

# Simulation based **Cyber-Learning/Distance Education** **WG Update**

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1. Overview of CL/Distance Education WG
2. No meeting for CL/DE WG @ PRAGMA32-33
3. Ongoing Issues and Activities on CL/DE WG
4. Meetings @ PRAGMA34

## Objectives

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

## CL/DE WG

## Activities

## Goals

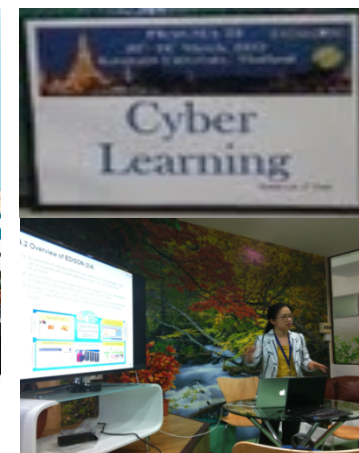
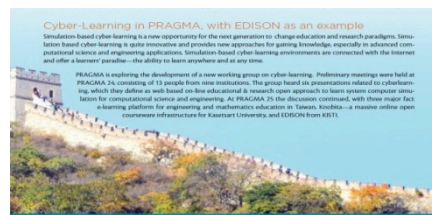
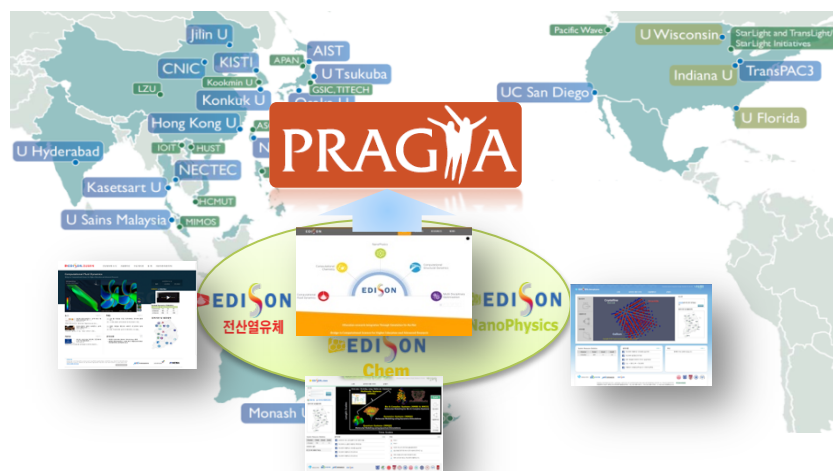
- ➔ Development and sharing of Cyber-Learning open platform and various education/research simulation S/Ws for PRAGMA
- ➔ Establishment of international cyber-learning community and connections to higher education
- ➔ Construction of collaboration channels amongst PRAGMA members and among other WGs

- ➔ Collaborating with Resource/Tele-Science/Bio/Geo Working Groups
- ➔ Co-developing and sharing of various simulation SWs and contents for Cyber-Learning/Distance Education 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

## Expanding Cyber-Learning/Distance Education Community in PRAGMA(Pacific Rim Applications and Grid Middleware Assembly)

### ❖ Establishment of PRAGMA Cyber-Learning/Distance Education WG

- Proposing Cyber-learning/Distance Education WG at the 24th PRAGMA Workshop 2013.3.20~23, Bangkok, Thailand)
- Chair(Ruth Lee), and  
Co-chair(His-Ching Lin, NCHC), and  
Co-chair(Putchong Uthayopas, KU)



- **Open EDISON portals for trial use to PRAGMA members**
  - ✓ EDISON portals: EDISON\_CFD, EDISON\_Chem & EDISON\_NanoPhysics
  
- **Hope to deploy EDISON platform on top of the PRAGMA resources and upload **simulation solvers and contents** developed by one of PRAGMA community members who are willing to share and open them.... BUT, not many request so far....**
  
- **Other things to do and continuously consider ...**
  - ✓ How to get more people interested in simulation-based CL/DE WG from PRAGMA members?
  - ✓ How to and what to collaborate and integrate with other WGs?

### Int'l Collaboration between KISTI & NCHC Since 2013

- ❖ **Mutual cooperation plan between KISTI, Korea and NCHC, Taiwan**
  - Jointly promote and apply simulation SWs for the purpose of education and research
  - Identify research issues in the CFD and Nanophysics sectors and promote joint research
  - Share latest research results to save development cost
  - Expand mutual system users to cultivate cyber-learning communities
  - Share computing resources, information, experience and ideas for the simulation-based cyber learning
  - Held Joint Workshop between NARLab and KNSF at Sejong City on April 17-18, 2018

