Flexibility
 - *Nadya Williams (UCSD), Aimee Stewart (KU)*
- User-level Controllability of Virtual Clusters using HTCondor
 - *Shava Smallen (UCSD); Yuan Luo, Beth Plale (Indiana U.), Philip Papadopoulos (UCSD)*
- Real-time Persistent Ocean Monitoring using Open Source DataTurbine (OSDT) Android SensorPod
 - *Peter Shin, Tony Fountain, Sameer Tilak, Thaddeus Trinh (PRIME 2013), Susan Kram, Jennifer Smith (UCSD)*
- Mobile Devices Help Collect and Stream Data from Ecological Sensor Network into the Cloud
 - *Yu-Huang Wang (TFRI); Tony Fountain, Peter Shin (UCSD); Sheng-Shan Lu, Chau-Chin Lin (TFRI); Sara Taghizadeh (PRIME 2012), Thaddeus Trinh (PRIME 2013) (UCSD)*

Challenge: Moving from Demo to Use

San Kei En Project

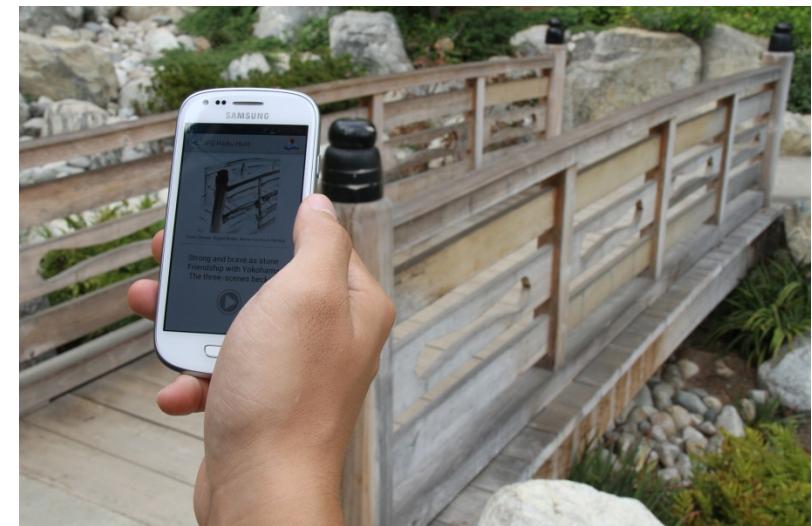
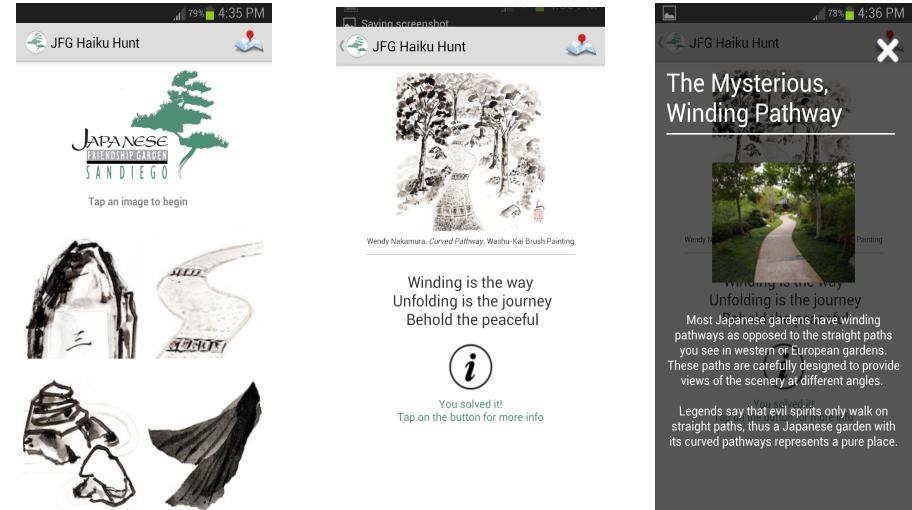
(Japanese Friendship Garden Haiku Hunt)

- Android-based, location-aware mobile application
- First outside use of Place Sticker technology to preserve beauty, maintain connectivity
- Fun! Haiku! Impact!

Demo: UCSD: Jason Haga, Jesus Rios (PRIME 2013); Osaka U: Shinji Shimojo;

BPOC: Vivian Haga, Wesley Hsu (PRIME 2011);
ISID: Kazuhiro Toda;

Ritsumeikan U: Nobuhiko Nishio





JFG Haiku Hunt

Balboa Park Online Collaborative - February 27, 2014
Travel & Local

Install

Add to Wishlist

⚠ You don't have any devices

Download at
Google Store



Recommend this on Google

The first screenshot shows the main menu with the JFG Haiku Hunt logo and a "Tap an image to begin" button. It features four small images of koi fish and a Japanese garden scene.

