



# PRAGMA24 Workshop

March 20-22, 2013  
Bangkok, Thailand

## Overview of PRAGMA Progress Since PRAGMA 24

2013 March 20 – 22



Kasetsart University

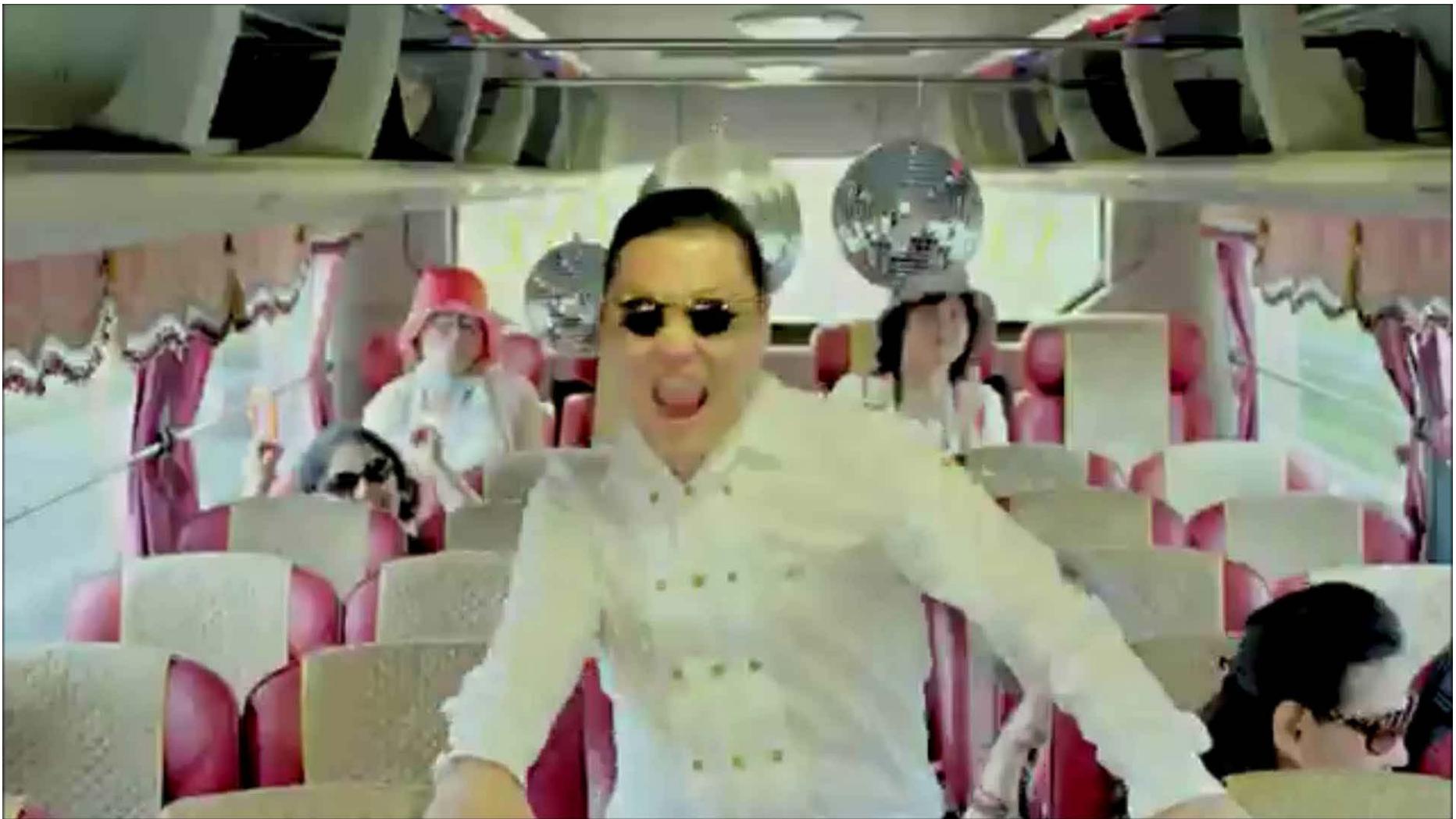
# PRAGMA 23

## Seoul Korea

### 2012 October 10 - 11



# Celebrate Gangnam Style



# PRAGMA 12

## 2007 March 20 - 22



# Before Gangnam Style



# And There is the Culture and Transportation



# Many Participants

## Welcome to All

- Total at workshops: More than 150
- New Participants
  - Thailand
  - Vietnam
  - Indonesia
  - Malaysia
  - Myanmar
  - India
- PRAGMA Diplomats