National Center for  
High-performance Computing

**NAR Labs**  
National Applied Research Laboratories

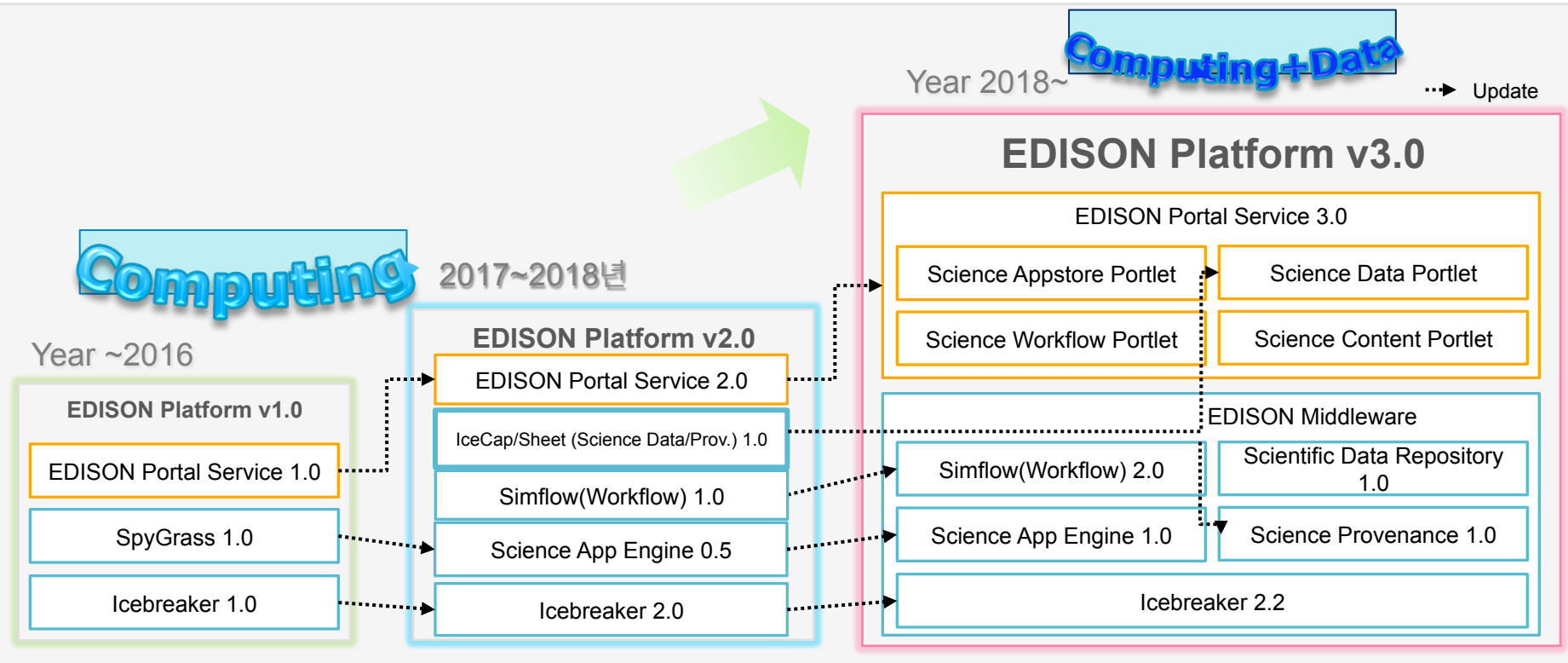


**Supercomputing Center**  
The center of National Science &  
Technology Information Infrastructure

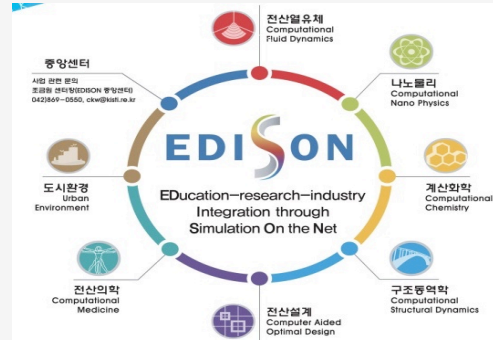
**KiSTi**  
www.kisti.re.kr

Korea Institute of  
Science and Technology Information

## 2.2 Ongoing Activities by KISTI (1/3)



### Release of Cloud based Image & Portlet based Liferay Marketplace



EDISON Site