The second screenshot shows a haiku card by Christina Machett: "If I could be coy / Do you mind me saying dear / Your reflection holds". Below it is an "i" info button and a "You solved it!" message.

The third screenshot is a detailed view of a koi pond with text about koi symbolism and history. It includes a "Tap on the button for more info" button and a "Like your dog or cat, our koi receive special care including vaccination shots and weekly check-ups by the Koi Club of San Diego" message.

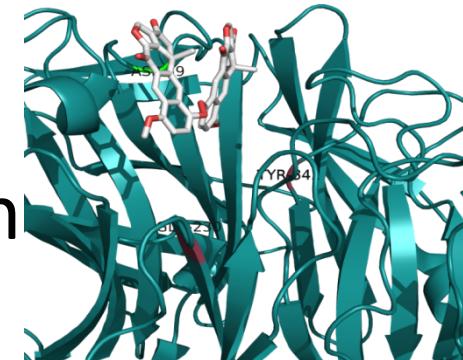
Discuss with Jason Haga (now at AIST) or Shinji Shimojo
<https://www.youtube.com/watch?v=Y4bp-yxd9lQ&feature=youtu.be>

PRIME 2014

11th Year of Program



- Students bridge to PRAGMA members
- Projects include cardiac modeling, virtualization, virtual screening, cultural heritage, and visualization
- Host sites for the 12 students: NICT, NAIST, U Queensland, National Taiwan University, NCHC
 - Shinji Shimojo, Kohei Ichikawa, Jason Haga, David Abramson, Jung Hsin Lin, Fang Pang Lin



PRAGMA STUDENTS

“Make student network, strengthen student research”

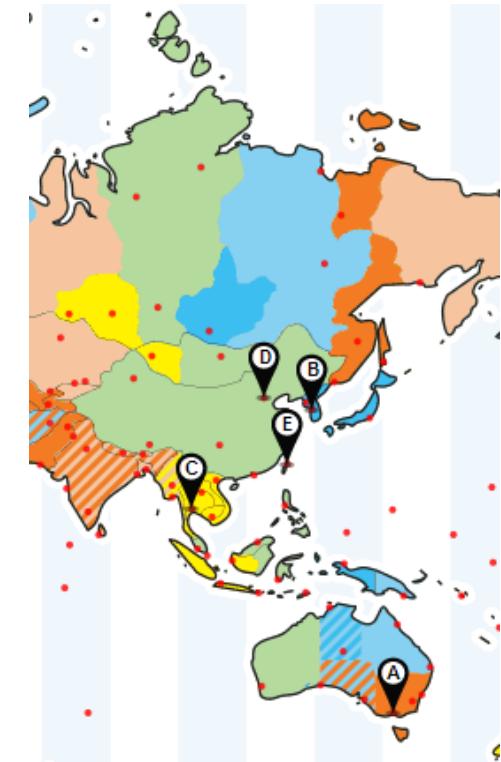


- Provide Opportunities for Students
- Stimulate Motivated and assisted by GLEON

- A. Melbourne, Australia
- B. Seoul, South Korea
- C. Bangkok, Thailand
- D. Beijing, China
- E. Tainan, Taiwan

- PRAGMA 22
- PRAGMA 23
- PRAGMA 24
- PRAGMA 25
- PRAGMA 26

- Pre-workshop
- The 1st student workshop
- The 2nd student workshop
- The 3rd student workshop
- Here We Are !



2nd PRAGMA Students Distributed Seminar

Towards Distributed Software Defined Systems

https://connect.iu.edu/pragmastudents?launcher=false

Meeting | Camera and Voice | Presentation - Fortes-UF | Full Screen | Help

Attendee List (27)

- Hosts (4)
 - Fortes-UF
 - Meilan Jiang
 - Quan Zhou
 - Yuan Luo
- Presenters (0)
- Participants (23)
 - Chen
 - Devarshi- IUB

Chat (Everyone)

Pongsakorn U-chupala: *clap*

Quan Zhou: If anyone has questions, please click on raise hand button at any time.