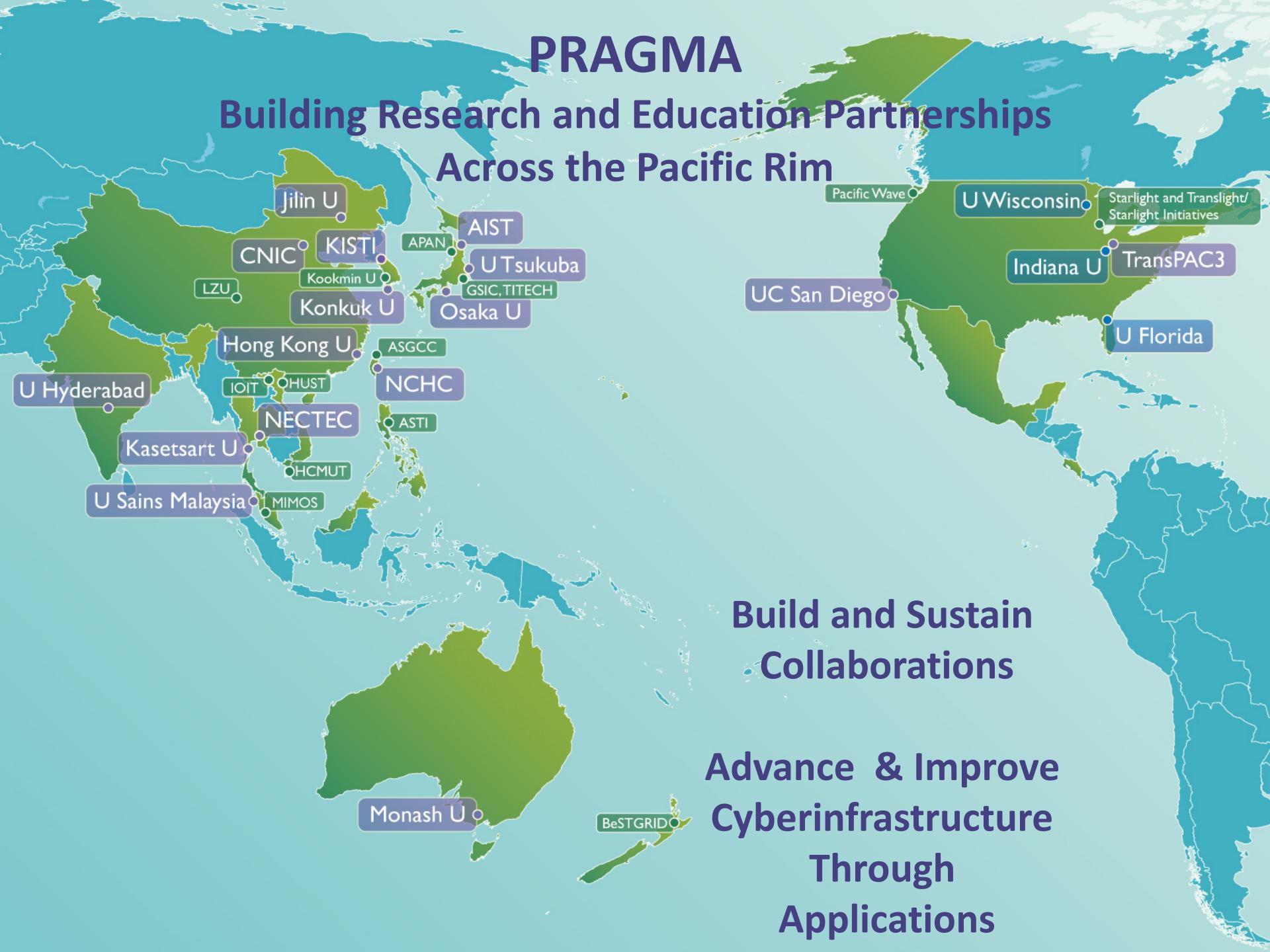
Participate

# Exciting Week

- Cloud Computing and Software Defined Network: Wednesday
  - More than 120 participants
- Student Workshop: Wednesday
  - More than 50 participants
- Earth and Biodiversity Observing Workshop: Saturday and Sunday
  - More than 80 participants