Github Page



Liferay Marketplace

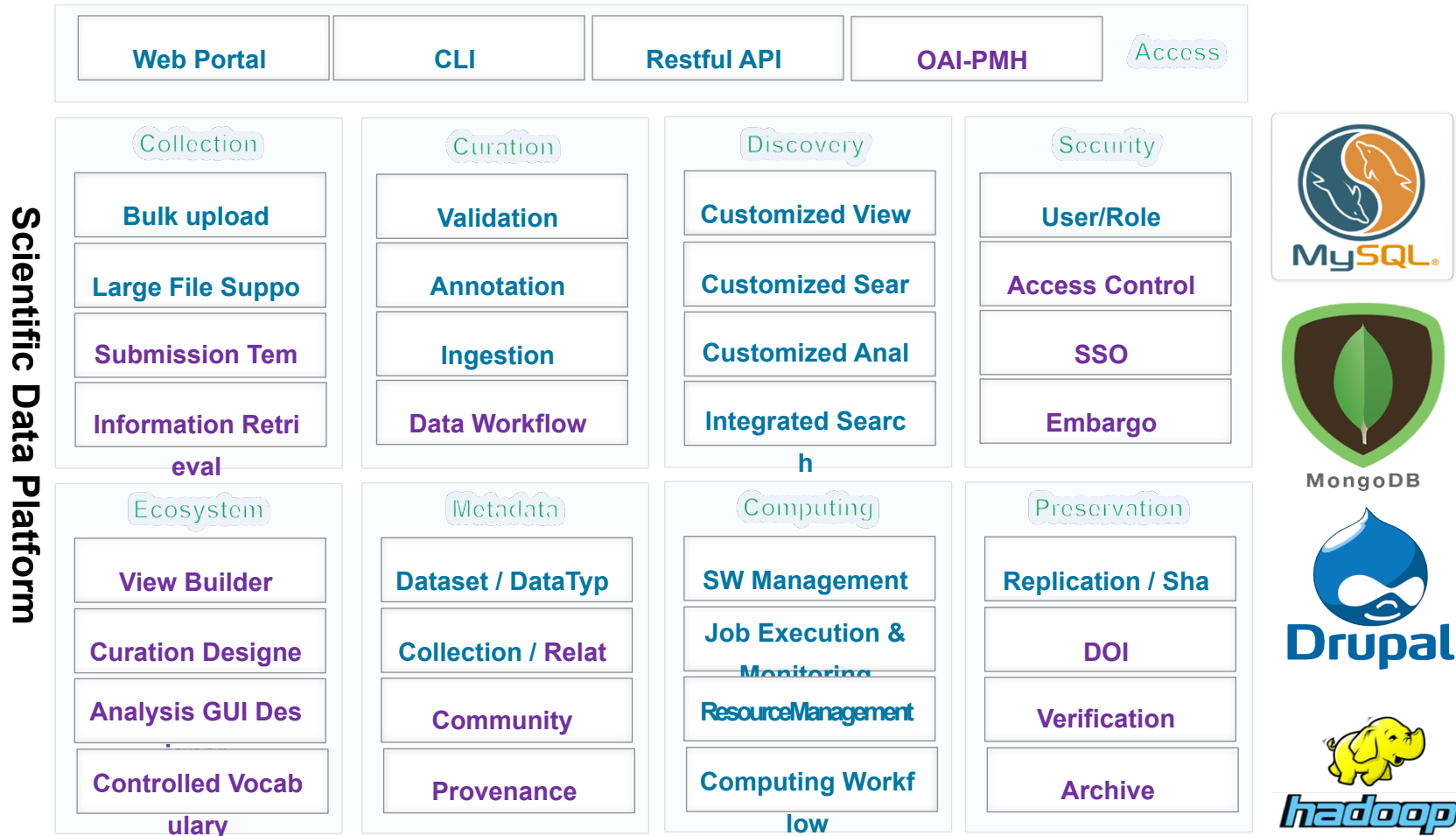


Cloud based Image



## 2.2 Ongoing Activities by KISTI (2/3)

- **Data-driven simulation service for EDISON**
  - For reducing repetitive simulation executions

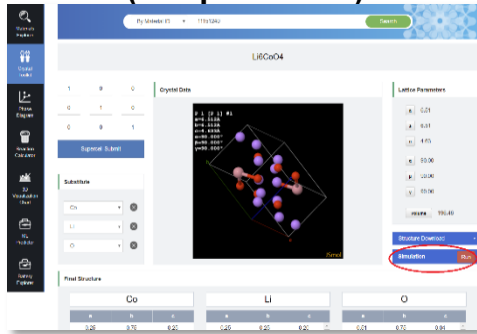




## 2.2 Ongoing Activities by KISTI (3/3)

### Platform for Material Data Discovery

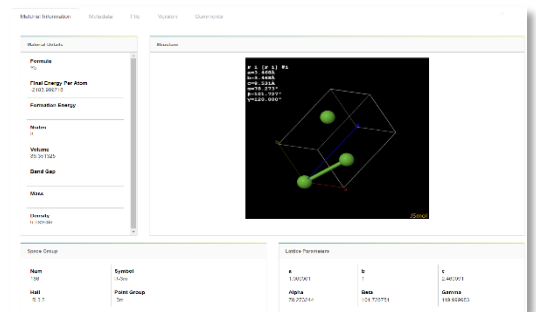
#### Editor for Material Architecture (Pre-processor)