Everyone

Web Services Architecture Timeline (AS OF 2/2004)

Fundamentals

- Secure, Reliable, Transacted
- WS-I formed
- WS-I BP 1.0
- WS-Coordination
- WS-Transaction
- WS-ReliableMessaging
- WS-Security
- WS-Trust
- WS-Federation
- WS-Security Addendum
- WS-Security Profile for Tokens
- WS-Security SOAP Message Security
- WS-Security Username Token Profile
- WS-Security X.509 Certificate Token Profile
- WS-Security Kerberos Binding

Interoperability

- SRT Web Services Whitepaper
- Reliable Messaging Roadmap

Whitepapers

Transactions

Reliability

Security

Metadata

Messaging

2000 2001 2002 2003 2004 2005

ACIS

Provided by Mazin Yousif, Credit to someone unknown
Advanced Computing and Information Systems laboratory UNIVERSITY OF ILLINOIS SPRINGFIELD

https://connect.iu.edu/p5apeig31gn/

Recent and Future Outreach

- Southeast Asia International Joint Research and Education Program
 - 2 – 6 December, Tainan – Host NCHC
 - A possible outcome: Biodiversity Mobile App (UTM)



- International Conference on Serpentine Ecology
 - 9 – 13 June, Kota Kinabalu, Sabah Malaysia
 - PRAGMA Special Symposium: Reed Beaman (12 June)
- Water Disaster Management and Big Data
 - NII Shonan Meeting, 7 – 10 July 2014
 - Fang-Pang Lin, Philip Papadopoulos, Satoshi Sekiguchi



Prior to ICSE Workshop: An Expedition

“Capturing ultra-high resolution UAV-imagery in Kinabalu Park”

- *Pilot-project for modelling vegetation across geological substrates over an altitude gradient in Kinabalu Park*
- P Erskin, A Fletcher, A v d Ent (U Queensland); Rimi Repin (Sabah Parks); R Beman (U FL); Abdullah Kamaruddan (Minerals and Geoscience Dept)
- 4 – 8 June 2014
- Resolution: 2.3 cm with UAV



2 M wingspan, 4.9 kg



Capture Area 1 (approx 10 km²)



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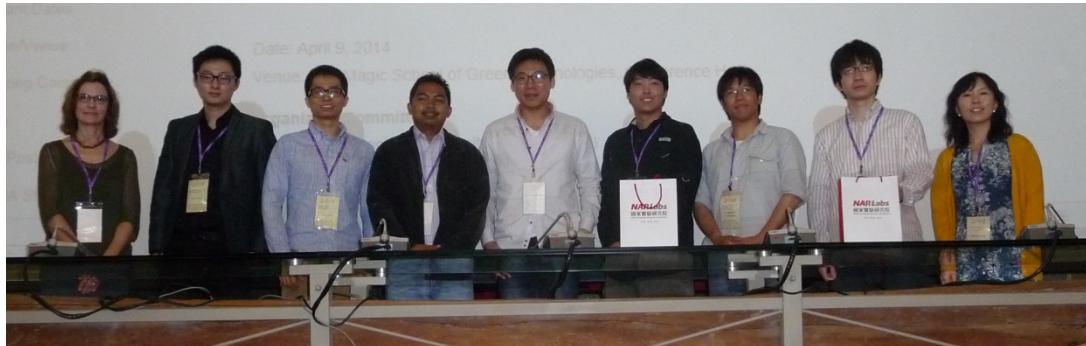
PRAGMA 26

The Workshop

Experimentation is a part of PRAGMA

Pre-Workshop Meeting 2014 April 9 Wednesday

- Cloud Computing and Big Data
- PRAGMA Student Pre-Workshop



- Cyber Learning Workshop





Cyber Learning

Objectives

- ➲ Providing cyber education & research environments in computational science
 - ➲ Utilizing Computing resources & services in PRAGMA community
- ➲ Promoting developing & utilizing activities through global collaborations

Goals

- ➲ Development of Cyber-Learning open platform and education/ research simulation S/W
- ➲ Establishment of international research communities and connections to higher education
- ➲ Construction of collaboration channels amongst PRAGMA Community

Activities

- ➲ Collaborating with Resource/Tele-Science/Bio/Geo Working Groups
- ➲ Co-developing and sharing of various simulation SWs and contents for Cyber Learning in PRAGMA Community
- ➲ Sharing of information and experience on Cyber-Learning in PRAGMA Community
- ➲ Holding Joint Workshop/Seminar/Contest on Cyber-Learning
- ➲ Providing Cyber-Learning service to PRAGMA Community through Web Portal

Agenda Highlights and Challenges

- Cloud Computing, Big Data and Examples
 - Yi-Ping Lin, *Political Deputy Minister, Ministry of Science and Technology, Taiwan*
- Big Data Panel
 - What should PRAGMA be doing in (Big) Data?
- Students Panel
 - Best Lightening Talks
 - Panel to Discuss Talks
 - Challenge for all of us: Engage students in research, utilize PRAGMA expertise and resources, build stronger collaborations
- Demos of Progress
 - What has been accomplished and can be shared?
- Working Group Restructuring and Challenges
 - What resources (physical, software, data) do you need to accomplish your goals?
 - What should PRAGMA technologists focus on to help you?