# PRAGMA

## Building Research and Education Partnerships Across the Pacific Rim

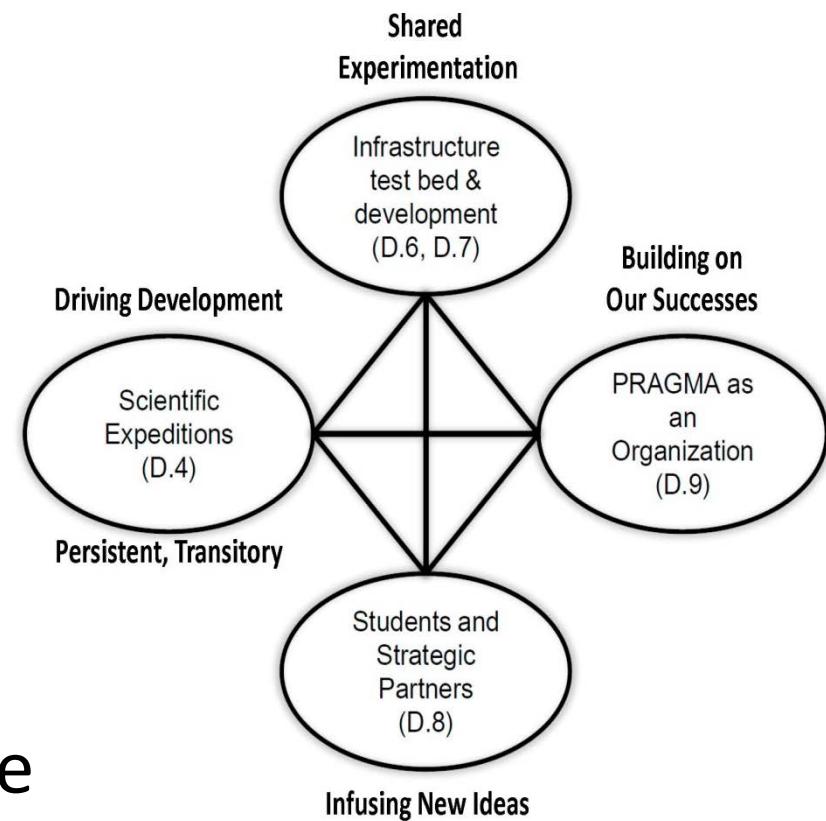


Build and Sustain  
Collaborations

Advance & Improve  
Cyberinfrastructure  
Through  
Applications

# PRAGMA's Overarching Themes to Enable Team Science

- Construct international scientific expeditions
- Develop and improve a grassroots, international cyberinfrastructure
- Infuse new ideas through students and strategic partners
- Build and enhance the essential people-to-people trust fabric



# Scientific Expeditions (Persistent)

- Understanding adaptation in extreme environments
  - Tested workflow from data discovery to predicting habitat
  - Virtualizing infrastructure
  - Data publication service
  - Testing SDN
  - U FL, IU, U Kansas, UTM,
- Predicting impact of eutrophication on lake ecosystem services
  - Planning: Virtual resources for simulation, capture data provenance
  - Partnership with GLEON
  - Initially: U Wisc, IU, UF
- Addressing infectious disease through computer aided drug discovery
  - Outreach
  - Driving Infrastructure