#### Execution for the First-Principles

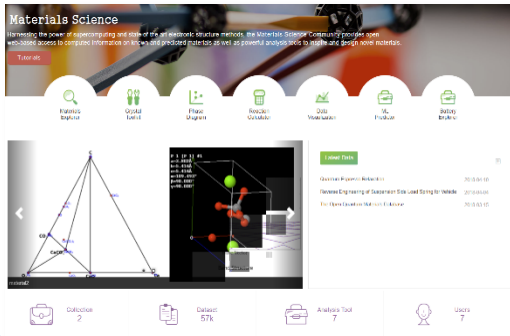
Title	Status	Action	Result		
			Download	Store & Share	View
QE Test 1	FAILED	<a href="#">cancel</a> <a href="#">delete</a>	<a href="#">down</a>	<a href="#">save</a>	<a href="#">view</a>
Test 3	SUCCESS	<a href="#">cancel</a> <a href="#">delete</a>	<a href="#">down</a>	<a href="#">save</a>	<a href="#">view</a>
Test 2	FAILED	<a href="#">cancel</a> <a href="#">delete</a>	<a href="#">down</a>	<a href="#">save</a>	<a href="#">view</a>
test it	SUCCESS	<a href="#">cancel</a> <a href="#">delete</a>	<a href="#">down</a>	<a href="#">save</a>	<a href="#">view</a>

#### Checking the Simulation Results (Post-Processing)



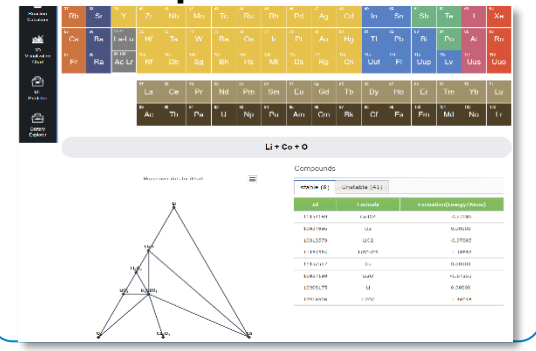
< Simulation Execution Flow for Calculating the First-Principles using Material Architecture Editor >

#### Data Management of the First-Principles Calculation



#### Data Retrieval of the First-Principles Calculation

#### Data Analytics the First-Principles Calculation



< Data Life-cycle Management and Utilization Flow of the First-Principles Calculation >

\* <https://www.edison.re.kr/web/sdr>

#### ➤ **Initiating by sharing Distance Learning Materials such as video tutorials**

- ✓ Share expertise among PRAGMA members — e.g., how to deploy a virtual machine (VM) via Rocks, OpenNebula, Ezilla, etc.
- ✓ Could be shared outside of PRAGMA — e.g., Beth integrated existing online videos as part of her Big Data MOOC class in 2015
- ✓ PRAGMA content can often be ephemeral — this would be a good way to hold onto knowledge
- ✓ MOOCs? Beth taught a Big Data class

#### ➤ **Automating installation to expand usage of EDISON software**

- ✓ What functionality does EDISON provide? Can we automate its installation — e.g., similar to Lifemapper installation automation work
- ✓ This could help increase interactions with other PRAGMA WGs — e.g., to create their own EDISON portals (e.g., nanophysics)

- **Online guidelines — seasoned developers helping less experienced developers**
  - ✓ Idea from Kar Long Chan (NAIST)
  - ✓ Inspired by gaming (e.g., warcraft)
- **Streamline access to resources for student experimentation**
  - ✓ Heru's students previously used FutureGrid and XSEDE
  - ✓ PRAGMA testbed should be a low-cost way to students to get access to resources for small-scale experimentation
- **Call for simulation solvers and education contents such as tutorials developed by one of PRAGMA community members who are willing to share and open them**
- **Other things to do and seriously consider ...**
  - ✓ How to get more people attend to CL/DE WG from PRAGMA members?
    - Possibly combining related WGs such as Resource WG, BioScience WG and CL/DE WG, and etc
  - ✓ How to and what to collaborate and integrate with other WGs?

## 4. Meetings for CL/DE WG@PRAGMA34

### ➤ Breakout Session I : 13:00~15:00, May 10(Thur), 2018 @ **Room 5G**

- ✓ EDISON Platform v3.0 Beta Demo
- ✓ Discussions for exchanging ideas, status, best practices and etc
- ✓ **Open for any presentations on CL/DE**

### ➤ Breakout Session II : 14:30~16:00, May 11(Fri), 2018 @ **Room 5G**

- ✓ Discussions for future action and collaboration items among participants

**Open for everyone.**  
**Please come & join**  
**Cyber-Learning/Distance Education WG!!!**

# Thank You!

*Always take good care of your health first!!!*