New Format for Working Groups

An Experiment

- Resources, Networking and Data
 - Philip Papadopoulos, Yoshio Tanaka, Beth Plale
- Telescience / Remote Sensing
 - Shinji Shimojo, Fang-Pang Lin, Sornthep Vannarat
- Scientific Expeditions
 - Reed Beaman, Paul Hanson, Chao-Chin Lin
 - Identify challenges to achieve scientific goals! And provide perceptions of how the rest of PRAGMA might be able to help!
- Cyber-learning / Distance Education
 - Ruth Lee, Shyh-Ching Lin

Steering Committee Topics

- New Leadership
 - On the Steering Committee
 - Leading Projects and sub working groups
- Data Infrastructure and Direction for PRAGMA
 - What are the possible next steps after the panel?
- Shonan Meeting: Goals and Discussion
 - Water Disaster Management and Big Data



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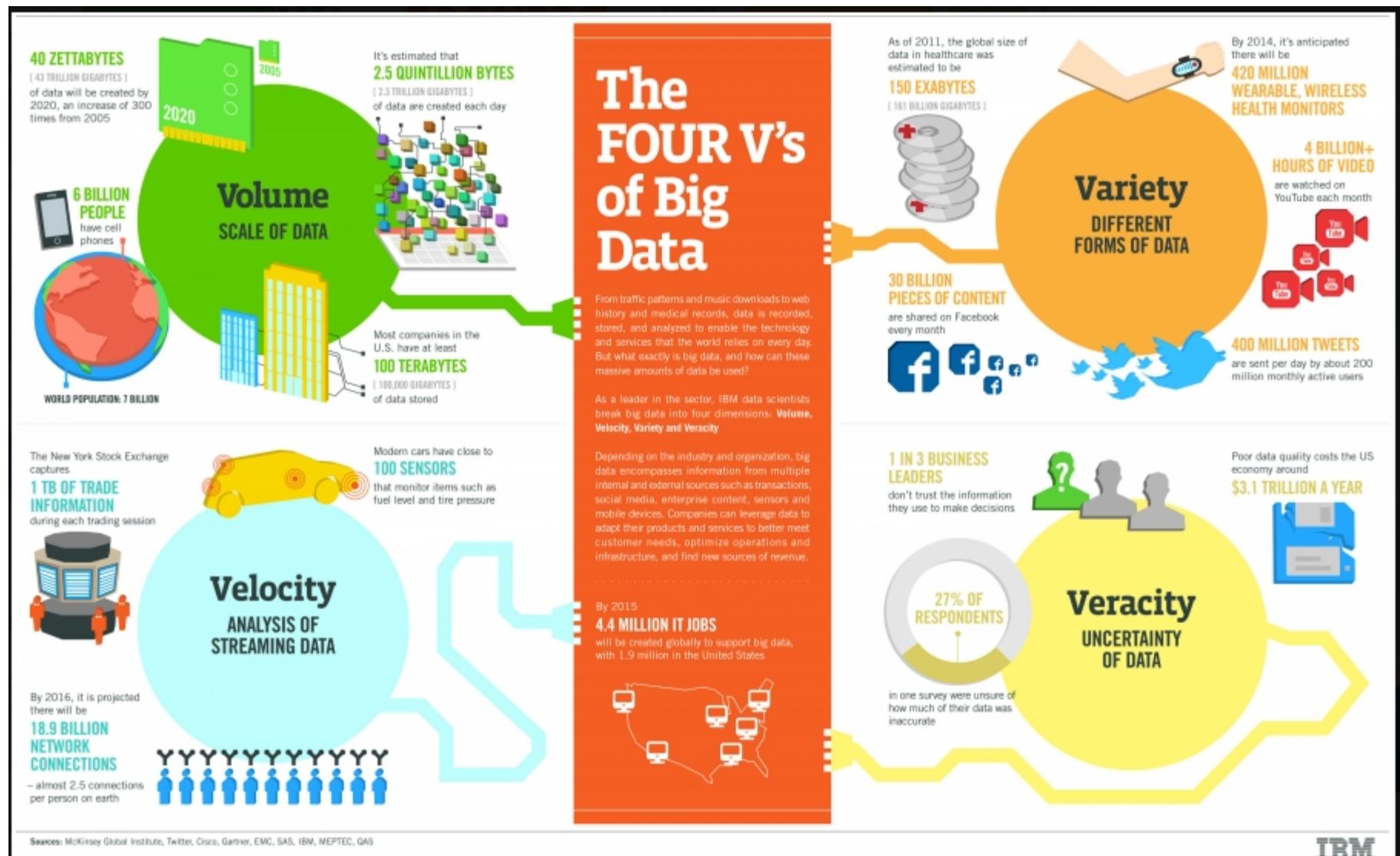