# Grass-roots International CI

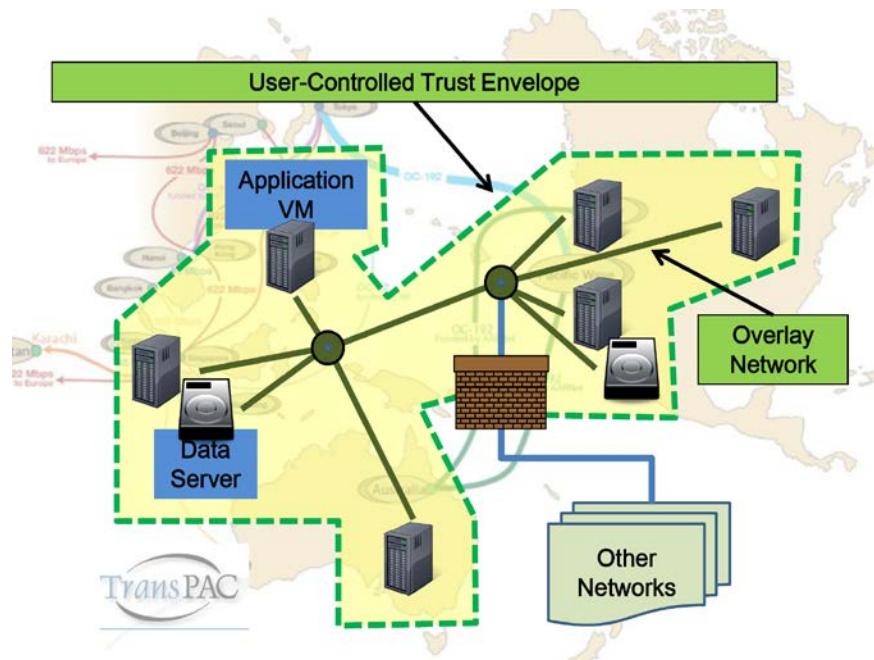
## Components

- VM image and cluster porting
- Software defined overlay network experiments
- Data cloud
- Observing systems

## Importance of Trust Envelop

- Traverse firewalls and *simplify network re-configuration* of application VMs
- Provide an infrastructure that initially limits access to data

## Challenge: Integration and a Plan for Trust Envelop



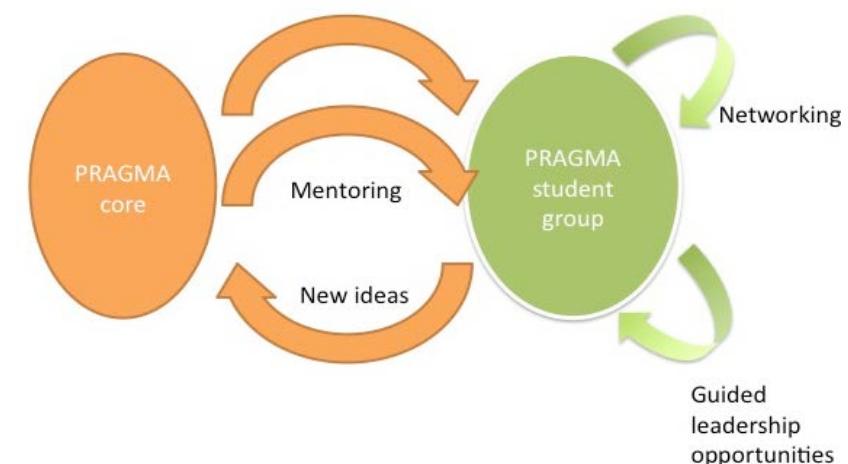
Using the Expeditions to Drive  
The Development of a  
**TRUST ENVELOPE**

# PRAGMA Students

**Developing leaders through experience and peer mentoring!**

- Provide training, mentoring, and leadership opportunities for students in PRAGMA
- Experiment with a distributed seminar series\*
- Workshop and Poster Session at PRAGMA 23: 17 posters
- Interim Steering Committee
  - Meilan Jiang (Konkuk); Taiki Tada (Osaka); Uma Pavalanathan (IU); Yuan Luo (IU)

Thanks to Advisors: Karpjoo Jeong, Shinji Shimojo, Beth Plale



# Highlights of 2011 - 2012



- Biodiversity “Expedition”
- Deployable Observing Systems
- VM & VC Migration: Phase 3
- Overlay Networks
- Data Clouds
- PRAGMA Students
- Strategic Outreach

“international-collaborative-research-diverse-inspirational-fun”

# Progress Since PRAGMA 23

# Demos – Highlight Advances Today and Tomorrow

- PRAGMA VC sharing automation design and implementation, Cindy Zheng
- Using ViNe IP overlays to establish virtual private condor pools across PRAGMA resources, Mauricio Tsugawa
- Virtualizing Lifemapper for PRAGMA: Step 2 - The Computational Tier, Aimee Stewart
- DataONE - a Distributed Infrastructure Facilitating Data Management for the Earth Sciences, Dave Vieglais
- E-Rium: a Web Portal for Publishing & Accessing Observation Data from Geographically Distributed Sources, Naiyana Sahavechaphan

# Poster Session – Reflect Trends from Participants: This Afternoon

- Organized by PRAGMA Students
- Applications
  - Disaster Recovery
  - Biodiversity
  - Environmental Observing
  - Global Change
  - Infectious Disease
- Total of 22+, half are by students
  - 16 different institutions
- Technical Areas
  - Software Defined Networks
  - Virtualization of hard
  - Data clouds
  - VM porting

# Second Student Workshop

- High Throughput, Low Latency and Reliable Remote File Access
  - Hiroki Otsuji, University of Tsukuba
- CARE Resource Broker (CRB)
  - Kannan Govindarajan, Anna University Chennai
- An Implementation of a Virtual Cluster on a Cloud
  - Pongsakorn U-chupala, Kasetsart University
- IPOP: Self-configuring IP-over-P2P Overlay-based Virtual Private Networking
  - Pierre St Juste, University of Florida
- Performance evaluation of a nested virtualization based on KVM
  - Praween Amontamavut, Takushoku University & AIST
- Instrumenting Thailand's Coastline: Cyber-Infrastructure for Environmental and Disaster Monitoring
  - Michael Nekrasov, University of California Santa Barbara
- Cloud Computing Model and Prototype Implementation of Molecular Dynamics Simulations using Amber and Gromacs
  - (Ari Wibisono), University of Indonesia
- Biodiversity Capacity Building in Malaysia using Information Technology
  - Nurul Shakina Mohd Talkah, Universiti Teknologi Malaysia

# PRAGMA Students 1<sup>st</sup> Distributed Seminar

The screenshot shows a Adobe Connect meeting interface. In the top bar, there are icons for camera, microphone, and video. The title bar says "Meeting" and "Welcome To PRAGMA Students Online Seminar.ppt". On the left, there's a "Camera and Voice" window showing two participants: Yuan Luo and Philip Papadopoulos. Below it is the "Attendee List (31)" which includes sections for Hosts (3), Presenters (2), and Participants (26). The participants listed under "Hosts" are Gabriel Zhou, Umashanthi Pavalanathan, and Yuan Luo. Under "Presenters" are Peter Arzberger and Philip Papadopoulos. Under "Participants" are Ardhui-UI, belinda, Chuan Cheng-HKU, Chun-Ho Liu, Clem, and Devarshi- IUB. A message at the bottom of the attendee list says "hear your voice clearly" and "Devarshi- IUB: yes... we can hear u". A message from "Gabriel Zhou" says "Gabriel Zhou is typing...". At the bottom, there are buttons for "Everyone", "Left", "Right", and "Bottom". The main content area displays a slide titled "What is fundamentally different about Cloud computing vs. Grid Computing". The slide content is as follows:

- Cloud computing – You **adapt the infrastructure** to your application
  - Should be less time consuming
- Grid computing – you **adapt your application** to the infrastructure
  - Generally is more time consuming
- Cloud computing has a financial model that seems to work – grid *never* had a financial model
  - The Grid “Barter” economy only valid for provider-to-provider trade. Pure consumers had no bargaining power

Dec 3~6, 2012 at NCHC, Taiwan

# Bridging Big Data Infrastructure Workshop-

Expedition on the Network Science Landscape

台美雙邊國際會議 - 2012 巨量資料基礎架構國際研討會



- Groups: Biodiversity, Ecological Observing, Disaster Mitigation
- Overarching Themes
  - Workflows
  - Training
  - Science Practice: Questions, infrastructure and technology development, training are interwoven
- Personal and Project Bridges
- Actionable Items

# Earth and Biodiversity Observing Workshop

2013 March 23 and 24

- Geospatial data increasingly important to many fields of science about the natural environment
  - These areas need better integration among various geospatial data types and resources
  - Bring together two series
    - Asia GEO Grid
    - Biodiversity in and around Southeast Asia
  - Add observing systems
- **Asia Flux/Asia Grid**
    - Science Outcomes, Technology Accomplishments and Lessons Learned by Asia GEO Grid
  - **Environmental Observing**
    - Changing Science Understanding and Modeling based on Observation Technologies
  - **Biodiversity**
    - Integrating Environmental Observing into Biodiversity Science
  - **Discussion Groups**

Foster collaborations in PRAGMA and beyond

# Steering Committee Topics

- Future of PRAGMA
  - Sustainability
    - Future Funding Model
    - Growing Future Leaders
    - Re-Branding PRAGMA
  - Creating opportunities for meetings with resulting peer reviewed publications
- Updates on Outreach Activities
  - Indonesia (mini-PRAGMA)
  - Southeast Asia (Vietnam)
  - India
  - China (follow-up on Hong Kong mini-PRAGMA)
- Business Items
  - New Member Applications
    - Thammasat University
    - University of Florida
    - Indiana University, Pervasive Technology Institute
    - University of Wisconsin, Center for Limnology
  - Future PRAGMA Workshops
  - Changes to PRAGMA's Operating Principles and Procedures
    - Reflect current practices and update terminology