Living with Big Data

Opportunities in a Broader Context

**“Big data” refers to data that
challenge existing methods due to
size, complexity, or rate of availability.
(Jan 2014)**

The VVVV of Big Data



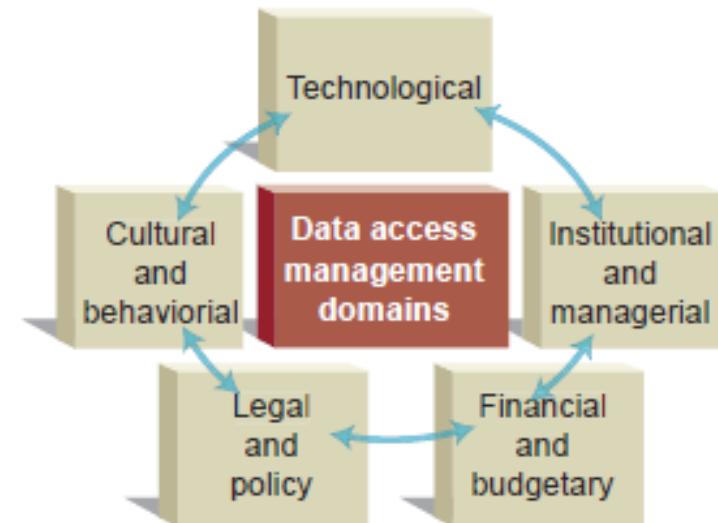
Source: Jose Fortes

Advanced Computing and Information Systems laboratory

UNIVERSITY OF FLORIDA

Big Data: More than Technology

- Technological: Infrastructure, Interoperability, Quality Control, ...
- Institutional and managerial: Flexibility across communities
- Financial and budgetary: Long-term curation access
- Legal and policy: National and international laws need to be mindful of publically funded data
- Cultural and behavioral: Reward structure to promote access and sharing



Domains of a data access regime.

Image: Science 19Mar2004

Value in the data are in their use

Research Data Alliance (RDA)

Research Data Sharing without Borders

- RDA builds the social and technical bridge open sharing of data.
- Vision: researchers and innovators openly across technologies, disciplines, and countries to address the grand challenges of society
- Working and Interest Groups: Data Citation, Metadata Standards, Big Data Analytics, Biodiversity Data
- More information
 - <https://rd-alliance.org/>
 - Beth Plale, RDA Steering Group and Technical Advisory Board



What is the Value of International Collaborations?

- Strengthens ideas – by competing in the global market place
- Addresses important problems - which transcend national boundaries, and can only be addressed by international collaborations
- Taps into other resources, including expertise
 - Leveraging Resources (return on investment)
- Engages next generation of students
- Disseminates ideas and software ... rapidly
- Heightens impact of work
- Is fun

Collaborating with People Like Me: Ethnic Co-Authorships within the US

Richard B. Freeman, Wei Huang

- Examines 1.5 million scientific papers written solely in the US from 1985 to 2008
- During this period, proportion of US-based authors with English and European names fell while the proportion of US-based authors with names from China and other developing countries increased
- Evidence shows that persons of similar ethnicity co- author together more frequently than can be explained by chance given their proportions in the population of authors
- This homophily in research collaborations is associated with weaker scientific contributions
- Papers with more authors in more locations and with longer lists of references tend to be published in relatively high impact journals and to receive more citations than other papers
- **Diversity in inputs into papers leads to greater contributions to science, as measured by impact factors and citations**

**If you want to travel fast, travel alone;
if you want to travel far, travel together**

African Proverb

**Living with Big Data
Requires International Collaboration
By working together, we can go a long way**

**Thank You
PRAGMA 26 Organizers
and PRAGMA 26 Participants**