# Cyber Learning Working Group

## Objectives

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

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- ❖ Development of Education open platform and education/research S/W
- ❖ Establishment of international research communities and connections to higher education
- ❖ Construction of collaboration channels amongst PRAGMA WG

## Collaborations

Other WGs  
(Resource/Tele-Science  
Bio/Geo)

## Activities

Education/Research,  
S/W development,  
CSE/HPC Education

Workshop/Seminar/Contest

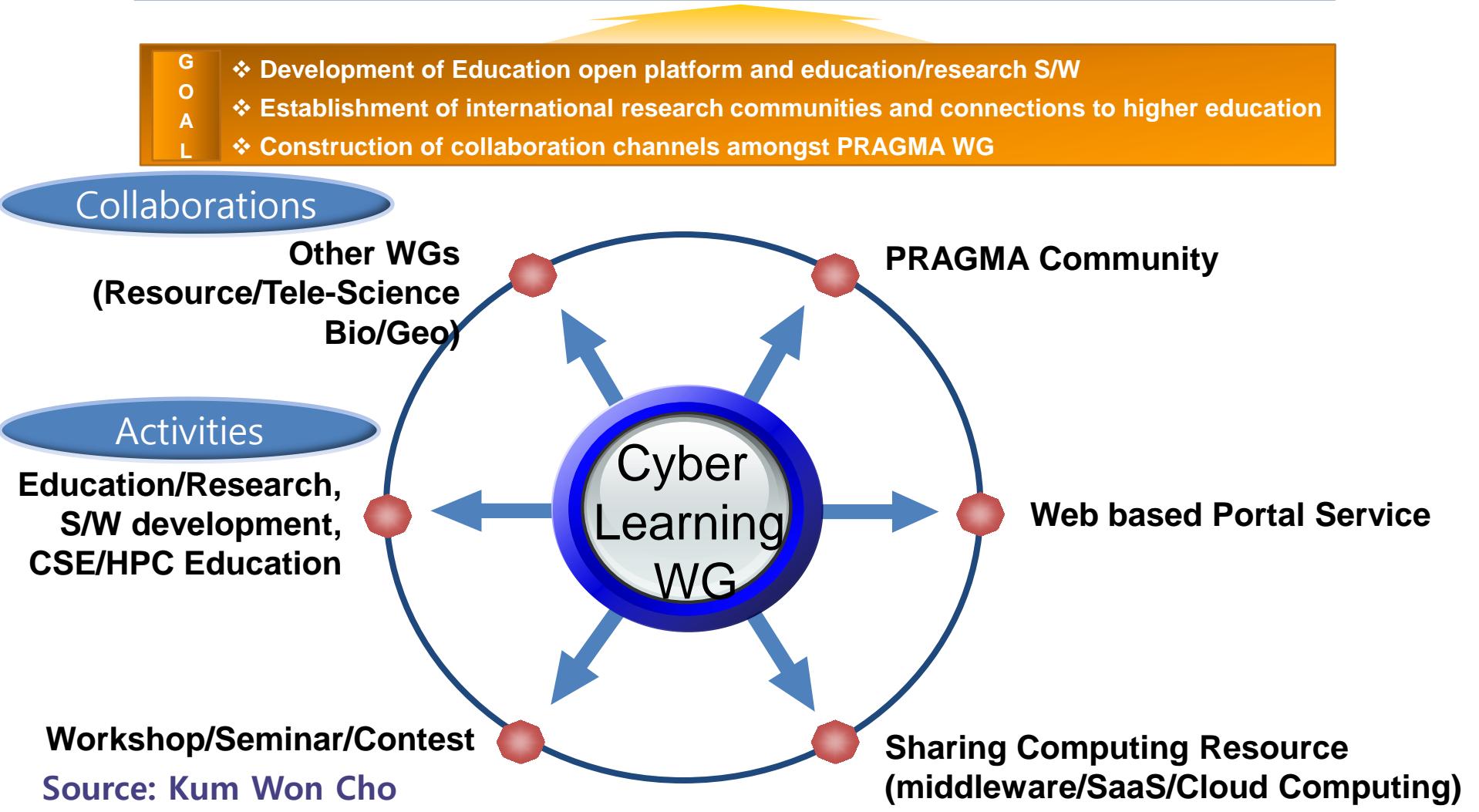
Source: Kum Won Cho

PRAGMA Community

Web based Portal Service

Cyber  
Learning  
WG

Sharing Computing Resource  
(middleware/SaaS/Cloud Computing)



# Student Panel Discussion

- Aligning graduate student research with practical experiments in PRAGMA.
- Improving PRAGMA open environment for discussing research and research related issues

# Challenge to Working Groups

- Engage students!
- Engage new participants!
- Identify new expeditions or working groups!
- Cyberlearning!
- Recovering IT systems from disruptions
- Planning for or responding to disasters
- Expanding engagement in museums
- Conducting science with our virtual images on the PRAGMA cloud

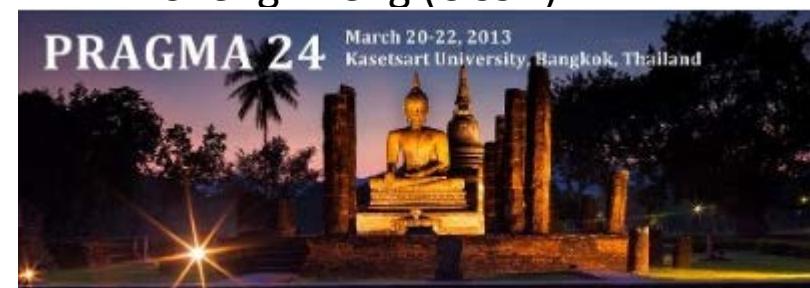
# Thank You

- Program Committee
  - Karpjoo Jeong (Konkuk University)
  - Kevin Dong (CNIC, Chair of PRAGMA25)
  - Sornthep Vannarat (NECTEC)
  - Heru Suhartanto (Indonesia)
  - Reed Beaman (University of Florida)
  - Qing Ji (Tianjin Supercomputer Center)
  - Kohei Ichikawa (NAIST)
  - Yuan Luo (Indiana University)
  - Meilan Jiang (Konkuk University)
- Demo Chair
  - Weicheng Huang (NCHC)
- Poster Chair
  - Yuan Luo (Indiana University)
- General Chairs
  - Putchong Uthayopas (KU)
  - Surasak Sa-nguanpong (KU)
- Local Organizers
  - Arnon Rungsawang(KU)
  - Anan Pholperm (KU)
  - Pirawat Wattanapongse (KU)
  - Jitti Niramitranon(KU)
  - Supaporn Erjonmanee (KU)
  - Apivadee Piyatumrong (NECTEC)



# Thank You

- PRAGMA Student Workshop
  - Yuan Luo (Indiana U)
  - Meilan Jiang (Konkuk U)
- PRAGMA Cloud Computing and Software-Defined Network
  - Jose Fortes (University of Florida)
  - Putchong Uthayopas (Kasetsart University)
  - Prapaporn Rattanatamrong (Thammasart University)
- Earth and Biodiversity Observing
  - Yoshio Tanaka (AIST)
  - Tony Fountain (UCSD)
  - Reed Beaman (U Florida)
  - Sornthep Vannarat (NECTEC)
  - Mullica Jaroensutasinee (Walaika U)
  - Kris Jaroensutasinee (Walaika U)
- PRAGMA Diplomats
  - Arun Agarwal (U Hyderabad)
  - Kum Won Cho (KISTI)
  - Kevin Dong (CNIC, CAS)
  - Jose Fortes (U Florida)
  - Weicheng Huang (NCHC)
  - Karpjoo Jeong (Konkuk U)
  - Wing Keung Kwan (HKU)
  - Fang-Pang Lin (NCHC)
  - Yuan Luo (Indiana U)
  - George McLaughlin (TransPAC2)
  - Yoshio Tanaka (AIST)
  - Whey-Fone Tsai (NCHC)
  - Putchong Uthyaopas (Kasetsart U)
  - Habibah Wahab (USM)
  - Cheng Zheng (UCSD)



# Thanks to Kasetsart University

- Wonderful venue for new partners
- Opportunity to build collaborations
- 

**Food**

# PRAGMA24

March 20-22, 2013



Kasetsart University, Bangkok, Thailand

PRAGMA 24 in Thailand



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## RECENT POSTS



**Putchong Uthayopas** was with Teri Simas and Cindy Zheng.



**Putchong Uthayopas** added photos to PRAGMA24 Day1 .



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